

DEFENCE AND DIPLOMACY

IN PURSUIT OF NATIONAL SECURITY

VOL. 3 NO. 4 • JULY-SEPTEMBER 2014

SPECIAL ISSUE ON CHINA



DEFENCE AND DIPLOMACY

CENTRE FOR AIR POWER STUDIES

New Delhi

DEFENCE AND DIPLOMACY is published quarterly by the Forum for National Security Studies for Centre for Air Power Studies, New Delhi.

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DEFENCE AND DIPLOMACY Journal is published four times a year and is distributed by

KW Publishers Pvt. Ltd.

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

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

Printed and Published by Air Marshal Vinod Patney (Retd) on behalf of the Forum for National Security Studies (the Trust running the Centre for Air Power Studies, New Delhi) and Printed by Nutech Photolithographers, B-240, Okhla Industrial Area, Phase-I, New Delhi 110020 and Published at P-284, Arjan Path, Subroto Park, New Delhi 110 010. Editor: Air Marshal Vinod Patney (Retd).

Subscription Rates

India	₹ 225.00 (single issue)	₹ 800.00 (4 issues)
Overseas	US\$ 35.00 (single issue)	US\$ 130.00 (4 issues)

RNI NO. DELENG/2012/41043

ISSN 2347 - 3703

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EDITOR'S NOTE

This issue of the journal is devoted to the study of China in its varied dimensions. As this journal goes to print, the much awaited visit of China's President Mr Xi Jinping has concluded. No really momentous decisions were taken but the need for friendly relations and cooperation in a number of fields was stressed. Notably, the border issue continued to defy resolution. In fact, as it has now become customary to coincide with every important visit, there were Chinese incursions into our side of the Line of Actual Control. The significance of such studiously timed incursions is difficult to fathom but they do occur with near unflinching regularity.

The articles in this journal were written well before the aforementioned visit, but the import of what has been written remains unchanged. The articles cover many diverse fields and a full reading of the journal should give a good understanding about China, although the enigma that is China cannot be fully grasped.

In a relatively detailed article, *Srikant Kondapalli* discusses the modernisation of the Chinese military. The inescapable conclusion is that China's military modernisation is along well accepted and militarily sound principles and doctrines. In another article, *Gp Capt Chhatwal* discusses in greater detail the modernisation of the People's Liberation Army Air Force (PLAAF).

The Chinese economic miracle demands continued study and analysis. It was the USA that built up China during the Cold War years and supported, in considerable measure, China's economic rise. *Mohan Guruswamy*, in a well-reasoned analytical article, discusses the Chinese economy vis-a-vis India and the demographic advantages that accrue to India if they can be effectively grasped. The India-China rivalry is inevitable and we should be prepared for it. *Shreya Kakarla* examines the India-China trade relations over the last five years. The trade gap is huge. What is worse and well known is that we export mainly raw materials to, and import from, China, manufactured goods. The value additions increase the trade imbalance. She also argues that there are many countries that are willing to export the raw materials to China and the trade gap could increase. Will lower trade volumes imply lowered cooperation in other spheres? A faint encouraging sign is that President Jinping did say that China would be happy to accept imports of some finished goods from India.

China's brinksmanship in the South China Sea is discussed by *Sana Hashmi*. The subject is of continued relevance and it is argued that the Chinese aggressive posturing is to counter the rebalance to Asia strategy of the USA. At the same time, it is often assumed that the US' power is waning whilst that of China is increasing and this could result in some realignments. The situation demands continued attention.

China's need for energy is increasing rapidly and *Dr Manpreet Sethi* discusses China's plans for nuclear energy. In spite of the Fukushima tragedy, China's quest for nuclear power remains undiminished. Faced with serious environmental concerns, China is giving a boost to clean energy, with 28 nuclear reactors under construction. China has also developed its own design of reactors and this should make it easier for it to accelerate the building of nuclear reactors.

In an informative article, *Dr Shalini Chawla* examines the challenges posed to India by the evergreen China-Pakistan nexus. China's support to Pakistan is indeed strategic and encompasses, *inter alia*, nuclear weapons, missiles, conventional arms, etc. It has to be recognised by India that such support is likely to continue even when India-China relations improve.

The importance of Tibet in India's national security calculus can never be overestimated. There are border issues and the impact of infrastructure developments in Tibet. *Tseyang Lhamo* argues that the India-China border dispute is actually an India-Tibet border issue.

China's capabilities in the cyber sphere and advances made by it in cyber warfare techniques are well known. *Dilip Raj* states that China has in place an efficient organisation for censorship of the internet with some two million 'internet opinion analysts' to monitor public opinion. Again, it is generally believed that even after the much derided shooting down of a satellite in 2007, China has continued with developing Anti-Satellite (ASAT) capabilities. *Wg Cdr Patil* examines China's activities in this field.

The last two articles are by *Ankit Kumar* and *Kriti Singh*: the former deals with China's peripheral diplomacy and the latter examines China's media landscape.

The issue provides a rich landscape on China and should interest our readers.



Happy reading.

TRANSFORMING CHINA'S MILITARY: MODERNISATION ASPECTS

SRIKANTH KONDAPALLI

...our armed forces' overall informatization standard is not high, the quantity and operational scale of informatized weaponry and equipment are limited, and the development status in this regard is unbalanced.¹

RECENT DYNAMICS

In the last few years, China has been making concerted efforts at formulating and implementing a comprehensive strategy aimed at a successful power transition at the global and regional levels. In conjunction with its status as the second largest economy in the world and the largest trading partner with many an advanced country, China has recently been implementing a strategy of comprehensive military transformation to aid its leadership ambitions. Learning from the United States armed forces' experiences in Iraq, Kosovo and Afghanistan, China has been implementing a strategy of "system of systems" transformation of its armed forces. This effort, with mixed results, is leading to spirals of tension in the region. This paper looks

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1. "Bravely Scaling New Heights for Informatization", *Jiefangjun Bao Online*, May 21, 2012, **NewsEdge Document Number:** 201205211477.1_b834022927d6234c. Accession Number 335750243.

at the broad transformation being attempted in the recent period by China in the military domain, with preparations for transforming the People's Liberation Army (PLA) into a "system of systems," and the effectiveness of such plans through the most concrete practice in any armed force, viz., the military exercises.

To enhance the outreach of the PLA, a number of measures were initiated in the recent period. By April 2013, China issued eight White Papers on national defence.² In addition, since 2007, the position of a spokesman had been instituted in the Ministry of National Defence (MND).³ On August 1, 2011, the MND launched its website, and regular news briefings were conducted.⁴ Since 1998, every alternate year, without fail, the China International Exhibition of the National Defence Electronics has been conducted. In 2012, the eighth such exhibition was held with the theme of utilising civilian technologies for military purposes.⁵ Also, every alternate year, China has been conducting an air exhibition at Zhuhai. In the last two events, China's aviation products have been increasingly exhibited, indicating the emerging confidence in this sector.

The country's overall strategic nature was highlighted in February 2012 by Gen Ma Xiaotian, the then PLA deputy chief of general staff and chairman of the China Institute of International Strategic Studies, when, during the annual meeting of the institute, he suggested that while "complicated and profound changes" are occurring around China's periphery, China should follow the policy of "insisting on 'concealing one's ability and biding one's time and proactively accomplish something', so as to create a more favorable security environment

2. These were issued by the Information Office of the State Council, in conjunction with the Central Military Commission, indicating propaganda value rather than enhancing transparency. The fact that several aspects, including the number of troops service and sector-wise, defence spending, again sector-wise, etc are hardly found in these White Papers, indicates this point.
3. Chen Zhou, "The Institutionalization of Military Transparency Achieves Remarkable Results", *Jiefangjun Bao Online*, June 11, 2012, **NewsEdge Document Number:** 201206111477.1_30a60177e78763c1. Accession Number 336800741.
4. Zhang Feng, "Chinese Military's Increased Transparency: From Perspective of Establishment of Ministry of Defense Website" December 27, 2011 *Jiefangjun Bao Online*, February 1, 2012, **NewsEdge Document Number:** 201202011477.1_372606b6f9e9efe8. Accession Number 330300148.
5. "8th PRC Defense Electronics International Exhibition", *Jiefangjun Bao Online*, May 15, 2012, **NewsEdge Document Number:** 201205151477.1_ef1e02453859e9cd. Accession Number 335450528.

during the important strategic opportunity period".⁶ The PLA forces should be prepared for diversified contingencies – ranging from military operations other than war to waging successfully informationised warfare in different theatres.⁷ The PLA writers also note with caution the United States' advances in West Asia through support to the popular uprisings and regime changes in Egypt, Libya and such attempts in Syria. US hi-tech efforts in counter-terrorism in Afghanistan are cited. They also note the US' "rebalancing" effort to deploy nearly 60 percent of the forces to the Asia-Pacific.⁸ These have been the dominant perspectives in the PLA on the overall situation.

Internally, the PLA has been transforming its muscular mechanism in the last decade in its strategic orientation, organisational and operational capabilities, human resources, training, logistics support, and the like. For instance, in 2003 the Central Military Commission (CMC), shifting from "local war under hi-tech conditions" of the 1990s, proposed the strategic objective of "building informatized forces, winning informatized warfare". In the same year, the CMC proposed the introduction of a "Program for the Military Human Resources Strategic Project" which emphasised on University and doctoral degrees for recruitment in the armed forces. Subsequently, in late 2005, the PLA reduced the number of troops by 200,000 in 2003, including 170,000 officers. The command organs were also streamlined and the logistics support systems contracted.⁹ In June

6. China's leader Deng Xiaoping stated in the 1980s that China should follow a policy of "concealing one's capabilities and biding for time" [*taoguang yanghui*]. However, the tag "*yousuo suowei*" (accomplish something) proactively has been resurfacing only recently in the political discourse of the Chinese leaders – with wider strategic consequences. See Ma Hao-liang, "Beijing Experts: Calmly Deal With Complicated Changes in Peripheral Areas" *Ta Kung Pao Online*, February 27, 2012, **NewsEdge Document Number:** 201202271477.1_6c7f0419490c29dc. Accession Number 331601871.
7. Zhao Liang and Yao Wanren, "Be Pragmatic in War Preparedness", October 7, 2011 *Jiefangjun Bao Online*, October 18, 2011 **NewsEdge Document Number:** 201110181477.1_d2210204415cf4fd. Accession Number 325000139.
8. Chen Zhou (major general and director of the National Defence Policy Research Centre of the Chinese Academy of Military Science) and Tang Yongsheng (professor of the Institute of Strategic Research, of the PLA National Defence University) cited at "Viewpoint", *Renmin Ribao Online*, February 21, 2012, **NewsEdge Document Number:** 201202211477.1_a9370685c7a4416f. Accession Number 331300467.
9. Xu Zhuangzhi, "Combat Power Leaps Through Transformation -- Part 1 of Roundups on Achievements in National Defense and Armed Forces Building", *Xinhua Domestic Service*, June 13, 2012, **NewsEdge Document Number:** 201206131477.1_cdc9036c11f5ed13. Accession Number 336901137.

2006, at the all-PLA military training conference, President Hu Jintao insisted that the PLA training henceforth should transit from mechanised to informationised scenarios. In order to realise this goal, the "Opinion on Deeply Promoting the Transformation of Military Training" was adopted by the PLA. In 2007, the CMC proposed an "Outline for Building Modern Logistics in an All-round Way". In June 2012, the CMC issued an "Outline of the Program of Education Reform and Development in Military Academies by 2020".¹⁰

Flowing from the above transformation are the steps further initiated by the PLA top brass in the last one year. The General Staff Department (GSD) of the PLA established a Strategic Planning Department in November 2011¹¹ and reorganised the Military Training Department and the Communications Department into the Informatisation Department in July 2011.¹² Several PLA schools and training centres were integrated in 2011 (from 27, they were integrated into 14). For instance, the Radar Academy was reorganised into the Early Warning Academy, and the Guilin Academy was reorganised into the Academy of Air-borne Paratrooper Forces. Seven flight schools and six aviation force training bases were integrated into four training organisations at the corps level; the air force command posts in Urumqi, Dalian, Wuhan, Nanning and Fuzhou have been

10. The work guideline of this Outline emphasises on "priority development, coordinated development, pivotal development, content development, open development". Liu Fengan, Yang Xuguang, "Central Military Commission Promulgates the 'Outline of the Program of Education Reform and Development in Military Academies by 2020', *Xinhua Domestic Service*, June 4, 2012, **NewsEdge Document Number:** 201206041477.1_430d006573c5ca27. Accession Number 336451589.

11. According to Gen Luo Yuan, this department "will study strategic operations from a macro and forward-looking perspective" and "research on major strategic issues, internal military coordination and planning, such as coordinating the solving of issues involving multiple General Departments and multiple fields, as well as coordination and planning involving party and government departments," See Zhuang Gong, "PLA Major General Luo Yuan on new Strategic Planning Department" *Zhongguo Tongxun She*, December 25, 2011, **NewsEdge Document Number:** 201112251477.1_361503d6331515dd. Accession Number 328400399.

12. According to Li Xiaoning, a Beijing-based PLA expert, the training department is to "better focus on military operations, planning, training, and mobilization." Li cited by Chia Lei, "PLA Revamps Training Department To Better Reflect Defense Concept" *Ta Kung Pao Online*, December 29, 2011, **NewsEdge Document Number:** 201112291477.1_a8f8032721538269. Accession Number 328600114.

upgraded to organisations at the deputy corps level.¹³

The reshuffle of personnel in the PLA is also significant. In late 2010, nearly 30 new assignments were made at the Military Region (MR) level and above, and most officers promoted during this time were born in the 1960s. These include in the army:

- Wei Fenghe, chief of staff of the Second Artillery, was promoted to deputy chief of the GSD. In the run up to the 18th Party Congress in October 2012, he was made the commander of the Second Artillery and a member of the Central Military Commission.
- Liu Guozhi, commander of a nuclear test base, was promoted to deputy director of the General Armament Department (GAD).
- Liu Yuan (son of Liu Shaoqi), the political commissar of the Academy of Military Science (AMS), was transferred to become the political commissar of the General Logistics Department (GLD).
- Sun Sijing, deputy political commissar of the GLD, was promoted to political commissar of the AMS.
- Liu Xiaorong (son of the revolutionary Liu Peishan), the deputy political commissar of the Lanzhou MR, was transferred to the post of deputy political commissar of the GLD.
- Chu Yimin, director of the Nanjing MR Political Department, was promoted to political commissar of the Shenyang MR.
- Wang Xiaojun, director of the Guangzhou MR Joint Logistics Department, was promoted to deputy commander of the Shenyang MR.
- Zhang Guodong, director of the Lanzhou MR Political Department, was transferred to the post of deputy political commissar of the same MR.
- Wang Changhe, political commissar of the Armed Police Forest Contingent, was promoted as deputy political commissar of the Armed Police Headquarters.
- Wu Gang, political commissar of the 38th Group Army, was promoted as deputy political commissar of the Nanjing MR.
- Qin Weijiang (son of former Defence Minister Qin Jiwei), commander of the 27th Group Army, was promoted as deputy commander of the Nanjing MR.

13. Ni Erh-yen, "PLA Quietly Advances Reforms in Organizations and Structures" *Wen Wei Po Online*, January 17, 2012, **NewsEdge Document Number:** 201201171477.1_46eb0464ca31a561. Accession Number 329551733.

Changes in the navy include the following:

- Su Shiliang, Chief of staff of the navy, was transferred to be made deputy commander of the navy.
- Du Jingchen, commander of the East Sea Fleet, was transferred to be appointed Chief of staff of the navy.
- Jiang Weilie, director of the Navy Armament Department, was promoted to be appointed deputy commander of the Guangzhou MR and concurrently commander of the South Sea Fleet.

As for the Second Artillery,

- Wu Guohua, director of the Technical Reconnaissance Department of the GSD, was promoted to become deputy commander of the Second Artillery.
- Lu Fuen, commander of the Second Artillery Base 55, was promoted to become Chief of staff of the Second Artillery.

In the air force, the following personnel changes were made:

- Jiang Jianzeng, deputy commander of the Nanjing MR and concurrently commander of the Nanjing Military Region Air Force (MRAF) was transferred to the post of deputy commander of the Beijing MR and concurrently commander of the Beijing MRAF.
- Kong Yiguang, Deputy Chief of staff of the Air Force, filled the post of Nanjing MR and MRAF commander.
- Zhang Jianping, Deputy Chief of staff of the air force, was promoted to become deputy commander of the Jinan MR and MRAF commander¹⁴

In August 2011, Wang Hongyao, deputy political commissar of the Shenyang MR was promoted to political commissar of the General Armaments Department; Cai Yingting, the Chief of staff of the Nanjing MR was promoted as 6th deputy chief of the General Staff Department; Wu Changde, the head of the Political Department of the Chengdu MR was promoted to deputy director of the General

14. This is based on Ma Haoliang, "Another Round of Personnel Reshuffles Unfolded Among PLA High-ranking Officers, With First 'Post-1960 Generation' Member Emerging," *Ta Kung Pao Online*, January 3, 2011, **NewsEdge Document Number:** 201101031477.1_da680330b518de2a. Accession Number 310601053.

Political Department; Zhang Yulin, the President of the National Defence University of Science and Technology was transferred to the post of Deputy Director of the General Armaments Department, etc.¹⁵ At the 18th Party Congress, the new CMC included Xi Jinping as Chairman, Fan Chanlong and Xu Qilian as Vice Chairmen and the rest as members, including Defence Minister Chang Wanquan; Chief of General Staff Fang Fenghui; General Political Department Director Zhang Yang; General Logistics Department Director Zhao Keshi; General Armaments Department Director Zhang Youxia; Naval Forces Chief Wu Shengli; Air Force Chief Ma Xiaotian; Second Artillery Chief Wei Fenghe.

MODERNISING TRENDS

The central thrust of the PLA reorganisation in the recent period, and specifically in the last two years had been a complete overhaul and transformation of the defence sector in China. The *Liberation Army Daily* and other PLA publications have extensively highlighted the trend of the Revolution in Military Affairs (RMA) sweeping the advanced forces in the world. Recent military operational trends in Iraq, Kosovo and Afghanistan have been analysed carefully for the transformative nature of warfare. These lessons are crucial for a rising country like China which has now set its sights on the power transition at the global levels. In the current decade from 2010-20, it is estimated that the PLA will focus on acquiring the following platforms: “satellites and reconnaissance drones; thousands of surface-to-surface and anti-ship missiles; more than 60 stealthy conventional submarines and at least six nuclear attack submarines; stealthy manned and unmanned combat aircraft; and space and cyber warfare capabilities”.¹⁶ Yet the most important challenge for the PLA appears to be more in the transformation of the quality of its personnel who can undertake RMA tasks. In order to fight and win a local war under informationised conditions, the PLA reportedly initiated

15. This is based on Ni Erh-yen, “Military Forces are to Be Used for the Maintenance of Peace and Order: New Characteristics Following the PLA General Departments Leadership Reshuffle,” *Wen Wei Po Online*, August 4, 2011, **NewsEdge Document Number:** 201108041477.1_8231073bb4e4ffe8. Accession Number 321251263.

16. For this estimate of the Centre for Strategic and Budgetary Assessments, see “China’s Military Rise: A Rare Look Inside the World’s Biggest Military Expansion”, *The Economist*, April 6, 2012, accessed at <<http://www.csbaonline.org/2012/04/06/chinas-military-rise-a-rare-look-inside-the-worlds-biggest-military-expansion/>>

the “short, sharp war” concept recently.¹⁷

Apart from the periodic guidelines issues by the General Staff Department and the Central Military Commission (CMC) on the strategic modernisation of the PLA, other circulars are also important. For instance, the current 12th Five-Year Plan directives to the PLA include the following subjects:

- deeply advancing the reform of military training;
- solidly improving military struggle preparations;
- strengthening military informatisation;
- vigorously cultivating high-calibre new-type military personnel;
- speeding up the development of armament development and on the issues concerning the reforming national education; and
- training in foreign militaries.¹⁸

The above guidelines are essentially intended to transform the PLA forces from mechanisation towards information-based platform capabilities, and place China in an advantageous position in the global power transition phase – in realising “strategic opportunities”. For this effort, the military training is to be transformed by raising information-system based “system of systems” [*tixi zuozhan*] operational capabilities.¹⁹ This transformation would be able to generate a new type of integrated combat power.²⁰ In this effort, the technological gap with the advanced countries/forces could be

17. See Bill Gertz, “China Ready for ‘Short, Sharp’ War with Japan”, *The Washington Times*, February 19, 2014, accessed at < <http://www.washingtontimes.com/news/2014/feb/19/inside-the-ring-china-ready-for-short-sharp-war-/?page=all#pagebreak> >

18. This is based on Liu Fengnan, “With the Approval of Chairman Hu and the Central Military Commission, the All-PLA Concentrated Training Session on Reforming Training in Combat Units and Education in Military Academies Is Held at the National Defense University”, *Jiefangjun Bao Online*, May 23, 2012, **NewsEdge Document Number:** 201205231477.1_c94e043643eb86c7. Accession Number 335851267.

19. For transforming the training methods, the PLA revived and publicised the “Guo Xingfu teaching methods” of the 1960s. Such methods taught to troops during the transition period from war to peace-time, essentially include “with a focus on battle, training soldiers vigorously.” See Hu Wei and Zhou Lin, “New-Generation ‘Guo Xingfu’ Head up Informatized Training - Officers at All Levels of a Certain Nanjing Military Region Brigade are All ‘Guo Xingfu-Style’ Instructors”, *Jiefangjun Bao Online*, September 8, 2011, **NewsEdge Document Number:** 201109081477.1_a23d03ad7ca39e75. Accession Number 323001354.

20. Wang Meiquan, “From Endowing Capabilities With Information To Increasing Capabilities With ‘System of Systems’ - Intermittent Thoughts on Reform of Military Training”, August 11, 2011, *Jiefangjun Bao Online*, December 17, 2011, **NewsEdge Document Number:** 201112171477.1_d762021929e012b9. Accession Number 328000157.

bridged as China is rising and its strategic industries and sectors have been graduating to a higher technological prowess in the recent period.²¹ With different generations of military equipment in the inventory, export controls on technological upgradation, lack of battlefield experience since the 1979 War with Vietnam, and low level of Information Technology (IT) applications, the PLA forces appear to be straddled with many a hurdle in this transformation towards informationisation. Yet, the changes introduced in the recent period in China are unmistakable and point to the direction in which the PLA is moving.

Several Chinese military observers had reflected on the problems and prospects in such transformation of the PLA. According to Ren Decai, the overall operational capabilities are “a general description of the overall nature of operations in different eras of wars”, while the “system of systems” operational capability is “an innovative explanation about an overall operational capability that has the characteristics of the informatization era.” The “system of systems” is the “mechanism of combat power generation in the 21st century” as it “is a basic model for generating overall operational capabilities under informatized conditions”.²² According to Tang Fei, an information system-based operational command refers to,

...the activity of devising strategies, planning, coordinating, and controlling the operations of services and branches in a certain region, air space, or sea area that occurs between commanding officers and commanding organs with the help of command information systems.

Further, if the operational command has to work efficiently, flow of information, combat power, distributed interactions,

21. Zhang Qing, “Searching for Tomorrow’s Track and Looking Into Distance From High Place for Dawn of Day After Tomorrow - Tentative Analysis and Selection of ‘Roadmap’ for Developing New-Type Combat Forces”, August 11, 2011, *Jiefangjun Bao Online*, December 17, 2011, **NewsEdge Document Number:** 201112171477.1_24a507c129a5be70 Accession Number 328000108. Zhang argued here that the PLA should shift its focus from “tasks-based” to “threat-based”, and from “who to fight” and “where to fight”, to “what battles to fight” and “how to fight the battles”.

22. Ren Decai, “Gossips on ‘Three Kinds of Operational Capabilities’”, August 18, 2011, *Jiefangjun Bao Online*, December 19, 2011, **NewsEdge Document Number:** 201112191477.1_b4db03298628aa33. Accession Number 328100125.

coordination involving independent decisions, etc have to be enhanced.²³ Another PLA writer has suggested that China should “establish the concept of a “big system of systems” (*da tixi*) with “great support” (*da baozhang*)” that can ensure “full life-cycle systems management and precision logistics” and promote “the meshing and dovetailing of battlefields with markets”.²⁴ According to another PLA writer, the operational capabilities could be expanded if the PLA enhances the joint training, operations and exercises. Eight key elements, crucial for this aspect, include reconnaissance and early warning capabilities based on the integration of intelligence and information and three-dimensional projection capabilities based on ground, sea, and air rapid deliveries.²⁵ According to Dong Zifeng, three major changes in integrated combat power that the PLA needs to carefully analyse and adapt are:

First, the center of gravity for combat power generation is undergoing a historic shift from quantity and scale to the nature and quality of key elements (*yaosu*) in combat power, from the relations between man and machine to the relations between operational systems (*zuozhan xitong*), from the structure of operational units (*zuozhan danyuan*) to the structural optimization of operational systems, from building traditional military strength to building new-type combat forces, and from paying attention to the development of the armed forces to paying attention to the domestic and international situations. Second, comprehensive integration is the one and only way to temper “system of systems” combat power. Third, the selection of a path is the key

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23. Tang Fei, “How Does Operational Command Guide Generation and Elevation of ‘System of Systems’ Operations Capabilities”, November 17, 2011, *Jiefangjun Bao Online*, December 1, 2011, **NewsEdge Document Number:** 201112011477.1_7c9e044a5ba9e5d6. Accession Number 327200653.
 24. Meng Zhaobin, “Boost Transformation of Combat Power Generation Model With Transformation of Support”, September 29, 2011, **NewsEdge Document Number:** 201110171477.1_1b9d08618a360596. Accession Number 324950463.
 25. Liu Lifeng, “Clarify Basic Connotations of ‘System of Systems’ Operations - Interpreting Formation of Capabilities for Information System-Based ‘System of Systems’ Operations From Training Aspect”, January 27, 2011, *Jiefangjun Bao Online*, April 12, 2011, **NewsEdge Document Number:** 201104121477.1_ea8504d61f9c8584. Accession Number 315550163.

to the innovation of the combat power generation model. A big transformation view must be fostered in this regard.²⁶

Additionally, “new” types of operational forces should be raised in order to transit to the “system of systems” capabilities. According to a PLA writer, China should give priority

...to developing an outer space operation force (*taikong zuozhan lilian*), and an effective space control operational capability (*zhitian zuozhan nengli*) should be formed as soon as possible; the building of sea surface operation forces should be pushed forward in an accelerated manner and the distant sea (*yuanhai*) operation capability should be raised; the building of information operation forces should be strengthened; and so on.²⁷

Under the informationised conditions, according to two PLA writers, the value and utility of defence operations are dissipating, including the disappearance of topographical advantages, reversing of “motionless concealment” and diminishing prospects of waiting for an exhausted enemy. The PLA also should be gearing up for new forms of defensive operations such as aerospace defence, key-point defence and mobile defence.²⁸

TRAINING AND EXERCISES

One of the most concrete examples in gauging how the PLA has been implementing the guidelines for transforming the way the troops could fight the next war is the content and extent of military training imparted and exercises conducted. Earlier, in 2006, the PLA General

26. Dong Zifeng, “‘Metasynthetic Wisdom’: Path for Generating ‘System of Systems’ Combat Power - Basic Path for Correctly Grasping and Accelerating Transformation of Combat Power Generation Model”, August 4, 2011, *Jiefangjun Bao Online*, December 20, 2011, **NewsEdge Document Number:** 201112201477.1_54ef0808dc6d8a94. Accession Number 328150448.

27. Li Zehua, “Let Lightning of New Thinking Illuminate Path of Transformation”, October 27, 2011, *Jiefangjun Bao Online*, November 7, 2011, **NewsEdge Document Number:** 201111071477.1_ab520489953c30d2. Accession Number 326000151.

28. Meng Fuxiang and Wang Xueping, “‘Falcons’ Looking Down on Earth: What Course To Follow in Defensive Operations”, October 13, 2011, *Jiefangjun Bao Online*, October 19, 2011, **NewsEdge Document Number:** 201110191477.1_a2dd07023598009c. Accession Number 325050580.

Staff Department instructed its personnel to transit to training from mechanised warfare towards “informationized warfare” – emphasising on subjects related to RMA. To further strengthen this process, the Central Military Commission had forwarded the “Opinion on Deeply Promoting the Transformation of Military Training”. Later, the “General Program for the Reform of Military Training in the 12th Five-Year Program Period” and the “Opinion on Adjusting and Reforming Military Academies and Training Organs” were circulated to the rank and file. Based on these training regulations, the PLA conducted a series of exercises including the following. One noticeable change is that from about 2004, increasingly, the PLA had been emphasising on live-fire exercises; jointness between the different Services and organs; and informationisation:

- “Sharp Sword” (*Lijian*) [with several Military Regions and multiple services].
- “Red Sword” (*Hongjian*).
- “North Sword” (*Beijian*) by an armoured brigade under Beijing MR.
- “Iron Fist” by a mechanised infantry division in Jinan MR in 2004.²⁹
- “Shendian” series exercises, drills, and demonstrations activities.
- “Queshan-2006” testing exercise evaluation.
- “Warrior 2007” a live fire exercise conducted by Shenyang MR in Yaonan Training Base.
- “Peace Mission” between Russia and China since 2005 biennially. In August 2014, the Peace Mission exercise was held at Zhurihe in Beijing Military Region with Russian and Chinese troops’ participation.
- “Kuayue-2009” [with 50,000 troops of four army divisions from the Shenyang, Lanzhou, Jinan, and Guangzhou Military Regions] trans-regional mobile exercise.
- “Aman” maritime exercises with Pakistan
- In the autumn of 2010, the first corps strategic projection exercise for a joint campaign “Mission Action-2010” (*Shiming Xingdong 2010*) was organised, planned and designed for the first time by

29. Liu Fengan, “War Games”, *Beijing Review*, December 8, 2011, accessed at <<http://www.bjreview.com>>

the PLA General Headquarters, and simultaneously carried out in three theatres for testing manoeuvres.

- “Mission Action” (*Shiming Xingdong*) electromagnetic exercises.
- “Transportation for War Preparedness” (*Jiaozhan*).
- “Vanguard-2010” (*Qianwei-2010*) [testing air defence capabilities-conducted from 2008 annually].
- “Defense” (*Fanghu*) [for nuclear, biological, chemical defence].
- “Harmony Mission” (*Hexie Shiming*).
- “Jiaolong” marine amphibious landing exercise in the South China Sea (conducted annually since 2004).
- “Strike” exercises were launched in Guilin with Thailand.
- “Friendship” China-Pakistan anti-terrorism joint training was launched on July 9, 2010, in Yinchuan city.
- “Friendship Action” from November 5 to 13, 2010, with the Romanian Army in Kunming.
- “Air-borne Manoeuvre” (*Kongjiang Jidong*).³⁰
- Twenty-one joint exercises and training programmes took place with foreign militaries from 2011 to 2012.³¹
- Blue Assault 2012 exercise with Thailand.
- Sharp Knife 2012 exercise with Indonesia.
- “Shaheen” air exercises with Pakistan.
- “Khan-Quest” peace-keeping exercises with Mongolia.
- “Tianshan” counter-terror exercises with the Central Asian Republics
- “Frontier Defence Joint Determination” counter-terror exercises with Kazakhstan

The above list of annual military exercises that the PLA conducts at home and abroad with other military forces is impressive and over a period of time, the PLA intends to not only test the skills that it has acquired during the training in its military academies but also learn from other armed forces. According to Commandant of the Shijiazhuang Army Command Academy Shi Zhongwu, the military exercises can be categorised into the following three types:

30. Liu Feng’an, “Authoritative Report on China’s Military Exercises in 2010”, *Liaowang Dongfang Zhoukan*, February 24, 2011, **NewsEdge Document Number:** 201102241477.1_acd8138b3373845f. Accession Number 313200565.

31. US Department of Defence Annual Reports to the Congress, 2013 and 2014.

Ordinary military exercises can be categorised as the following types. First is the test-oriented exercise (*jianyanxing yanxi*). It is conducted as per organisation for combat, with a series of battles strung together, in order to check whether or not a unit can actually fight. The second type is the research type exercise (*yanjiuxing yanxi*). This type of exercise can be stopped temporarily at any time, have exercise situations inserted, and people can withdraw from a situation to conduct research. The third type is the demonstration type exercise (*shifanxing yanxi*), which models some topic or some form of combat operation.³²

The Shenyang MR developed in January 2012 a simulator for Complex Electromagnetic Environments (CEMEs). This has been adopted by the four General Departments and Services across the country during exercises. It was reported that this simulator has a control platform and an external jamming simulation adapter for frequency equipment, embeds signal sources for building CEMEs in the adapter and achieves adjustment and control through commands from the control platform. The adapter “injects” simulated jamming signals into frequency equipment to simulate realistic Electro-Magnetic (EM) jamming.³³

PLA Logistics Academy President Wang Xinli has claimed that his institution trained nearly 4,000 new-type “army provisions officers” in recent years, moved toward the logistics support front of diversified military actions, and enjoyed a 96.4 percent satisfaction rate among the units for its officer cadet graduates.”³⁴ However, in

32. Shi cited at Yang Lei and Zhang Fuqiang, “Xinhua Net Exclusive Interview With the Director-General of the Joint Training Exercise Joint Education-2012 – Queshan”, *Xinhua Wang*, June 12, 2012, **NewsEdge Document Number:** 201206121477.1_75dc0c6ab02a0190. Accession Number 336850767.

33. Wang Lei and Zhou Lin, “New-Type Simulated Training System Put Into Use -- Shenyang Military Region Solves Training Problems for Complex Electromagnetic Environments”, January 9, 2012, *Jiefangjun Bao Online*, January 30, 2012, **NewsEdge Document Number:** 201201301477.1_d49c010895a642cb. Accession Number 330200819.

34. Wang Yijie and Chen Biao, “New-Type ‘Army Provisions Officers’ Move Toward Diversified Battlefields -- Actual Account of How Logistics Command Academy Works Around Diversified Military Tasks To Cultivate New-Type Talented Logistics Command Personnel”, May 7, 2012, *Jiefangjun Bao Online*, May 11, 2012, **NewsEdge Document Number:** 201205111477.1_c27607f2d01ad6e5. Accession Number 335250467.

a candid admission, he said that the training programme of the PLA troops needs to be reoriented due to its lack of battlefield experience since the war with Vietnam in 1979,

The PLA has not fought any battle for scores of years and is considerably lacking in its experience on operations under informatized conditions. It is necessary to design actual combat-oriented training contents based on operational research. Actual troops, live fire, and live explosions are still not actual combat-oriented training in the true sense. It is necessary to strictly test and explore new operational methods, conduct exercises and research on new command methods, and innovatively develop new support methods. It is also necessary to proceed from realities to solve the problem of “how to set up training conditions.”³⁵

The role of the political committees of the PLA is also crucial in this regard, although they are not yet geared towards the system of systems operations. A recent critique suggested:

...there is a certain gap between the ability of Party committees to lead operations in some units and the requirement for winning informatized wars. The Party committees use old methods for operational command ...although they have new systems and new armaments, they are not clear about their tasks and functions for leading operations, they do not know how to handle the relations between Party committee meetings and operational meetings, and so on.³⁶

Another study made by the political commissar of a blue team of the Nanjing MR Chen Xuebin, after going through the failures in the simulation tests, argued:

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35. Wang Tiefeng, “We Need Practical Platform for Actual Combat-Oriented Training In Order To Conduct Research on Operations”, May 3, 2012, *Jiefangjun Bao Online*, May 9, 2012, **NewsEdge Document Number:** 201205091477.1_8eb30560fe5a6d47. Accession Number 335150450.
36. Chen Pinghua from the PLA Unit 75100, “Building ‘Leading Hubs’ That Can and Are Good at Joining”, December 22, 2011, *Jiefangjun Bao Online*, December 22, 2011 **NewsEdge Document Number:** 201112221477.1_5c1c020bf43fdc07. Accession Number 328251361.

We have an informatised command network, but the informatization quality of officers and soldiers does not catch up with that. As a result, armaments do not bring their due effectiveness into play!³⁷

According to the PLA commentators, the PLA should avoid the “labelling type of research” (i.e. putting patchworks on previous operational theories); “flower vase or decorative type of theoretical research” (i.e. impractical); and “technologizing type of research” (i.e. worshipping technology without innovating) in ushering the “system of systems” in the PLA.³⁸ Instead of making a patchwork in raising a “system of systems” organisation, a PLA commentator has suggested that the PLA should make a big leap forward in revamping the whole information system and introduce a new tactical blueprint. According to Sun Xihua,

First, networks have shaken the real tactical foundation. Changes brought to operational mechanisms by networkization; the laying of the foundation for accumulating power in a “system of systems” through networkization; the sudden rise of network-based multi-dimension firepower, and so on, present a tremendous threat to pre-war localized, aerial, large-scale, concentrated deployment; present a grim challenge to intensive close-quarter combats by large formations; and produce a strong impact on the combat formula of moving from the front to the rear and level-by-level offense and defense as well as the stage-by-stage and linear-control command coordination method that follows a set plan. Second, there is smooth progress in military operations when there is smooth network access. Third, it is necessary to screen and select the quintessence of tactics using the thinking of networkization. ...Lastly, network-based tactical innovation is extremely urgent.³⁹

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37. Huang Jiandong and Zhou Lin, “Let Us Check Which Lost Battle Has Deep Lessons -- A Certain Brigade Within Nanjing Military Region Uncovers ‘Scars’ by Themselves During a Year-End Summary”, *Jiefangjun Bao Online*, December 21, 2011, **NewsEdge Document Number:** 201112211477.1_9333020695e9ca55. Accession Number 328201990.
38. See Zhao Yanliang and Lu Junping, “Avoid Error Zones in Theoretical Research on ‘System of Systems’ Operations”, April 19, 2012, *Jiefangjun Bao Online*, April 25, 2012, **NewsEdge Document Number:** 201204251477.1_62cf0306e8427caa. Accession Number 334450195.
39. Sun Xihua, “Curtains Have Been Lifted for Network-Induced Tactical Revolution” April 19, 2012, *Jiefangjun Bao Online*, April 25, 2012.

After conducting and learning lessons from a red vs. blue joint exercise organised by the Jinan MR forces, a PLA commentator suggested that battlefield information flow is the key to success in future wars. According to Zhai Song, Director of the information department in Jinan MR,

Raising the network transmission speed by 75 times is but the beginning of our efforts to keep up with the explosive growth of battlefield information. To build the information network, never should we work intermittently, instead we must keep a sense of real-time upgrade. Only by taking action ahead of others will we be able to ride on the waves of the information technology boom, hold the initiative, and seize good opportunities.⁴⁰

A PLA writer had suggested that due to changes in the global military revolution in information technology—viz., the United States Department of Defence’s promulgation of the “Strategy for Operating in Cyber Space” in July 2011, which for the first time listed the cyber and electromagnetic space as an “operational domain” that stands side by side with the land, sea, air, and outer space domains; the use by the allied forces’ operational command centre of Link-16 in the Iraq War; the increase in the Russian military’s operational efficacy during Kosovo, etc—China should also push for the combat power generation model.⁴¹ After carefully studying the American, Japanese and Russian efforts in the recent period—viz., sea-air capability, rapid rail transport technology, etc—a PLA commentator suggested that China should “look at strategic projection with a global vision and give priority to using high and new technology in the building of strategic projection capabilities.”⁴²

40. Zhai cited by Liu Hongtao, Wen Ning, and Mei Changwei, “Jinan Military Region’s Communications Unit Takes Various Measures To Solve the Problem of Traffic Congestion on Information ‘Superhighway’: What Is the Cause of the ‘Bottleneck’ of Network Transmission Speed”, *Jiefangjun Bao Online*, May 4, 2012, **NewsEdge Document Number:** 201205041477.1_a461094d3edbfbf. Accession Number 334900055.

41. Zang Jijun, “Exploring Information System-Based Path for Generating ‘System of Systems’ Operations Capabilities”, February 2, 2012, *Jiefangjun Bao Online*, February 7, 2012, **NewsEdge Document Number:** 201202071477.1_911006a3742fa779. Accession Number 330600218.

42. Ma Xingxian, “How Do Major Powers Raise Their Strategic Projection Capabilities”, November 22, 2011, *Jiefangjun Bao Online*, December 5, 2011, **NewsEdge Document Number:** 201112051477.1_924e04b6a5267ea9. Accession Number 327401053.

CONCLUSIONS

The above analyses indicate that China intends to transform its armed forces from being large forces into “lean and mean” forces geared to fight “short and sharp” wars. In this journey, the recent literature in the PLA indicates the introduction of the “system of systems” operational concepts so as to make the forces ready to fight a local war under informationised conditions. In this effort, the PLA had revamped its military training and exercises, and increased interactions with most advanced forces. As the PLA lacked real military training –its last war was in 1979 against Vietnam – it has further intensified the training programme through the introduction of simulators and other reform measures. While the results of such experiments are not yet clear, what is significant is that the PLA today intends to graduate to fighting 21st century wars. These trends need to be watched carefully in the near future.

INDIA-CHINA RELATIONS IN A FAST CHANGING WORLD

MOHAN GURUSWAMY

This century has been good for India, so far. Its economy has been bounding along, finally reflecting a closer correlation between promise and performance. The demographic trends have never been so propitious. Given the current trends and informed forecasts India's Gross Domestic Product (GDP) is expected to double every seven or eight years. It is climbing closer to \$ 2 trillion now. Thus, by, say, 2050, we could be looking at a GDP in real terms of over \$ 40 trillion.¹ If the current trend were to do slightly better, and be maintained, by 2050 or even earlier, India could conceivably emerge with the world's largest GDP. While this potential may not be realised by India's ever squabbling, petty-minded and greedy elite, many knowledgeable

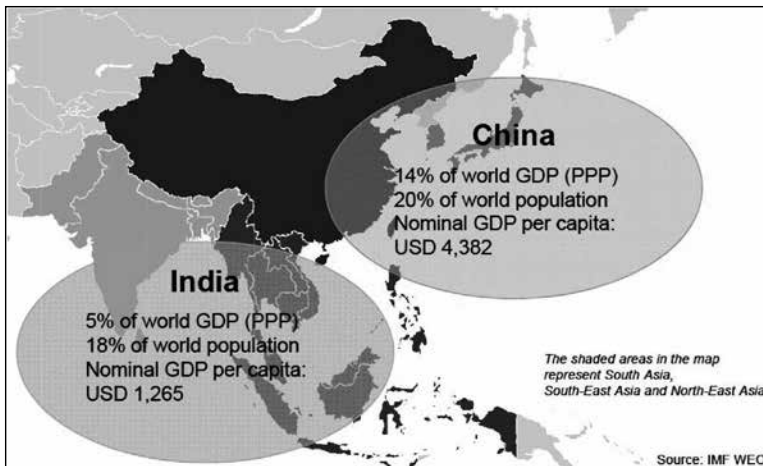
Shri **Mohan Guruswamy** is an Economist with over four decades of experience in industry, academia and government.

1. "Our baseline projections for India's potential output growth show that the economy can sustain growth rates of about 8 per cent till 2020, significantly higher than the 5.7 per cent that we projected in our original BRICS paper," Goldman Sachs said in a new economic paper. "The implications of projections are that India will overtake the G-6 economies faster than envisaged in our earlier BRICS research," it added. The report forecasts that India's GDP will surpass Italy, France and the UK by the middle of the next decade (around 2015). It will then overtake Germany, Japan and, finally, the US before 2050, to emerge as the second-largest economy after China. From 2007 to 2020, India's GDP per capita is likely to quadruple, the report said. The higher growth rate would imply huge demand in the country, as Indians will also consume about five times more cars and three times more crude oil. "Ten Things for India to Achieve its 2050" – Global Economics Paper No.169. www2.goldmansachs.com/ideas/brics/ten-things-oc.pdf

people abroad seem fully aware of it.² Some, almost certainly, would be contemplating tripping us up on the way to this tryst with destiny.

How we fare during these next crucial decades depends a great deal on how we perceive ourselves. This psychological factor is critical to sustained economic growth. Economics thinkers now seem to have come full circle in their reasoning. Classical economics was linked closely with psychology. Adam Smith's great work was "The Theory of Moral Sentiments" and dealt with the psychological principles of individual behaviour. Jeremy Bentham contemplated a good deal on the psychological underpinnings of utility. It was the neo-classical economists who distanced themselves from psychology and sought explanations for economic behaviour with what passed off as scientific and rational methods. It is not as if the switch was complete. Many great economists like Vilfredo Pareto, John Maynard Keynes and Joseph Schumpeter continued to base their analyses on psychological explanations. In more recent times, this school of economics has been given greater importance and is reflected in the award of Nobel Prizes to behavioural economists like Herbert Simon and Gary Becker.³ Every politician worth his salt knows that national mood and perceptions are decisive in determining national outcomes. Thus, defending India physically implicitly implies defending its national mood.

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2. YoY (Year Over Year) growth rate: 8.0%; GDP in 2050: \$86 trillion (#1 in the world). India will be the largest economy in the world by 2050, but it has to improve its overall infrastructure and extend education to lower castes as well as females in rural areas. Projections provided by Citi. GDP in 2050 (PPP) was given by Citi or estimated using growth rate. <http://www.businessinsider.com/fastest-growing-economies-2011-2?op=1#ixzz2KVf43NKp>
 3. Economics traditionally conceptualises a world populated by calculating, unemotional maximisers that have been dubbed *Homo economicus*. The standard economic framework ignores or rules out virtually all the behaviour studied by cognitive and social psychologists. This "unbehavioural" economic agent was once defended on numerous grounds: some claimed that the model was "right"; most others simply argued that the standard model was easier to formalise and practically more relevant. Behavioural economics blossomed from the realisation that neither point of view was correct. The standard economic model of human behaviour includes three unrealistic traits—unbounded rationality, unbounded will power, and unbounded selfishness—all of which behavioural economics modifies. Richard H. Thaler and Sendhil Mullainathan, *The Concise Encyclopaedia of Economics: Behavioural Economics* (Indianapolis: Library of Economics and Liberty, 2008).

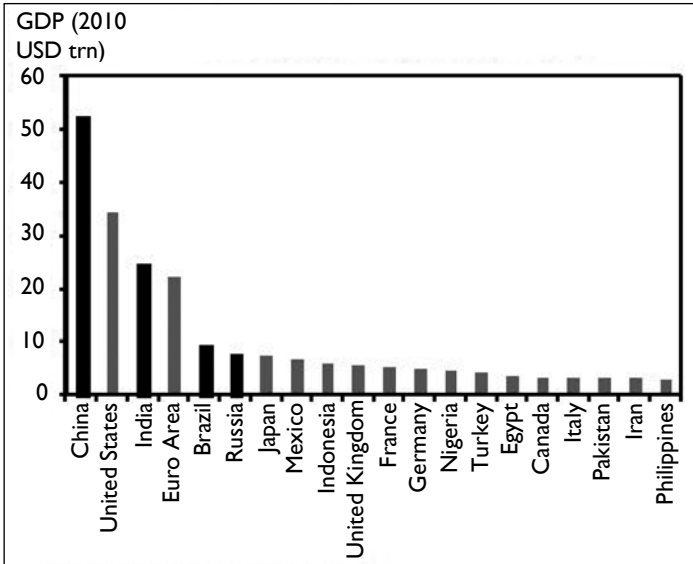
Fig 1: The Changed Nature of Economics.

The inexorable growth of China's GDP has been the dominant event of the past three decades. China having surpassed Japan a few years ago, is now taking aim at the GDP of the USA (\$14 trillion), whose economy is at present more than two and a half times bigger than its own. It took China a little less than a decade to make a similar leap to overtake Japan. But then Japan has hardly been growing since 1995 and its GDP has been roller coasting between \$ 4-5 trillion.

Overtaking the USA will still take some years and some effort as that country has begun posting some smart growth after the gargantuan Obama stimulus package pump primed, not just the US economy, but also that of the world and particularly of countries like China which have a symbiotic economic relationship with it. Despite this, the Chinese GDP is expected to surpass that of the US well before 2020 when it will be about \$24.6 trillion compared to the USA's \$23.6 trillion.⁴

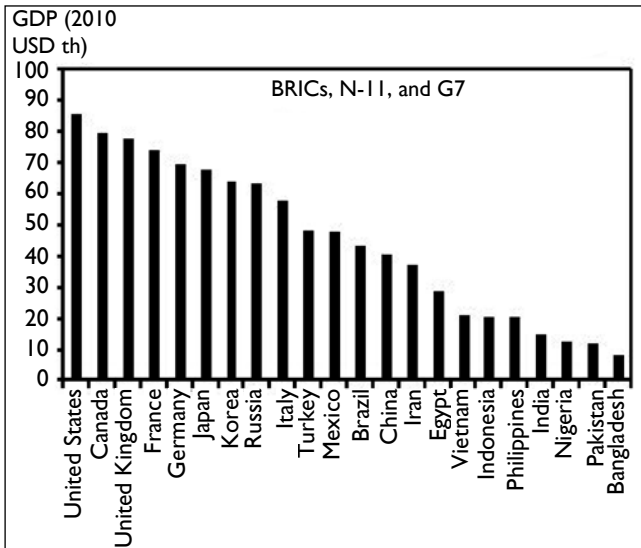
4. "By 2020, China No. 1, US No. 2", *Forbes Magazine*, <http://www.forbes.com/sites/kenrapoza/2011/05/26/by-2020-china-no-1-us-no-2/>

Fig 2: The World in 2050: GDP Levels



Source: GS Global ECS Research.

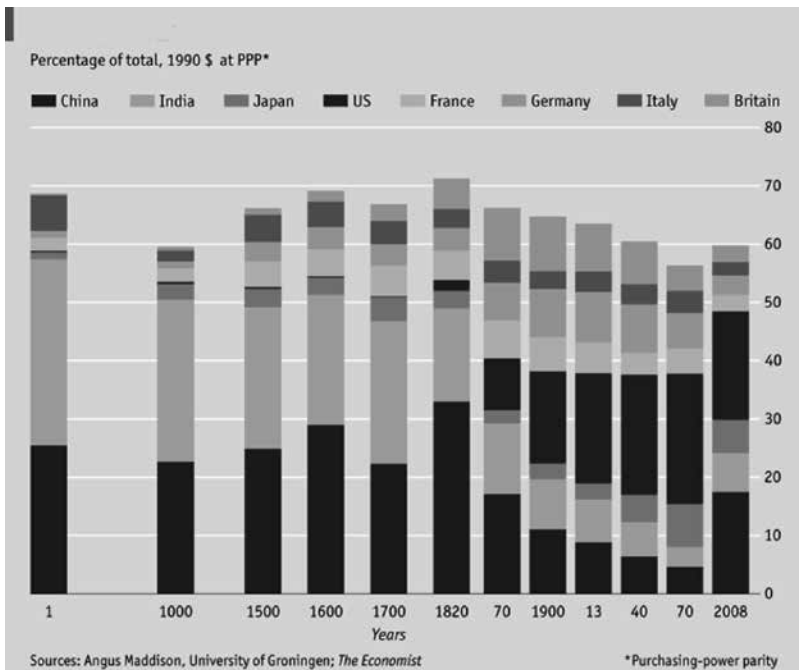
Fig 3: The World in 2050: GDP Per Capita



Source: GS Global ECS Research.

But GDP alone does not make a nation wealthy? China's current per capita income keeps it in the company of countries like Algeria and Albania. Even in 2050, when the Chinese GDP will be much bigger than that of the US, its per capita income will still be less than a fifth of the American per capita. Neither does GDP alone make a nation powerful. Midway in the 1800s when Britain was at the peak of its world power, its GDP was about 5 percent of World GDP (WGDP). The GDP of many Arab countries exceeds Israel's, but we know where they are in terms of power.

Fig 4: A History of World GDP



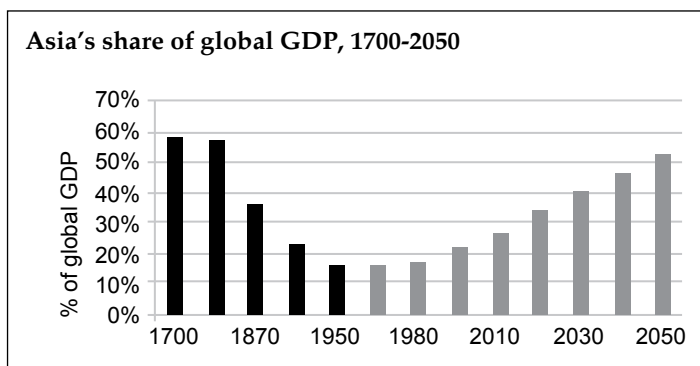
If India keeps growing at the present rate of about 7 percent, its GDP will surpass that of China by 2045 and if India's population stabilises in 2050 at 1.6 billion, then in all likelihood, its GDP too will surpass China's. It is now about one-third of China's.⁵ But what does this imply for the world's power structure? True, the world's

5. Mohan Guruswamy and Zorawar Daulet Singh, *Chasing the Dragon: Will India Catch Up with China?* (New Delhi: Pearson Education India, 2010), p. 151.

economic fulcrum will shift to Asia. Already Asia's GDP exceeds that of the USA and the European Union (EU). By 2050, it will account for about over 52 percent of WGDP, with India or China having the biggest GDP.⁶ In its report "Asia 2050: Realizing the Asian Century", the Asian Development Bank (ADB) makes the following observations: by the middle of this century, Asia could account for half of global output, trade, and investment, while also enjoying widespread affluence.⁷

By nearly doubling its share of global GDP (at market exchange rates) from 27 percent in 2010 to 51 percent by 2050, Asia would regain the dominant global economic position it held some 250 years ago, before the Industrial Revolution. Some have called this possibility the "Asian Century". In this scenario, Asia's GDP (market exchange rates) would increase from \$16 trillion in 2010 to \$148 trillion in 2050, or half of global GDP. (See Fig 5).

Fig 5: Economic Centre of Gravity is Shifting Back to the East



Asian Century Scenario by Asian Development Bank (2011)

- Asia's share of global GDP to double to 52 percent (US\$174 trillion at market exchange rates) is 2050
- With a per capita GDP of US\$40,800 (PPP), Asia would have incomes similar to today's Europe
- Asia would have roughly half of total global financial assets

Source: Maddison (1700-1950) (2007); Centennial Group International estimates (1951-2050) (2011), Data for 1750-1790 are PPP and data for 1991-2050 are in market prices.

6. Minhaz Merchant, "With \$85 Trillion, How India can Become World's Largest Economy", http://articles.economictimes.indiatimes.com/2011-11-12/news/30391268_1_largest-economy-demographic-dividend-indian-economy
7. http://www.unido.org/fileadmin/user_media/UNIDO_Worldwide/Asia_and_Pacific_Programme/Documents/AsianDevelopmentBankreport_asia-2050.pdf

But when you get down to the basics, power is more a relation of the money available with a government than its GDP. This simply means that the larger the revenues, the greater the power at the disposal of a government. The US today has a tax/GDP ratio of about 27 percent, while that of China is 17 percent and India's is 17.7 percent.⁸

The ability to raise revenues is linked to the per capita income, income inequality and tax compliance. The per capita income of the USA is now \$47,000, China's is \$4,300 and India's is \$1,300. Given this, the ability of countries like India and China to squeeze more out of their people and squeeze greater effort is limited. Even in 2050, if all the projections come true, the USA's per capita will four to five times bigger than either India's or China's. So should we be counting our chickens before the eggs hatch? Nevertheless, it is being confidently predicted that the top three places in global GDP rankings will be held by the USA, China and India, with the other major economies and powers like Brazil, Germany, Japan, Russia and UK straggling well behind in GDP terms.

Geography and recent history have made the India-China relationship a difficult one and one in which the USA will find ample space and opportunity to inveigle itself to its advantage. This is a made to order situation for strategists and leaders in the three countries to ply their trade with plenty of worst-case scenarios. It would seem that India and China are destined to live out the foreseeable future as rivals, if not adversaries.

But rivals need not be enemies and neighbours need not get fratricidal. If there are two large and rising powers in a region, rivalry is inevitable. France and Germany or Brazil and Argentina come readily to mind. The situation between India and China is not very different. Nationalism arrived in both countries at about the same time in the early 1900s with the advent of Sun Yat Sen in China and MK Gandhi in India. This was after centuries of foreign rule or domination over the Han and Hindu ethnic majorities. After decades of turbulence, servitude and exploitation, in the waning 1940s, both countries emerged as "free nations" with entirely different political

8. http://en.wikipedia.org/wiki/List_of_countries_by_tax_revenue_as_percentage_of_GDP

and economic systems. Mao Zedong and Jawaharlal Nehru were leaders with entirely different personalities, ideologies, visions and world-views.

The isolation of the two countries that the British had so assiduously nurtured by supporting an independent Tibet was rudely shattered by its annexation by China in 1951. This and the handing over of Xinjiang by the then USSR to the new People's Republic of China (PRC) made the Han and the Hindu neighbours for the first time in history.

THE GLOBAL CRISIS AND THE CHANGED CIRCUMSTANCES

The global economic crisis has exacerbated problems within its rapidly growing economy. With US markets rapidly shrinking, China needs to find markets elsewhere to sustain its export led growth model. The rapidly growing Sino-Indian trade but increasingly unbalanced in China's favour mostly due to an undervalued yuan, is yet another festering issue. China derives much of its export prowess due to its undervalued yuan and exploitative practices in the work place.

The economic profligacy of the USA and China's somewhat naïve hoarding of trillions of dollars as reserves makes it the USA's co-equal in causing the global economic mayhem. There is no sign that China has derived lessons from this and will take a more positive attitude to reconstruct the global economic order. China still does not seem to have grasped the essential reality of its trade relationship with the USA. Many American economists have taken to describing it as akin to a dope peddler and drug addict. China supplies cheap goods to the USA and then proceeds to invest its trade surplus in US securities, which, in turn, fuels more American consumption. Besides the printing of dollars continues unabated.

This gives China the two-digit GDP growth rates it has got addicted to and the Americans the high standards of living they have got addicted to. The way out of the current crisis will be only when the US starts to curb its appetite for overseas goods and overseas adventures like in Iraq and Afghanistan, and China gets used to more realistic and manageable growth rates, in which case the revaluation of the yuan becomes a mandatory obligation. The problem is that the Chinese consider any such suggestion a criticism of their wise policies

that made them a world player! Sensible opinion from India and elsewhere will only keep pointing out to this as the key destabiliser of the global economic order.

India-China trade is burgeoning and is now headed to pass \$70 billion by the end of 2012. The trade balance favours the Chinese to over \$20 billion.⁹ The irony of this is that even this relatively small amount of money will then become a part of China's US securities portfolios, thereby feeding the consumption frenzy in the US even more.

The composition of India's imports and exports with China is quite revealing. While India is mainly an exporter of primary goods like iron ore, cotton and minerals to China, China is mainly an exporter of high value added manufactured goods. This, more than the trade gap, underscores China's manufacturing prowess and its lead over India. Figs 6 and 7 tell the tale. Fig 6 relates to what India imports from China. The composition is telling. They are mostly manufactured and high value added goods. In Fig 7, we have India's exports to China: primary goods like iron ore, cotton and yarn, and minerals, all with little manufacturing value addition. It is as if an underdeveloped country is exporting to a mature industrial nation. And mind you, China is an industrial nation with 52 percent of its GDP derived from industry while India's ratio is less than half that.

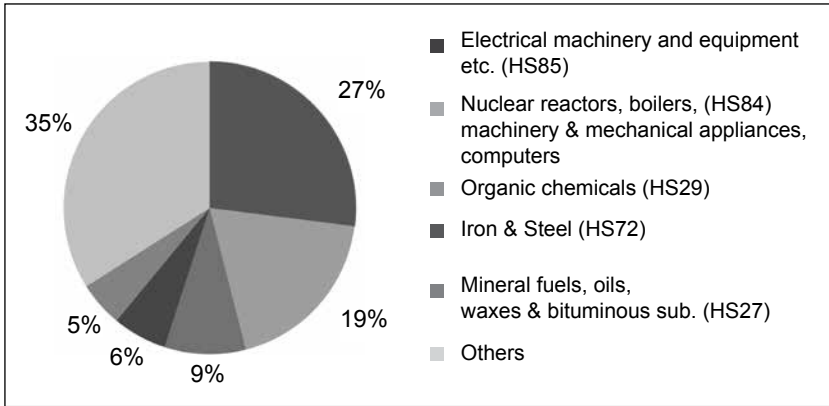
It is China's manufacturing prowess that has made it the world's engine of growth. It consumes huge quantities of raw material and semi-finished goods from its neighbours like Japan, South Korea, Taiwan and the Association of Southeast Nations (ASEAN) countries. This extract from a recent International Monetary Fund (IMF)¹⁰ report tells it thus: "China now accounts for 50 percent of all intra-regional intermediate exports, making it the centre of Asia's supply chain. Overall, intermediate goods exports accounted for about 70 percent

9. Ananth Krishnan, "Slump in Exports Widens the Trade Deficit with China", *The Hindu*, November 10, 2012; "A steep decline in Indian exports to China in October has widened the trade imbalance between both countries to \$23 billion, according to trade figures released on Saturday, with bilateral trade in 2012 set to fall below last year's record figure," <http://www.thehindu.com/business/Industry/slump-in-exports-widens-trade-deficit-with-china/article4085512.ece>

10. International Monetary Fund, *Regional Economic Outlook-Asia and Pacific Managing Spillovers and Advancing Economic Rebalancing* (Washington, D.C.: International Monetary Fund, 2012), p. 40, <http://www.imf.org/external/pubs/ft/reo/2012/APD/eng/areo0412.pdf>, accessed on July 30, 2014.

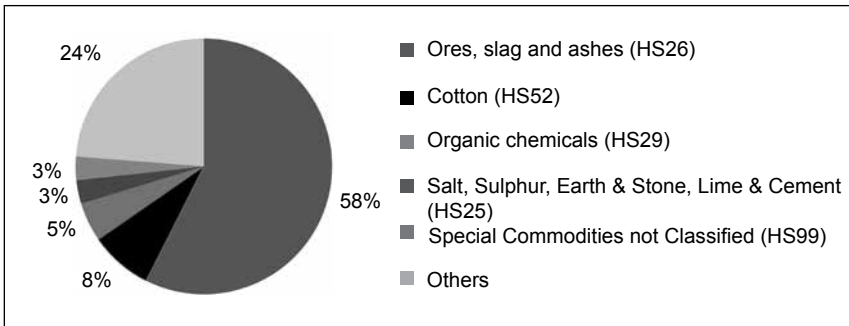
of the annual export growth in Asia over the last decade, more than double the consumption of final (consumer and capital) goods.” As a result of this greater vertical integration, the co-relation of Asian economies’ exports to China with Chinese exports has increased. The IMF study highlights this dependence of exports to China and after some value addition to other countries by stating; “Regression estimates suggest that a 1 percent drop in Chinese export growth would lower the growth of exports of other Asian economies to China by about 0.66 percent.”

Fig 6: India’s Imports from China



Source: Data from UN 2010

Fig 7: India’s Exports to China



Source: Data from UN 2010

The result of this huge expansion in China's exports has seen a huge pile up of Chinese foreign exchange reserves. These huge reserves can only be invested abroad. This was the primary reason for the US' housing boom and the toxic loan crisis that almost brought the US economy down. Clearly, a way has to be found out of this situation as well. China's suggestion that the renminbi also becomes a world reserve currency finds few takers in India.

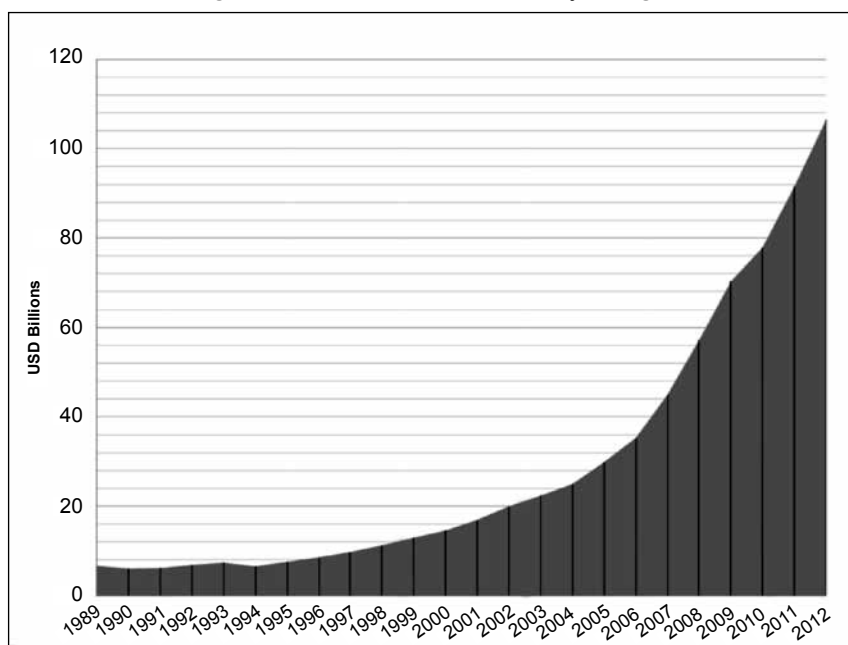
In the recent years, there has been much speculation about the emerging rivalry between India and China. A good deal of this owes to the fact that India too has joined China in the high GDP growth club. While Chinese reforms, which began in the mid-1970s gave it an edge; India's reforms that began in the early 1990s, have begun to show signs of having taken root. Since the turn of the century India has been posting annual growth of closer to 8 percent. Given its more favourable demographic profile, India's GDP is predicted to soon grow at a faster rate than China's. If these projections are realised, in another quarter of a century, India's GDP will not only overtake that of the USA, but will hover pretty close to that of China.

HIGHER GDPs LEADING TO HIGHER MILITARY BUDGETS.

While this should not be a cause of friction, it actually does cause some. Higher GDPs means bigger military budgets. With bigger budgets, both nations will inevitably sense greater threats. That's the nature of such things. *The Economist* succinctly poses the problem for us. "Commensurate with China's economic growth, the rise of its military outlays too has been quite extraordinary, not only causing concern to its immediate neighbors, which include the four of the top five global nations, namely, the USA, India, Japan and Russia". According to the Stockholm International Peace Research Institute (SIPRI), annual defence spending rose from over \$30 billion in 2000 to almost \$120 billion in 2010. SIPRI usually adds about 50 percent to the official figure that China gives for its defence spending, because even basic military items such as research and development are kept off budget. Including those items would imply that total military spending in 2012, based on the latest announcement from Beijing, will be around \$160 billion. America still spends four-and-a-half times as much on defence, but at present trends, China's defence spending could overtake America's after 2035.

All that money is changing what the People's Liberation Army (PLA) can do. Twenty years ago, China's military might lay primarily in the enormous numbers of people under arms; their main task was to fight an enemy face-to-face or occupy territory. The PLA is still the largest army in the world, with an active force of 2.3 million. But China's real military strength increasingly lies elsewhere. The Pentagon's planners think China is intent on acquiring what is called in the jargon A2/AD, or "Anti-Access/Area Denial" capabilities. The idea is to use pin-point ground attack and anti-ship missiles, a growing fleet of modern submarines and cyber and anti-satellite weapons to destroy or disable another nation's military assets from afar."¹¹

Fig 8: China's Published Military Budget



Source: <http://www.globalsecurity.org/military/world/china/budget-table.htm>

While the growth of China's military expenditure so far is worrisome enough, the future trajectory should cause even more concern. It is predicted by SIPRI and others that China's military

11. "China's Military Rise: The Dragon's New Teeth; A Rare Look Inside the World's Biggest Military Expansion", April 7, 2012; <http://www.economist.com/node/21552193>

expenditures will overtake those of the US within the next few decades.

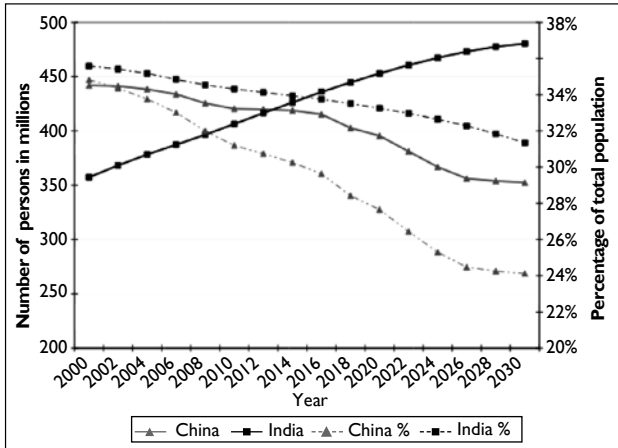
According to the Centre for Strategic and International Studies (CSIS), in 2011, Beijing spent \$25.8 billion on new weapons and related research and development, up from \$7.3 billion in 2000. China's total defence budget grew from \$22.5 billion to \$89.9 billion between 2000 and 2011, citing official figures from the Beijing government. However, SIPRI estimates Beijing's 2011 defence budget at \$142.2 billion. India's defence spending grew 47.6 percent over the decade, reaching \$37 billion in 2011. Japan's military budget rose from \$40 to \$58.2 billion. South Korea's defence investments swelled from \$17 to \$29 billion, while Taiwan's defence budget expanded at a slower pace, from \$8 billion in 2000 to \$10 billion in 2011. Total defence spending in the United States grew by twice as much from 2000 to 2005 (7.2 percent) as it did between 2005 and 2011 (3.6 percent). While understandably in Europe, total defence spending declined from 2001 to 2005 at -1.4 percent, and declined at an even faster rate (-2.5 percent) between 2006 and 2011.

PEOPLE IS POWER.

Now we must consider another relationship, for long disdained by economists and social scientists: growth and size of population. GDP has a directly relationship with the size of a nation's population and its demographic profile. If the population is suitably educated, vocationally skilled and in good health, particularly its productive age cohort of between 18- 60 years, then the size of this productive age cohort will determine GDP growth. At this moment of time, China has the world's largest productive age cohort. But by 2050, India's productive age cohort will be a couple of hundred million more than that of China. That is because populations too rise and wane as families get smaller and death rates overtake birth rates.¹² Fig 9 shows how China's advantageous younger working age cohort will decline and India's will rise. Fig 10 depicts how China's dependency ratio will increase. In other words, the non-working population will increase to put a greater burden on the economy.

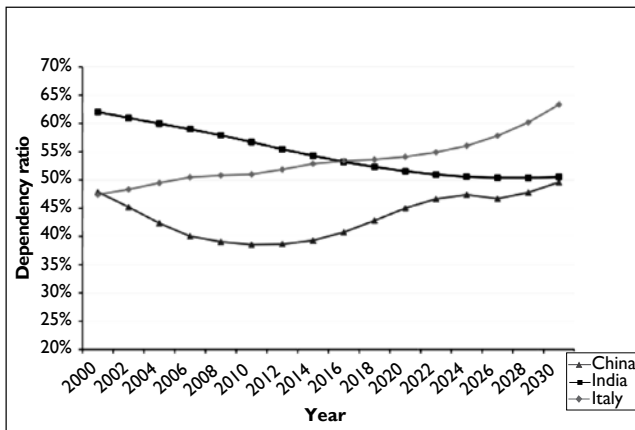
12. Chapter 7, "How Long Will it Take for India to Catch Up with China?" in Guruswamy & Singh, n. 5, pp. 147-156.

Fig 9: Projection of the 16-to-34 Age Group in China and India, 2000 to 2030.



Source: US Census Bureau, International Data Base.

Fig 10: Total (Old-age plus Youth) Dependency Ratio for China, India, and Italy, 2000 to 2030



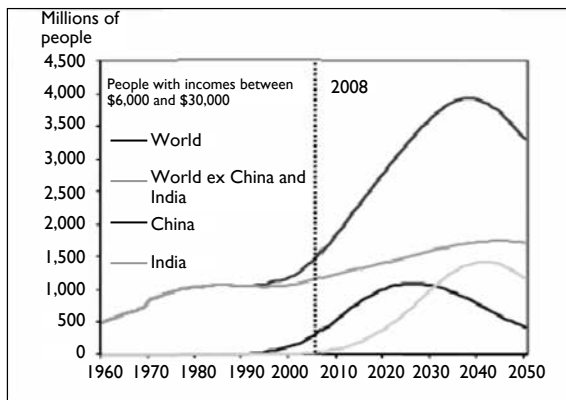
Source: US Census Bureau, international Data Base.

While this is happening to China, India’s own working population will increase hugely, giving it the potential to grow even faster, and, hence, the promise to overtake China economically.

For many decades, economists the world over disdained population growth as adding to economic woes. Many made apocalyptic prophesies for countries like India. The Stanford

Population Biologist, Dr. Paul Erlich¹³ in his book *The Population Bomb* had rather gloomy predictions for countries like India such as starvation deaths at the turn of this century. Happily for us, these were exactly the years when India had problems with storing grains and began registering major economic gains. Finally, the economists began to understand the relationship between population and economic growth in a more positive manner. That is because, when the government and society offered better education and health standards, the thus empowered cohorts of young people entered the general workforce with the required skills, and higher productivity resulted. The younger population comprised not only the producers, but also the savers and consumers who reshaped societies and economies. Figs 11-15 explain the demographic transitions in India and China and clearly show how better placed India is as we head midway to this century. Thus, many economists now project India as having the steepest growth of the middle class in the history of man, and that it could become the world's biggest economy.

Fig 11: The Expanding World Middle Class



Source: Goldman Sachs.

13. Paul Ralph Ehrlich (born May 29, 1932) is an American biologist and educator who is the Bing Professor of Population Studies in the Department of Biological Sciences at Stanford University and president of Stanford's Centre for Conservation Biology. Ehrlich is best known for his dire warnings about population growth and limited resources. Ehrlich became well-known after publication of his controversial 1968 book *The Population Bomb*. In the years since, some of Ehrlich's predictions have proven incorrect, but he stands by his general thesis that the human population is too large and is a direct threat to human survival and the environment of the planet.

Fig 12

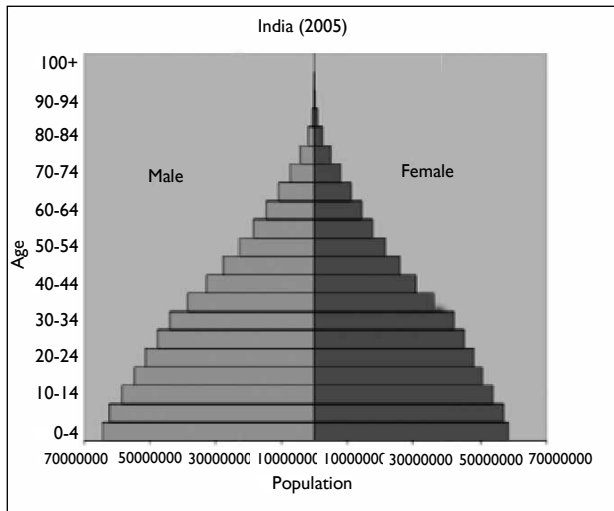
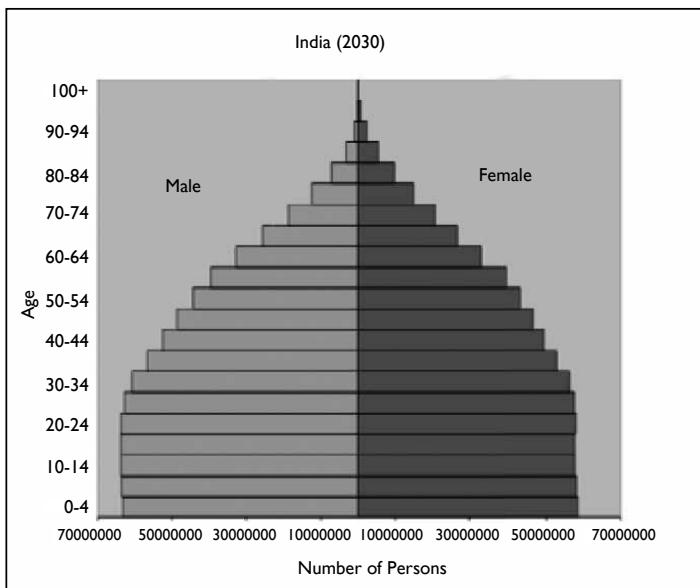


Fig 13



Source: US Census Bureau, International Data Base.

Fig 14

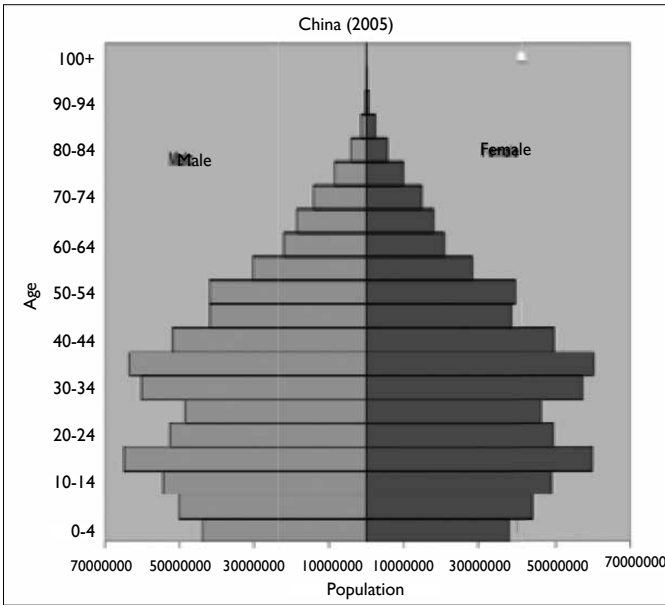
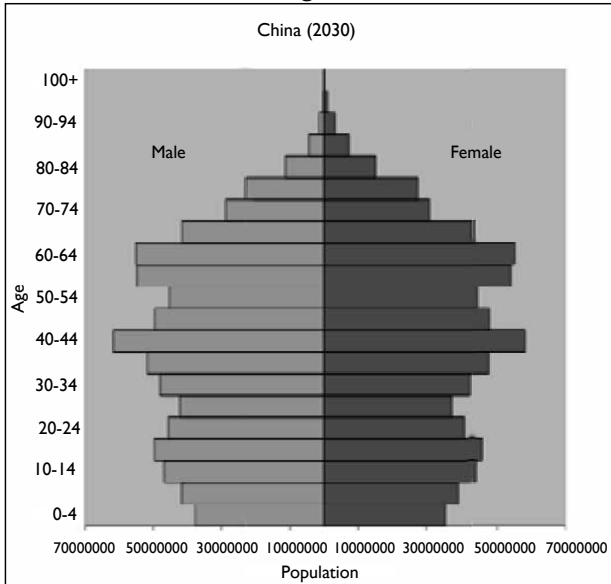


Fig 15



Source: US Census Bureau, International Data Base.

By 2050, many of today's major economies will be showing deep declines in population. Japan, the Russia and most of Western Europe will lose huge numbers. Russia's population will decline by as much as 40-50 million or a third of what it is now. As China's population starts flattening, its dependency ratio – that is, the number of people, young and old, who need to be supported by families or the society— will start rising. China's dependency ratio will be 64 as opposed to India's 48.

China's story, as also India's, are very much alike. The coats may be frayed at the elbows but when they walk, talk, smile or snarl, the world will take note.

PLAAF'S MARCH FROM ANTIQUITY TO MODERNITY

RAVINDER SINGH CHHATWAL

INTRODUCTION

China's People's Liberation Army Air Force (PLAAF) was once derided as an antiquated force with obsolete equipment, poor training and a doctrine constrained by Mao's ideology of "people's war." The startling impact of American air power in crushing Iraq in the Gulf War, 1991, jolted the PLAAF from its slumber and propelled it to change from the traditional defensive orientation to a preference for offensive air operations. To implement these doctrinal changes, the PLAAF has been on an acquisition spree for new weapons. China's rapid economic growth since the 1990s provided the necessary lucre to modernise its military. The result of this has been that today the PLAAF is on the path to transform itself into a modern air force. This article studies the growth of the Chinese Air Force since its inception in 1949; the development of its strategy and doctrine; the major air force modernisation programmes in progress and their implications for India. The article will focus primarily on the air aspects.

DEVELOPMENT OF PLAAF STRATEGY AND DOCTRINE

The PLAAF was formed on November 11, 1949, after the

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Communists took over power in China in October 1949. PLAAF strength at that time was only 15 aircraft. In 1950, China entered the Korean War and the PLAAF expanded rapidly with the Soviets supplying a large number of MiG-15s. The Korean War is the PLAAF's only war experience and the PLAAF's record in this war was problematic. The Americans achieved overwhelming air superiority over the PLAAF and claimed a clear victory with kill ratios in their favour¹.

In the following years, the Soviets supplied the MiG-17s, MiG-19s and a small number of MiG-21s. Along with Soviet equipment, the PLAAF also imbibed the Soviet doctrines, and these were accepted and implemented as per the conditions in China. The Soviet line of thinking for fighting a war depended on field artillery and rockets to pound the enemy front lines. Stalin's famous quote, "Artillery is the God of war", aptly summed up the Soviet battle concepts. Targets beyond the range of rockets were taken by fighter ground attack aircraft. The advantage of relying on artillery, compared to manned aircraft was that artillery was available round the clock whereas fighter aircraft were available only during day-time since target acquisition at night was difficult. Another advantage of artillery was that it was not affected by weather, whereas fighter aircraft operations were hampered by adverse weather conditions. Enemy air defence also had no effect on artillery fire, whereas for planning tactical air support, the opponent's Air Defence (AD) capabilities had to be considered. In the Soviet doctrine, tactical air support was not used against close-in targets but against deeper targets beyond the range of field artillery. The PLA followed similar concepts on the use of artillery and employment of air power. The PLAAF's role at that time was influenced by the army because unlike the Indian Air Force, the PLAAF was formed as part of the PLA. When the Communists took over power in 1949, the PLA's military doctrine was based on the "people's war" concept postulated by Mao. The "people's war" concept relied on mobilising large numbers of the population with rudimentary military training and equipment, to resist enemy attacks. Keeping this concept in mind, the PLAAF force

1. Zhang Xiaoming, *Red Wings Over the Yalu: China, the Soviet Union, and the Air War in Korea* (Texas : Texas A&M University Press College Station, 2002), pp.202-203.

structure depended on a large number of Soviet fighter aircraft, and by 1988, the PLAAF had reached peak strength of almost 6,000 aircraft². These aircraft had limited range and also required a lot of maintenance due to their inferior technology but this was compensated for by having them in large numbers and deploying them in many airfields close to the border.

The PLA's influence on the PLAAF is changing now but for almost 50 years, its thinking was dominated by the army and its role was to provide tactical support to the army and air defence of the homeland. It was only after the Gulf War of 1991 that the PLAAF realised the importance of employing air power in an offensive role in modern wars.

The 1990s marked a major change in Chinese strategy. The "people's war" concept changed to fighting "local war under high-tech conditions". In 1999, China's President Jiang Zemin wrote that the PLAAF must "strive to build a powerful, modernized People's Air Force that is capable of both attacking and defending³." This directive from Jiang Zemin accelerated modernisation of the PLAAF's inventory, revision of doctrine and improvement in training. In the 2004 White Paper, the strategy of "local war under high-tech conditions" was replaced with "local war under conditions of informationization." The process of "informationization" involves fighting a joint Services network-centric combat campaign, battlefield situational awareness and use of space assets.

China feels that future local wars will be short, with likely attacks on political, military and economic centres. The war will involve joint military operations across the complete spectrum of the land, sea, air, space, cyber space and the application of advanced technologies, including especially information technology.⁴

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2. "China, People's Republic of, Air Force", at <http://www.historyandtheheadlines.abc-clio.com/ContentPages/ContentPage.aspx?entryId=1161975¤tSection=113028&productid=4>. Accessed on July 11, 2014.
 3. Jiang Zemin's Short Message to the Air Force, at <http://english.peopledaily.com.cn/english/199911/09/eng19991109N107.html>, November 10, 1999. Accessed on July 10, 2014.
 4. Dean Chang "China's Active Defence Strategy and Its Regional Impact" at <http://www.heritage.org/research/testimony/2011/01/chinas-active-defense-strategy-and-its-regional-impact>. Accessed on July 10, 2014.

The operational component of the strategy is “active defence”. The “active defence” strategy implies that China does not initiate war but only engages in war to defend national sovereignty and territorial integrity. Therefore, the active defence theory refers to the art of preparing for a counter-offensive, culminating in a decisive victory. This type of thinking by Chinese planners can be misleading and deceptive because China’s definition of an attack against its territory is ambiguous. For example, China claims its attacks on India in 1962, on the Soviet Union in 1969, and on Vietnam in 1979 were all “self-defence counter-attacks”⁵. Similarly, if China uses force against Taiwan, it can always claim that it was a defensive act. Therefore, the use of the “active defence” strategy can be deceptive and this has to be understood in the correct context.

It was in 2004 that the PLAAF, for the first time in its history, was given its independent strategy in the “Integrated Air and Space Operations, Being Prepared for Simultaneous Offensive and Defensive Operations”⁶. The PLAAF strategy has clearly changed from its focus on air defence and support to the army to long range precision strikes and offensive operations for achieving air superiority.

IMPORTANCE OF MISSILES IN PLAAF’S STRATEGY

The PLAAF places primary importance on achieving air superiority by carrying out air-to-ground operations to destroy enemy air on the ground⁷. It is likely that in the beginning of the war, the PLAAF will utilise the Second Artillery’s conventional ballistic/cruise missiles for attacks on the enemy command and control centres, surface-to-air missile sites, radars, communication centres, DEAD (Destruction of Enemy Air Defences), and important airfields. Then follow it up with an air offensive by fighter/ bomber aircraft to support a PLA ground offensive. This is the classic manner in which air power is

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5. US DoD, “Annual Report to Congress : Military and Security Developments Involving the People’s Republic of China, 2014,” at http://www.defense.gov/pubs/2014_DoD_China_Report.pdf , p. 13. Accessed on June 19, 2014, pp. 13-14.
 6. “People’s Liberation Army Air Force 2010 (National Air and Space Intelligence Centre: Wright-Patterson Air Force Base, Ohio, August 1, 2010),” at http://www.au.af.mil/au/awc/awcgate/nasic/pla_af_2010.pdf. Accessed on July 10, 2014.
 7. Roger Cliff, “The Development of PLAAF’s Doctrine”, in Richard P. Hallion, Roger Cliff, and Phillip C. Saunders, eds., *The Chinese Air Force: Evolving Concepts, Roles, and Capabilities* (New Delhi: Vij Books India Pvt Ltd, 2012), p.156.

employed to gain control of the air but it is difficult to execute against a determined enemy.

China's Second Artillery Force (SAF) is responsible for the country's strategic nuclear and conventional ballistic and cruise missiles. China's defence strategy has always been to concentrate on development and deployment of unmanned ballistic/cruise missiles as its main long range strike weapons. This policy has been there since the days of Mao, in the 1960s, when China developed nuclear weapons and long range missiles for nuclear weapon delivery. While missiles are an effective option for nuclear warhead delivery, China has also deployed them with conventional warheads.

China's strategy to heavily rely on missiles is in contrast to force projection by deployment of manned platforms like aircraft and ships by most other countries, including the USA and India. There is a number of reasons for China to be adopting a missile-based strategy. The most important reason is that China has been most successful in the space and missiles industries which have been referred to as a "pocket of excellence" by the Federation of American Scientists.⁸ China has not been able to produce world class combat aircraft and naval ships to compete with those of the USA and other advanced countries. On the other hand, China has successfully produced rocket motors and even small turbofan engines for cruise missiles. China also realises that the training state of its air force and navy is inferior to that of the American forces. The Americans have combat experience from their extensive involvement in recent conflicts. On the other hand, the PLAAF lacks actual combat experience. The last major war in which the PLAAF was involved was the Korean War in the early 1950s. In the war against Vietnam in 1979, the PLAAF was employed in a very limited way. Chinese forces also suffer from the inherent flaws in the Communist system of subjecting career officers to long years of political indoctrination, thus, discouraging high calibre professionalism.

The second reason for China opting for a missile-based strategy is that in the Taiwan theatre, Chinese long range missiles can threaten

8. Lora Horta "The Dragon's Spear: China's Asymmetric Strategy" *Yale Global Online*, October 17, 2013, at <http://yaleglobal.yale.edu/content/dragon%E2%80%99s-spear-china%E2%80%99s-asymmetric-strategy>. Accessed on July 10, 2014.

US naval ships, carrier battle groups and air bases from their missile sites on the mainland. The Chinese can shoot and scoot, taking the advantage of geographical depth whereas the Americans will be exposed in the Western Pacific. The US Air Force and naval aircraft carriers can, of course, operate from long distances from the battle zone, but will suffer due to increased travel time, resulting in reduced sortie generation rates.

Another reason for China relying heavily on missiles is that it can produce large numbers of these weapons at cheap rates due to lower labour costs and reduced Research and Development (R&D) costs compared to the Western countries. In the West, a lot of money has been spent on R&D for advanced weapons but the Chinese don't have to spend so much on R&D because they have been able to procure classified technology illegally through their agents in the West⁹.

China's missile strategy is also based on the fact that China is not a signatory to the Intermediate Nuclear Forces (INF) Treaty of 1987 which bans all ground launched nuclear and conventional ballistic and cruise missiles with ranges from 500–5,500 km. The five countries which are signatories to this treaty are the USA, Russia, Ukraine, Belarus, and Kazhakstan. China is not a signatory to this treaty and can, therefore, continue to increase its arsenal of missiles in this range.¹⁰

China has a large ballistic and cruise missile force which it is expanding in both size and types of missiles. According to the US National Air and Space Intelligence Centre's report, "Ballistic and Cruise Missile Threat" issued in 2013, "China has the most active and diverse ballistic missile development program in the world." The strength and types of missiles in China's inventory are given in Table 1 below.

9. n. 5.

10. "China's Military Strategy in the Asia-Pacific: Implications for Regional Stability," at www.project2049.net/documents/China_Military_Strategy_Easton.pdf, September 26, 2013. Accessed on July 10, 2014.

Table 1: China's Ballistic and Cruise Missile Force.

System	Missiles	Launchers	Estimated Range
ICBM (Inter-Continental Ballistic Missile)	50 -75	50 - 75	5,500 + km
IRBM (Intermediate Range Ballistic Missile)	5 - 20	5 - 20	3,000 – 5,500 km
MRBM (Medium Range Ballistic Missile)	75 - 100	75 - 100	1,000 – 3,000 km
SRBM (Short Range Ballistic Missile)	1,000 - 1200	200 - 250	<1,000 km
GLCM (Ground Launched Cruise Missile) DH-10	200 - 500	40 - 55	1,500 + km
ALCM(Air Launched Cruise Missile) YJ-63	Unknown	Unknown	200 km

Source: US DoD. "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2012", http://www.defense.gov/pubs/pdfs/2012_cmpr_final.pdf . ALCM range data is from Dennis M. Gormley, Andrew S. Erickson, and Jingdong Yuan, *A Low-Visibility Force Multiplier: Assessing China's Cruise Missile Ambitions* (Washington: NDU Press, 2014), p.25.

The MRBMs form a force of about 75-100 missiles with a range of up to 3,000 km. The PLA's Second Artillery Conventional Missile Brigade is equipped with the Dong Feng-3 and Dong Feng-21 mid-range ballistic missile models, the DF-15 short-range ballistic missile, and the cruise missile DH-10 (also called the CJ-10). Most of these missiles are deployed on China's east coast, targeted at Taiwan. One brigade of the DF-15 is reported to be deployed in Chengdu, targeted at India¹¹. The DF-3 MRBM is no longer in use since it is obsolete, so the missiles which will shoulder the role for conventional long range attacks will be the MRBM DF-21; SRBMs DF-15 and DF-11; DH-10 cruise missile; and YJ-63 ALCM. Thus, it can be seen that China's major force for conventional attacks consists of 75-100 MRBMs of the DF-21 class; 1,000-1,200 SRBMs of up to 1,000 km range; and 200-500 GLCMs/LACMs (Ground Launched/Land Attack Cruise Missiles) of 1,500 km range. If one calculates the number of targets in India which China will have to hit with these missiles, and takes into

11. "The PLA's Conventional Guided Missile and the Balance of Military Power Between Taiwan and China" <https://web.duke.edu/pass/pdf/warpeaceconf/p-lin.pdf>. Accessed on July 8, 2014.

account the missiles lost due to launch failures and missed hits, then one can see that the threat is not incapacitating. Indian planners need to understand these limitations of the Chinese missiles and react appropriately to any attempts at coercion by China.

PLAAF'S MODERNISATION PROGRAMMES

To implement the doctrinal changes, China has been modernising its armed forces for more than two decades but the scale of modernisation has worried the regional nations. In June 2014, the Pentagon, in its annual report on China, stated, for the first time, that the PLAAF "is pursuing modernisation on a scale unprecedented in its history¹²." Some of the major modernisation programmes of the PLAAF are listed below:

- The PLAAF has a combat aircraft strength of 1,900 aircraft, out of which "600 are modern." These are probably the J-10/J11/SU-27/SU-30/JH-7A class of aircraft. The PLAAF is closing the gap with other advanced air forces by improving its capabilities in command and control, electronic warfare and data links. It still has a large number of older Soviet era fighter/ attack aircraft like the J-7, Q-5 and J-8 but these are being phased out and the Pentagon report states that "it will become a majority fourth generation force within the next several years."
- China is trying to procure the advanced SU-35 multi-role fighter aircraft from Russia. The SU-35 is equipped with the NIIP IRBIS-E passive electronically scanned array radar which has a pick up range of 400 km on a 3m² target. If this deal goes through, the SU-35 could enter service in 2016 or 2018.
- China is "vigorously pursuing fifth generation capabilities." The stealth programmes which are currently being pursued are the J-20 which first flew in January 2011, and the J-31 which first flew in October 2012. The J-31 is smaller in size than the J-20.
- China's long range bombers continue to be the H-6 variants which are a Chinese copy of the Soviet era TU-16 aircraft. China has upgraded its H-6 fleet with new avionics and better engines. The most important improvement is in the H-6K which carries the Chinese ALCM YJ-63, with a range of 200 km. The H-6K is

12. n. 5.

capable of carrying six ALCMs and has been fitted with new turbofan engines to extend its range. Modifying the H-6K to carry cruise missiles has given the PLAAF the capability to carry out long range stand-off precision strikes. The PLAAF is also developing two new air launched Land Attack Cruise Missiles (LACMs) with 1,500 km range and 10 m accuracy.¹³

- Strengthening China's air defence capabilities is a priority for the PLAAF. China has established a robust air defence system and "possesses one of the largest forces of advanced SAMs in the world." These lethal long range Surface-to-Air Missiles (SAMs) are a combination of the Russian S-300 variants and the indigenous HQ-9. China has also shown interest in acquiring Russia's newest long-range SAM, the S-400 TRIUMF. If this contract is signed, China will become the first country to import this very capable, 400 km range SAM.
- China is developing a new heavy transport aircraft, the Y-20, which was first flight tested in January 2013. The Y-20 is likely to be the basis for future aerial refuelling, Airborne Warning and Control System (AWACS) and Intelligence, Surveillance and Reconnaissance (ISR) platforms.

IMPLICATIONS FOR INDIA

The implications of the PLAAF's modernisation for India are:

- India need not match the numerical superiority of the PLAAF in terms of manpower and equipment. There is no need for India to get into an arms race with China and match its inventory weapon by weapon. India needs to concentrate on maintaining an asymmetry to deter China from any attempts at coercion or to resolve disputes by use of force. The Indian Air Force (IAF) must continue to maintain its lead with respect to the PLAAF in terms of technology and superior training. The IAF, at present, enjoys a technological advantage over the PLAAF with the SU-30 MKI of the IAF being superior in many respects to the SU-30MKK of the PLAAF. To give an example, the SU-30 MKI has a pick up range of 210 km compared to 130 km of the SU-30MKK on a similar

13. Dennis M. Gormley, Andrew S. Erickson, and Jingdong Yuan, *A Low-Visibility Force Multiplier* (Washington, D.C.: NDU Press, 2014).

target.¹⁴ If the SU-35 deal is finalised, it will take another two to four years for deliveries to start. The SU-35 induction will give the PLAAF a technological advantage over the IAF but this can be overcome if we get our act together. India needs to finalise the Rafale deal for 126 aircraft from France. This deal has been hanging fire since the last few years due to various reasons. These problems need to be solved quickly for the deal to move forward. The planned upgrade of 80 SU-30MKIs to 'Super Sukhoi' standard also needs to be expedited.¹⁵ The Rafale and Super Sukhoi will give the IAF the edge to counter the SU-35.

- China's ballistic and cruise missiles will be a major threat to the IAF. To counter this threat, the IAF needs to upgrade its terminal air defences. Long range SAMs, as and when they are inducted, should provide some ABM (Anti-Ballistic Missile) capability against China's ballistic missiles. Cruise missiles fly at low levels and to counter them, the first requirement is detection. The IAF needs to consider development of low cost aerostat radars to pick up cruise missiles. To destroy cruise missiles, deployment of CIWS (Close in Weapon Systems) of the Phalanx class needs to be considered. These CIWS guns coupled with modern SAMs and interceptor aircraft having "look down shoot down" capability, will strengthen air defences against cruise missiles. The IAF also needs to use passive methods to absorb damage by any missiles which get through the defences. It needs an adequate number of Hardened Aircraft Shelters (HAS) to park fighter aircraft. Another passive method which needs to be explored is deployment of modern means of runway repair material in the form of aluminium mats which can keep the runway down time to minutes instead of hours. The IAF also has the advantage of a large number of airfields in the east and west, so even if some airfields are down, operations can continue from other locations. The Chinese cannot take out all our airfields. The best defensive strategy against China's

14. Dr Carlo Kopp "Flanker Radars in Beyond Visual Range Air Combat", *Air Power Australia*, April 3, 2008, at <http://www.ausairpower.net/APA-Flanker-Radars.html>. Accessed on September 10, 2013.

15. "IAF to Upgrade SU-30MKIs to Super Sukhoi Standard", *The Economic Times*, November 28, 2012.

missiles is to deter them by developing similar capabilities so that India can strike targets in China. India needs to step up its plans to develop the hypersonic Brahmos-2 cruise missile and subsonic 1,000 km range Nirbhay cruise missile.

- Against the PLAAF's combat aircraft strength of 1,900 combat aircraft, the IAF has 866 combat aircraft.¹⁶ While this gives China a 2.2: 1 advantage in terms of numbers, it needs to be understood that the PLAAF cannot deploy all these aircraft against India due to the limited number of military airfields close to India and the infrastructure of these airfields. China has a large number of airfields but most of them are far away from India's border. It has few military airfields in Tibet and south Xinjiang. The airfields in Tibet are mostly at heights of more than 3,000 m. At these high altitudes, aircraft operations suffer from load penalties due to the reduced density of air. This will be a limitation for the PLAAF considering that its tanker fleet is also limited. The induction of the Y-20 heavy transport aircraft in the PLAAF as an aerial refuelling tanker, in the coming years, will enhance its long range strike capability. This is a trend which India will have to watch.
- The PLAAF has established a robust air defence system with a large inventory of lethal SAMs. The IAF needs to invest in advanced DEAD systems like hypersonic cruise missiles and UCAVs (Unmanned Combat Aerial Vehicles) to destroy PLAAF SAM sites.
- India's plans to carry out trials of the air launched version of the Brahmos supersonic cruise missile will give the IAF long range standoff precision strike capability and enable it to penetrate China's strong missile defended areas.

CONCLUSION

The PLAAF has travelled a long way from its antiquated past in its transition to a modern air force. China's increasing inventory of advanced weapons—conventional ballistic missiles, cruise missiles, fourth generation fighter aircraft, SAMs, AWACS and other hardware—coupled with its increasing assertiveness in territorial disputes with its neighbours, has caused anxiety in the region. China's

16. n. 12, and *The Military Balance*, 2014.

military build-up is of serious concern to India. This is a challenge which India must accept, and build up its own capabilities in critical areas to resolutely counter any provocation from China.

CHINA-PAKISTAN NEXUS: CHALLENGES FOR INDIA

SHALINI CHAWLA

China and Pakistan have been complementing each other for over four decades now for their strategic requirements. Pakistan, obviously found an all weather friend in Beijing, for fulfilling its military needs and, most importantly, its nuclear requirements. Over the years, China has provided Pakistan a wide range of conventional weapon systems and Pakistan's nuclear and missile build-up has primarily been with Chinese assistance. While Pakistan turned towards Beijing as a trusted friend in dealing with its 'implacable' enemy, India, and inconsistent partner, the US, China, on the other hand, found a feasible option in Pakistan to contain India and also the expansion of US dominance in the region. China's added incentive has been to cater to its growing energy requirements from the Persian Gulf and Central Asia through Pakistan.

The China-Pakistan strategic partnership, which started as early as 1951, has continued to grow and both nations have enjoyed the mutually beneficial relationship. It was as early as in 1959 when Ayub signalled to Beijing his interest in demarcating the Sino-Pakistani border in northern Kashmir.¹ A further boost to the Sino-Pak relationship

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1. Dennis Kux, *The United States and Pakistan 1947-2000: Disenchanted Allies* (New York, Oxford University Press, 2001), p.113.

came post the Sino-India border war in 1962. China displayed ample interest in extending support to Pakistan despite its membership in the US alliance system against China and the Soviet Union. Pakistan received economic, military and strategic support from China and, in return, China was guaranteed a foothold in the subcontinent and also assurance of support from the Islamic world west of Pakistan.²

The informal Sino-Pak alliance grew and a border agreement was negotiated between the two nations in 1962. In March 1963, the two countries signed the boundary agreement on “China’s Sinkiang and the Contiguous Areas, the Defence of Which was Under the Actual Control of Pakistan.”³ India kept on strongly objecting since 1962 that Pakistan was in illegal occupation of the territory, hence, it would not be incorrect to say that the treaty was illegitimate, and that Pakistan was attempting to give a legal status to its illegal occupation. The agreement is very important in the history of the Sino-Pakistan relationship as it provided the base for the future defence and military collaboration between the two nations.

The 1965 India-Pakistan War marked an important landmark in the Sino-Pakistan relationship, providing it a new dimension. China demonstrated support for Pakistan which was a member of the Southeast Asia Treaty Organisation (SEATO), basically constructed to counter Communist expansion.

CHINESE NUCLEAR AND MISSILE ASSISTANCE TO PAKISTAN

The most important outcome of the China-Pakistan strategic nexus was China’s extensive support to Pakistan in building up its nuclear capabilities. Nuclear proliferation analyst Gary Milhollin was not wrong when he argued, “If you subtract Chinese help, there wouldn’t be a Pakistani program.”⁴

China had offered to supply nuclear weapons to Pakistan in 1965, but Gen Ayub had turned down the proposal. The Pakistani

2. Samina Yasmeen, “China and Pakistan in a Changing World”, in K Santhanam and Srikanth Kondapalli, eds., *Asian Security Review 2003, Asian Security and China 2000-2010* (New Delhi: Shipra Publications, 2004), p. 310.
3. *The Boundary Agreement Between China and Pakistan, 1963*
4. Gordon Corera, interview with Gary Milhollin, Washington, D.C., December 14, 2005, as cited in Gordon Corera, *Shopping for Bombs* (New Delhi: Foundation Books, 2006), p. 45.

leadership started systematic and aggressive efforts for acquiring nuclear weapon capability after the India-Pakistan War in 1971 and the creation of Bangladesh. Bhutto propagated religious ideology to seek assistance for Pakistan's nuclear programme on the global platform. Nuclear weapons were expected to "neutralise" India's conventional military superiority and, hence, increase Pakistan's military and psychological capacity to continue its fight for Kashmir. Pakistan sought external assistance for its nuclear weapon programme and China has been the most important source for nuclear exports to Pakistan.

China proved to be Pakistan's crucial partner in its nuclear programme, and in the 1970s and 1980s, there were definitely state-to-state deals in which Pakistan's former top nuclear scientist and nuclear proliferator Abdul Qadeer Khan, was the key intermediary.⁵ Pakistan received help with the reactor, the weapon design and nuclear material. A Q Khan visited China on a regular basis and Chinese scientists were present at Kahuta, possibly helping the Pakistani scientist.⁶

In 1986, China also concluded a comprehensive nuclear cooperation agreement with Pakistan and in the same year, reportedly, Chinese scientists began assisting Pakistan with the enrichment of weapon grade uranium. Pakistan also received tritium gas from China that could be used to achieve fusion in hydrogen bombs and boost the yield of atomic bombs. The amount of gas transferred to Pakistan was apparently sufficient for making 10 nuclear weapons.⁷

China has adopted an extremely supportive posture in the development of Pakistan's nuclear weapons and supplied with it a variety of nuclear products and services, ranging from uranium enrichment technology to research and power reactors. Pakistani scientists were involved in a nuclear test at China's Lop Nor test

5. Ibid.

6. Ibid.

7. "Incidental Intelligence: China Emerging As Third World Weapons Supplier," *Asia-Pacific Defence Reporter*, September 1991, p. 19; Gary Milhollin and Gerard White, "Bombs From Beijing: A Report On China's Nuclear And Missile Exports," May 1991, p. 17; *The Risk Report*, May 1995, p. 8; Gary Milhollin and Gerard White, "A New China Syndrome: Beijing's Atomic Bazaar," *Washington Post*, May 12, 1991, pp. C1, C4. As cited in, "China's Nuclear Exports and Assistance to Pakistan", *NTI*, at <http://www.nti.org/db/china/npakpos.htm>

site in 1983. The Chashma nuclear power plant project which was earlier initiated and cancelled by France in the 1970s, was resumed in the early 1990s. The nuclear plant was under the International Atomic Energy Agency (IAEA) safeguards, with the China Nuclear Energy Industry Corporation (CNEIC) as the foreign supplier, and the reactor is based on China's first indigenous reactor, Qinshan-1.⁸

In the 1990s, there was significant pressure building up from Washington on China to restrain its nuclear assistance. In 1993, in fact, China and the IAEA signed an agreement to apply IAEA safeguards to the Chinese nuclear power station sold to Pakistan (INFCIRC/418).⁹ Despite these measures, and the pressure from the US, Chinese assistance in this direction continued, including assistance in the construction of a 40 megawatt (MW) reactor at Khushab.¹⁰

China became a full member of the IAEA in 1984, signed the nuclear Non-Proliferation Treaty (NPT) in 1992 and Comprehensive Test Ban Treaty (CTBT) in 1996, but continued the assistance to Pakistan. In 1995, the Chinese supplied ring magnets to Pakistan for the production of Highly Enriched Uranium (HEU). Pakistan went in for overt nuclear tests in 1998 and has been expanding its nuclear arsenal with continued support from China. The construction of the nuclear reactor Chashma-1 (also known as CHASNUPP-1) in Punjab was started in 2000, with Chinese support. Chashma -2 commenced in 2005, with Chinese technical and financial assistance. The enriched fuel for the Pressurised Water Reactor (PWR) is imported from China. In 2008, Pakistan announced plans for the construction of two new reactors – Chashma 3 and 4, with Chinese assistance. China has agreed to provide 82 percent of the total cost at an extremely low interest rate.¹¹ Reportedly, in 2010, the Pakistan Atomic Energy Commission (PAEC) signed an agreement with the China National Nuclear Corporation (CNNC) for the construction of the fifth unit at Chashma.¹²

8. "Pakistan's Nuclear Weapons Programme Development", at <http://nuclearweaponarchive.org/Pakistan/PakDevelop.html>

9. "China's Nuclear Exports and Assistance to Pakistan", *NTI*, at <http://www.nti.org/db/china/npakpos.htm>

10. *Ibid.*

11. See "Nuclear Power in Pakistan" at <http://www.world-nuclear.org/info/inf108.html>

12. *Ibid.*

China's Missile Exports to Pakistan

Pakistan's missile development programme has been primarily carried out with Chinese assistance and, to some extent, with help from North Korea after the United States imposed sanctions on China. Chinese missile assistance to Pakistan ranges from providing equipment and training to transferring complete missiles. China reportedly, started discussing the transfer of the M-11 missiles to Pakistan in the early 1990s. In the same period, Pakistan, reportedly acquired complete though unassembled M-11s and possibly an undisclosed number of M-9 Short Range Ballistic Missiles (SRBM) from Beijing.¹³

The M-11 is a single stage, solid fuelled missile with a reported range of 300 km and payload of 800 kg. In 1989, Pakistan test-fired a 150 kg multi-stage rocket at an altitude of 640 km. This was followed by the testing of the short range, solid propellant Hatf-I and Hatf-2 missiles, for which China provided vital assistance. Pakistan then went in for the longer range missiles, as these missiles were unable to target Pakistan's prime objective, New Delhi.¹⁴

The technology for the M-11 was used to develop future missiles by Pakistan. Technical evaluation of the missile Hatf-3 (Ghaznavi), tested for the first time in 2002, suggests that the Hatf-3 is a version of the M-11 or may be even a repainted M-11. Reportedly, the production facilities of these missiles have been set up with Chinese assistance.¹⁵

The Hatf-4 or Shaheen-1 is believed to be a scaled up version of the M-11 missiles supplied to Pakistan in 1993. The Shaheen is a single stage, solid propellant missile with an inertial guided system and has a maximum range of 750 km.¹⁶ The Ghauri missile or Hatf-5, was developed with North Korea's assistance, resembles the shape of the Russian 'Scud-B', and is an outcome of coordinated inputs from both North Korea and China. There were reports regarding an arrangement among Pakistan, China and North Korea whereby China would provide the soft technology and engineering for the Ghauri,

13. "Missile Overview" *NTI* at http://www.nti.org/e_research/profiles/Pakistan/Missile/index_3066.html

14. Bhumika Chakma, *Pakistan's Nuclear Weapons* (London: Routledge, 2009), p. 69.

15. S. Chandrashekar, Arvind Kumar and Rajaram Nagappa. "An Assessment of Pakistan's Ballistic Missile Programme : Technical and Strategic Capability", *NIAS Study -2006*. p 10.

16. *Jane's Strategic Weapon Systems*, issue 48, 2008, p. 112.

and North Korea would act as an agent for the transfer of Chinese technology and would provide the hardware and components from its Nodong missile programme.¹⁷ The first flight test of the Ghauri, single stage, liquid propellant missile, with a range of 80-1,200 km, was in April 1998. The Hatf-6, test-fired in 2004, with maximum range of up to 2,500 km is believed to be based upon the earlier Chinese two-stage solid propellant missile M-18 which was demonstrated in 1998. Also, the Pakistani cruise missile, Babur (tested in 2005), which is an air, ground, ship and submarine launched short range, turbojet powered, single warhead cruise missile, also has Chinese technical input.

CHINESE CONVENTIONAL WEAPONS TO PAKISTAN

China began arms aid to Pakistan in 1965 after the US embargo on Pakistan, when the leadership in Islamabad felt the need of diversifying its sources of weapon supply.

China is today Pakistan's largest defence supplier. Pakistan has not only imported the maximum types and numbers of defence equipment from China but managed to build up its indigenous defence capability with Chinese assistance. Chinese equipment turned out to be much cheaper than equipment from the West, and the Chinese sales were further facilitated by the availability of credit from China on easy repayment terms. In the 1960s, and later in the 1970s also, Pakistan received interest free economic aid and also a significant amount of free weapons from China, becoming the only non-Communist Third World country to receive generous assistance from it.

The Chinese F-6 entered the inventory of the Pakistan Air Force (PAF) in 1966, followed by other systems. In the late 1960s, Pakistan received MiG-19 fighters from China, apart from substantive infantry equipment. China also supplied 115 F-6 fighters between 1971 and 1981. Chinese military assistance came not only in the form of arms but also development of infrastructure for repair and overhaul.

On the naval front, after the 1971 War, the Pakistan Navy opted for a modest acquisition programme in the form of new Chinese built missile/torpedo attack craft. Between 1972 and 1980, 12 Slaughter

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

class attack Fast Patrol Boats (FPBs), 4 Hunaim class attack craft and 4 Huchwan class hydrofoil craft were delivered to Pakistan.¹⁸ Pakistan's naval acquisitions in the late 1970s focussed on building surveillance and targeting capability and, thus, the deal for the French Atlantiques was finalised.

In the 1980s, the army inventory included significant numbers and types of Chinese equipment, including the T-59 Main Battle Tanks (MBTs), T-60 light tanks and T-63 light tanks and Type 531 Armoured Personnel Carriers (APCs). About 90 A-5s were obtained in 1983-84 for the price of \$1 million per aircraft. Acquisition of 95 F-7 series aircraft was started, adding to the quantitative element in the PAF.¹⁹ By the early 1980s, China had provided Pakistan with roughly about 65 per cent of its aircraft, and roughly 75 per cent of its tanks.

The decade of the 1990s was a setback for Pakistan's military modernisation due to the American sanctions and also Pakistan's crippled economy. Sino-Pakistan defence collaboration flourished under the umbrella of the US sanctions and, in the process, the two nations entered into a deal for the co-development of a fourth generation fighter aircraft, the JF-17 (earlier called the FC-1)—the K-8 jet trainer had earlier been jointly produced. The JF-17 is a low cost, multi-role combat aircraft that meets the tactical and strategic requirements of the Pakistan Air Force, while reducing the reliance of Pakistan on imports. The JF-17 has been co-developed by Pakistan and China and is being built by China's Chengdu Aircraft Industry Corporation (CAC) and the Pakistan Aeronautical Complex (PAC), Kamra. Pakistan has also increased its initial target of buying 150 JF-17s to acquiring up to 250 aircraft, representing a quantum jump in its aircraft industry.²⁰ Pakistan has also concluded the deal for the purchase of two squadrons of the Chinese J-10 which, along with the JF-17, would form the backbone of the PAF, according to the PAF Chief.²¹

In 2008, Pakistan signed a deal for the purchase of the Chinese Airborne Warning and Control System (AWACS) (ZDK-03). Pakistan

18. "Pakistan Navy" at <http://www.globalsecurity.org/military/world/pakistan/navy-intro.htm>

19. Ayesha Siddiqi-Agha, *Pakistan's Arms Procurement and Military Build-up, 1979-99: In Search of a Policy* (London: Palgrave, 2001), p. 161.

20. Interview, Air Chief Mshl, Tanvir Mahmood Ahmed, Pakistan's Chief of Air Staff, *Janes Defence Weekly*, April 14, 2007, p.34.

21. Ibid.

is the first country to buy the Chinese AWACS system which China started to produce only in 2004. Pakistan has been focussed on the acquisition of force multipliers and this deal with China is in addition to the Saab Turbopop platform equipped with the Erieye, from Sweden.

China's support to the Pakistan Navy has been significant and in 1984, four Huangfen class missile attack craft were transferred from Beijing for about \$20 million per piece. It is interesting to note that the Chinese naval equipment, being inferior in quality, was less desired but Pakistan obtained the missile craft mainly with a longer term objective of striking a deal of technology transfer in the future for indigenous production of the missile craft.²²

Pakistan's naval acquisitions from China, in the current decade, include 24 C-802/CSS-N-8 anti-ship missiles and four Jiangwei II class frigates. In 2006, the Pakistan Navy ordered four F-22P type frigates from China with the value of the deal at \$600 million.²³ The first destroyer, the PNS *Zulfiqar*, was delivered in 2009 and the second one in 2010. The F-22P which is a modification of a Chinese frigate that uses a Russian-designed main gun rather than a Chinese model, is armed with eight C-802 anti-ship warfare missiles, eight FM-90 Surface-to-Air Missiles (SAM), one AK-176M main gun and two Chinese 30 mm Close in Weapon Systems (CIWS). The frigates can be loaded with one Z-9EC helicopter.²⁴ The fourth F-22P, the PNS *Aslat* was inducted in the Pakistan Navy in September 2013. The PNS *Aslat* is the first frigate of the navy which has been indigenously built at the Karachi Shipyard and Engineering Works (KS&EW). The production was done in collaboration with the China Shipbuilding and Trading Company.²⁵

Other defence production plans on the naval front include four modern corvettes which are planned to be built alongwith the F-22P at KS&EW. The navy also plans to manufacture and procure additional mine hunters, tankers, missile and patrol boats.²⁶ China

22. Siddiqi-Agha, n. 19, p. 159.

23. Bilal H. Khan, "Pakistan Navy Modernization Program", *Pakistan Military Consortium*, at http://www.pakdef.info/pakmilitary/navy/pn_odernization.html

24. Ibid.

25. "Navy Gets Fouth F-22 Frigate", *The Nation*, September 4, 2013, at <http://www.nation.com.pk/karachi/04-Sep-2013/navy-gets-fouth-f-22-frigate>

26. "Pakistan Navy", *Pakistan Defence*, at <http://www.defence.pk/pakistan-navy/>

has also confirmed the sale of six ship-based medium sized Z 9C helicopters to the Pakistan Navy.²⁷

CHINA AND PAKISTAN'S ARMS INDUSTRY

The 1980s and the 1990s saw a wide expansion of defence production activities and a large number of varied projects were undertaken in this period. China has been the main support in the establishment of defence production units in Pakistan, often provided free of cost. Some of the major defence production units established with the Chinese assistance are as follows.

Heavy Industries Taxila (HIT)

This facility, located near Taxila, was set up with the help of China in 1971. Until the mid-1960s, Pakistan was importing tanks, initially from the US (the M-47 and M-48 Patton class in the 1950s and the 1960s) and then from the Chinese (the T-59, which was produced in China from the Soviet T-54 design built under licence).²⁸ In 1971, a Heavy Rebuild Factory (HRF) Project (P-711) was conceived, with Chinese assistance and technology to rebuild the T-59 tanks. When the production started in 1981, the HRF had the capacity to rebuild 100 tanks and 250 engines every year and by October 1990, that capacity had been able to service 1,000 tanks and 2,000 engines.²⁹ It is claimed that out of 11,000 components used in the overhaul of the T-59, approximately 8,000 are now manufactured locally. The overhauling of the Patton tanks and the upgrading of the T-59s was being done in critical areas, with technical assistance from China, America and the British.

HIT witnessed rapid growth in the 1980s when it started to produce the T-69 MBTs with Chinese help. The T-69 11MP tank is fitted with a special engine and also special armour to enhance armour protection.³⁰ The current and future planned production of the HIT

27. *The Military Balance 2005-2006*, IISS (London: Taylor and Francis, 2005), p.230.

28. John Kaniyalil, "Defence Industries in Pakistan", *Strategic Analysis*, May 1993, pp. 229-247.

29. Mushahid Hussain, "Pakistan's Heavy Armour; Upgradation/Modernisation Programme," *Defence Journal*, October 1990, p.7, as cited by Aabha Dixit, "Defence Production in Pakistan", *Asian Strategic Review 1991-92* (New Delhi: IDSA, 1992), p. 293.

30. Dixit, *Ibid.*, pp. 293-294.

includes various items, some of them with Chinese assistance. Some of the major productions at HIT include the Tank 'Al-Khalid', Tank 'Al-Zarrar', Infantry Fighting Vehicle (IFV) 'Al-Hamza', and WZ 653 series Armoured Recovery Vehicle (ARV).

The F-6 Rebuild Factory (F-6RF)

The Pakistan Aeronautical Complex, established in 1973, is dedicated to the overhaul and rebuild of Chinese and French aircraft in the Pakistan Air Force inventory. The F-6 Rebuild Factory i.e. the F-6RF, in the Pakistan Aeronautical Complex (PAC), is an important facility at Kamra, established with Chinese assistance in 1980. The primary purpose of F-6RF has been the overhaul of the PAF's Shenyang F-6 aircraft and their accessories. (the Soviet MiG-17, built under licence in China and sold to Pakistan).

Heavy Mechanical Complex (HMC)Ltd

The Heavy Mechanical Complex (HMC) Ltd., located in Taxila, is not officially part of the defence production establishment, since it is a major heavy engineering subsidiary of the State Engineering Corporation (SEC), controlled by the Ministry of Industries and Production, Government of Pakistan. This was established in 1979 with Chinese assistance and is the largest undertaking of this type in Pakistan.³¹ HMC is capable of undertaking the designing, engineering and manufacturing of industrial plants and machinery.

CHALLENGES FOR INDIA

Pakistan's reliance on China has remained unaffected with the frequent change of regime in Pakistan, and both the military and civilian leaders have been equally enthusiastic about Chinese assistance which has been primarily in the form of military assistance. China has also been supportive of Pakistan, either overtly or diplomatically in Pakistan's disputes with India (on Kashmir). During the 1965 India-Pakistan War, China not only offered assistance to Pakistan but also started firing on the border in order to exert pressure on India. During the 1971 War, Pakistan did not receive any military equipment from China, but it did provide Pakistan economic, political and moral

31. "FAS, Taxila", <http://www.fas.org/nuke/guide/pakistan/facility/taxila.htm>

support after the 1971 War. Two factors could be held responsible for China's approach during the 1971 War:

- India had signed the Indo-Soviet treaty in August which had a security clause.
- The war took place in winter, in December, and the passes were closed.

During the Kargil War, China maintained absolute neutrality and Pakistan did not receive any direct military assistance during the war, but, what is more important is that post Kargil War, Pakistan has been extremely focussed on building up its air force, which it realised was one of the reasons for its defeat, and the maritime strike capabilities of the its navy, primarily, with the Chinese supplies and the US equipment post 9/11.

The Sino-Pak nexus and Chinese assistance to Pakistan in varied fields, indeed, has multiple implications for India. For the last six decades, Pakistan has been following the strategy of covert war against India. The reason why Pakistan adopted the route of covert war has been India's conventional military superiority which has deterred Pakistan in its illegitimate claim for Jammu and Kashmir (J&K). But even with the realisation of India's military strength, Pakistan in its offensive postures launched three wars against India and lost all of them. The prime reason why Pakistan opted for Chinese assistance was the fact that it needed to build up its conventional force and with the suspended Western supplies, China was probably the only option. A study of Pakistan's covert activities in Indian territory clearly brings out the fact that these increased with the build-up of Pakistan's conventional military capability. China, has contributed significantly in building up Pakistan's conventional military capability in the previous three decades, which undoubtedly, implies that it has enhanced, and will further enhance, not only Pakistan's capability, but also its will to carry on covert war through terrorism in India, without the fear of being defeated in a retaliatory Indian aggression. Pakistan no longer feels threatened by any future arms supply suspension by the US. The Chinese equipment has improved in quality owing to the inputs from Russian and Israeli technology, and is no longer inferior

to weapons from the West, thus, adding not only the quantity but also quality to Pakistan's inventory.

Pakistan's nuclear capability and its reliance on the doctrine of *first use* has given it deep confidence to conduct its policy of terrorism against India. Its nuclear posture today has generated deep concern about the risks and dangers of a nuclear holocaust. Even though the possibility of a nuclear war is a remote phenomenon, Pakistan's acquisition of nuclear weapons has boosted its confidence to continue its strategy to "bleed India". Pakistan, today, has the fastest growing nuclear arsenal and also, is the hub of extremism and terrorism, raising numerous questions regarding the safety and security of these weapons.

China's assistance in the development of Gwadar port is an issue of international attention and mostly interpreted in terms of China's strategy of the "string of pearls" in areas far from its territory. But what is perhaps of greater significance for India is the implication of a much expanded and technologically advanced Pakistan Navy (and its aerial capability) deployment at the port abeam the major trade and oil transportation routes, besides its proximity to the Strait of Hormuz through which passes more than 50 per cent of the world's crude oil. The bulk of India's oil supplies coming from the Persian Gulf through this choke point would then pose a new challenge of vulnerability that would have to be addressed on priority. Similarly, more than four million Indian expatriates work in the Arab states of the Gulf region. The political implications of potential influence/control by Pakistan on the sea routes between India and the Gulf ports would have to be carefully examined.

It would be interesting to analyse the possibilities of a two-front war in the light of the growing Sino-Pakistan strategic nexus. It would not be incorrect to state that with the current realities, the probability of a two-front war cannot be ignored, especially in the following scenario: if China launches a small scale or large scale aggression against India, then the chances (strong) of Pakistan taking advantage of the situation do exist. In the other scenarios, Pakistan might not receive direct Chinese military assistance but its diplomatic and political support will certainly be there for Pakistan. This assumption has been strengthened by the Chinese announcement to

provide 50 JF-17s to Pakistan, free of cost, immediately after Osama's killing in May 2011. China's unstinted support to Pakistan has, no doubt, evolved its military and nuclear (missile) power and added to its psychological confidence to continue its strategy of covert war against India. This has also reduced Pakistan's reliance on the West for future military assistance and thus, it is less bound to bend under the Western pressure to alter its strategic calculus.

INDO-CHINA TRADE RELATIONS 2009-2014

SHREYA KAKARLA

INTRODUCTION

China and India represent two of Asia's most prominent and powerful societies today. Both these countries have enjoyed relatively high economic growth rates – India with 5.4 percent and China with 7.5 percent in 2014. With the rest of the major economies barely coming out of recession, India and China appear to be emerging as prominent powers in the global market and international affairs.

Indo-China relations have gone through dramatic change over time. The tumultuous relationship has witnessed deep hostility in the 1960s and 1970s, rapprochement in the 1980s and, finally, a mutual understanding of the importance of cooperation since the Soviet Union's disbanding. The post-Cold War multipolar environment has offered both governments a chance to move on to a more cooperative and productive relationship. Both nations appear to have taken these opportunities, understanding the need for cooperation in both economic and political terms, in order to ensure stability in Asia as well as socio-economic development in their respective nations. Therefore, with a greater focus on improving the economic relationship, for the time being, the thorny issues of border delimitation seem to have been put on the

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back-burner. Economic engagement is being enhanced and deepened. This paper focusses on the Indo-China trade relations over the five-year period 2009 to 2014. It will examine the trends that are visible in this field to make some recommendations that may help to make the trade more favourable to both sides.

OVERVIEW OF INDO-CHINA RELATIONS

At present, India and China can be seen as two unique players with immense potential. China has certainly 'risen' to power even as India is intermittently trudging along. An understanding of sorts between the two would appear to be essential to maintain stability and peace in Asia. However, a truly flourishing relationship, in both political and economic terms, has been prevented due to friction between the two nations throughout history.

The historical journey of the India and China relationship is well known. The high of "Hindi-Chini Bhai-Bhai" in the 1950s hit rock bottom in 1962. The estrangement, thereafter, kept the two countries apart for a few decades. Additionally, China's relationship with Pakistan, which flourished through the 1960s and 1970s also became a cause of hostility and friction that has added to the strain on Indo-China relations. Clear evidence of this was provided in 1971, when China professed support for Pakistan during the war between India and Pakistan. And, their relationship continues to flourish.

Until the decade of the 1990s, these issues (as also India's inward looking economic policies) prevented a productive and cooperative trade relationship between India and China. But since then, they appear to have taken a backseat with both nations primarily focussing on economic engagement in order to further improve their socio-economic situation. The bilateral trade has the potential to be one of the most promising aspects of Indo-China relations.

ECONOMIC PERFORMANCE IN INDIA AND CHINA

Before delving into the current situation of trade relations between India and China, it would be pertinent to analyse and comprehend the recent economic performance of the two countries.

As modern India and China came into existence in 1947 and 1949 respectively, both countries shared similar conditions such as large

rural populations, years of economic isolation, low incomes and much central control.

In recent times, China and India have achieved high growth rates. Before the economic crisis in 2011 and the onset of stagflation in 2013-14, India's economic growth rate matched Japan's growth rate in the 1960s and South Korea's growth rate in the 1970s, indicating an economy that could be speedily growing to become one of the great economic powers in the world. Similarly, China has enjoyed extremely high growth rates, surpassing the goal of 7.5 percent set by its 2005 11th Five-Year Plan.

The key aspects of both countries' economic performance are set out in Table 1. The evidence in Table 1 as released by the World Bank Data Bank indicates that China has had a relatively high economic growth rate (steadily equal to, or above, 7.5 percent) for the last 20 years. In contrast, India, that had possessed a similar rate as, and greater purchasing power parity than, China in the 1970s and 1980s, has fallen behind¹, with a substantial difference of more than 4:1 in Gross Domestic Product (GDP) and purchasing power parity in 2014. In the last 20 years, China has enjoyed a substantial increase in GDP and economic growth, broadening the economic gap between the two countries.

Table 1: Comparison of GDP and % Growth of GDP in India and China, 2008-14²

Year	India		China	
	GDP (US\$ Billion)	% Growth of GDP	GDP (US\$ Billion)	% Growth of GDP
2008	1,262	6.2	4,520	9.6
2009	1,266	6.8	4,991	9.2
2010	1,630	10.1	5,930	10.3
2011	1,827	7.9	7,322	9.3
2012	1,947	4.9	8,229	7.7
2013	2,117	5.9	9,181	7.7
2014	2,315	6.4s	10,028	7.5

1. The data was collected from a report from the International Monetary Fund, documenting economic growth rates from 1970-2013.
2. The data in Table 1 was released by the World Bank Data Bank (June 2014).

Additionally, as evidenced by statistics released by the World Bank Data Bank, a significant similarity in the economic performance of both China and India is the steep increase in the share of trade (total imports and exports) relative to GDP. Furthermore, both countries have seen relative changes in the inflow of Foreign Direct Investment (FDI) over the last five years. FDI in China has increased significantly in the last decade, most notably from \$59.1 billion in 2012 to \$64.1 billion at the end of 2013, marking the highest inflow of FDI into any country in the world. Comparatively, whilst India has experienced notable increases in the inflow of FDI from the \$1 billion in 1990, higher barriers to FDI through the Foreign Exchange Management Act, which disallows overseas corporate bodies to invest in India, has limited the amount by which the FDI could have increased and contributed to the economy. This was a major political problem, especially during the last few years of the tenure of Prime Minister Manmohan Singh (who introduced the Act in 1991 as India's finance minister).³ However, with the democratic transition to the new Bharatiya Janata Party (BJP) government, this situation is expected to improve. Given the focus of the new government on economic diplomacy, the share of trade and the inflow of FDI is expected to further increase as India strengthens economic relations with other countries and secures more business partners and prospective investors as part of the economic diplomacy focus of Prime Minister Modi. In the case of China too, President Xi Jinping has a similar focus. It will be interesting, therefore, to see how the two leaders who share a common economic focus, reorient their bilateral relations.

Not only is individual economic growth by India and China essential for its global impact, but also for the prospect of increasing interdependence and the possible emergence of a prosperous and cohesive economic relationship.

BILATERAL TRADE SITUATION, 2009-14

In the last few years, we have witnessed primarily the steady growth of two-way investment and economic ties between China and India. According to statistics released by the General

3. The statistics and facts were collected from <http://www.slidesandnotes.com/2011/02/foreign-exchange-management-policy-in.html>.

Administration of Customs, as seen in Figs 1 and 2, India has become China’s largest trading partner in South Asia, holding more than 2 percent of China’s total trade, whilst China has become one of India’s largest trading partners globally, holding almost 9 percent of India’s total trade.

Fig 1: China’s Trading Partners⁴

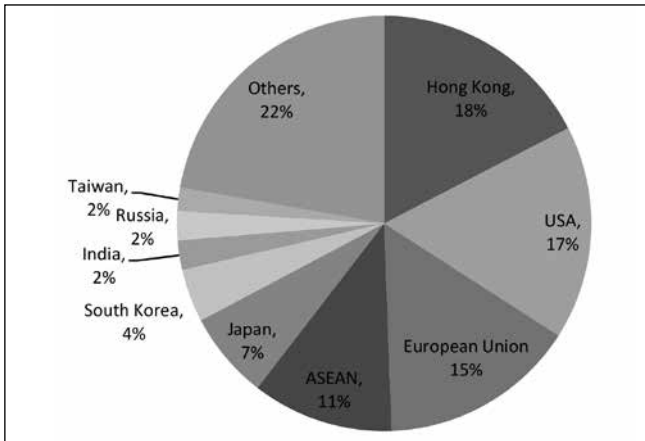
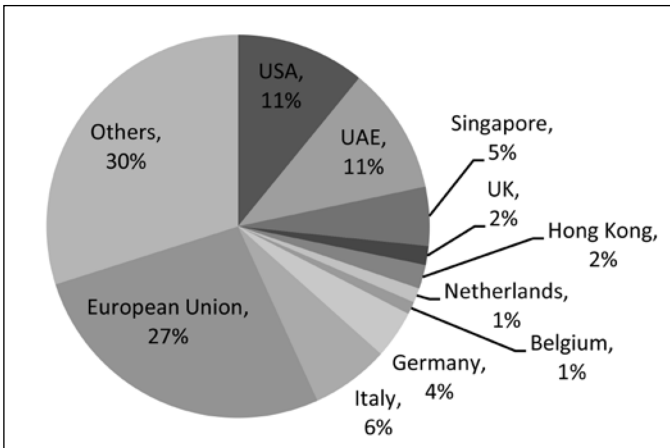


Fig 2: India’s Largest Trading Partners⁵



4 The data in Fig 1 was released by the General Administration of Customs, China, in their Annual Report in 2012.

5. The data in Fig 2 was collected from the Annual Report of the Ministry of Commerce, India, in 2013.

Table 2: Bilateral Trade Between India and China, 2009-2014⁶

Year	Indian Exports to China (US\$ billion)	Chinese Exports to India (US\$ billion)	Total Trade (US\$ billion)	Trade Balance (US\$ billion)
2009	8.15	19.71	27.86	-11.56
2010	9.64	20.36	30.00	-10.72
2011	20.91	53.09	74.00	-32.18
2012	18.80	46.47	66.47	-28.87
2013	17.03	48.44	65.47	-31.41

As evident in Table 2 and in the statistics released by India’s Ministry of Commerce, bilateral trade between India and China has been enhanced over the years, increasing drastically from the \$20 billion in 2008 to \$30 billion in 2010. From this point, the total trade between China and India increased to \$74.00 billion in 2011. It, however, slipped to \$65.47 billion in 2013, highlighting the unexpected slowdown of rapidly growing trade ties that came to be seen as one of the key drivers of the relationship amid political uncertainties such as from the long-running boundary dispute.

India also has a trade deficit of \$31.41 billion with China, an increase from the \$28.87 billion in 2013, suggesting a great difference in the revenue gained by each country through the economic relationship. The trade deficit can be primarily attributed to the fact that India exports mostly raw materials and purchases Chinese imports of completed goods.

EXPORTS FROM INDIA

Table 3: Most Popular Commodities Exported by India⁷

Commodity	Share of Exports
Ores, slag, ash	52.10%
Iron and steel	11.50%
Plastic and articles	7.40%

6. The data in Table 2 was released from the Annual Report of the Ministry of Commerce, India in 2013.
7. The data in Tables 3 and 4 was released in the Annual Report of the Ministry of Commerce, Government of India, in 2012.

Organic chemicals	6.50%
Inorganic chemicals	3.90%
Salt, sulphur, lime, cement	2.60%
Fish and aquatic invertebrates	1.90%
Parts for nuclear reactors, boilers, machinery	1.80%
Cotton	1.50%
Copper and articles	1.20%

As indicated by the data present in Table 3, the primary commodities exported by India to China are ores, slag and ash, iron and steel, plastic and articles and organic chemicals. The top 5 exports in the table amount to almost 80 percent of the exports from India to China. India's top exports to China are ores, slag and ash at 52.10 percent; this is followed by iron and steel at 11.50 percent and lower down on the list are salt, sulphur, lime and cement at another 2.60 percent of the total exports. Evidently then, India's exports to China are made up of a high concentration of raw materials as opposed to finished materials.

The fact that India exports a majority of raw materials to China suggests why the total trade between the two nations is decreasing along with the value of India's exports to China. China is now able to accumulate resources from all around the world and therefore, other raw material exporters such as Indonesia and Cambodia have seen surges in exports to China. These surges would result in further decline of Indian exports to China as the raw materials extracted by India would not appear as valuable in the face of the many other alternatives China has to draw such resources from.

EXPORTS FROM CHINA

Table 4: Most Popular Commodities Exported by China⁸

Commodity	Share of Exports
Electrical machinery and parts	25.60%
Boilers, machinery, parts of nuclear reactors	14.80%
Mineral fuels, oils, and waxes	12.00%

8. Ibid.

Organic chemicals	11.70%
Silk	4.30%
Pearls, stones, jewellery	2.20%
Inorganic chemicals, compounds	2.10%
Iron and steel	1.80%
Textile fabrics, industrial textiles	1.50%
Man-made filaments	1.50%

As indicated by the data present in Table 3, the main items that China exports to India are electrical machinery and parts at 25.60 percent, parts of nuclear reactors, boilers and machinery at 14.80 percent, and mineral fuels, oils and waxes at 12.00 percent of the total exports. In this case, the top five commodities amount to almost 70 percent of the total exports to India, suggesting that the majority of China's exports to India are value added items. This also suggests a reason as to why Chinese exports to India had risen from 2012-13. Value added items cost substantially more than raw materials, allowing China to generate far more revenue than India can by exporting primarily raw materials. Furthermore, Table 4 demonstrates the great diversity in Chinese exports to India as they include resource-based products, manufactured items, and low and medium technology products, allowing the Chinese to generate much revenue from several different fields.

FOREIGN DIRECT INVESTMENT

Foreign direct investment is defined as "a direct investment into production or business in a country by an individual or company of another country, either by buying a company in the target country or by expanding operations of an existing business in that country." Foreign direct investment can help a country's economy immensely as it forms a proportion of the GDP, suggesting that a great increase in the influx of FDI can result in a higher economic growth rate for the nation.

The bilateral relationship between India and China has seen both countries invest in each other's businesses. In 2012, the Chinese Ministry of Commerce approved direct investment from China worth

\$725 billion in non-financial projects in India while Indian companies had actually invested \$486 million in 800 non-financial projects in China. However, according to many experts, the real potential of this is yet to be realised. Increasing inflows and outflows of FDI between India and China could strengthen trade relations and reduce the decreasing total trade.⁹

However, as mentioned earlier, an increase of FDI in India is limited by the Foreign Exchange Management Act, which disallows overseas corporate bodies to invest in India. This keeps India in an unfavourable position in the relationship between India and China.

INFLUENCE OF MODI ADMINISTRATION ON TRADE RELATIONS

Following the 2014 election, the Bharatiya Janata Party (BJP) candidate Narendra Modi, now voted into office as the prime minister of India, is an individual who has raised hopes of bringing much change to India's relatively stagnant economic situation and trade relations between China and India.

Whilst the exact economic plan that he will pursue remains relatively unclear, it can be assumed that Modi will seek to expand India's economy and trade relations with other nations in order to mimic the economic growth that China has enjoyed for almost 20 years now.

One can refer to his economic policies in Gujarat as chief minister to predict his likely course of action at the national level too. When serving as Gujarat's chief minister, he visited China four times, encouraging Chinese investment into his state. As a result, Gujarat saw more Chinese investment than any other state. Modi has already visited China as prime minister to negotiate for equal share holding in the Brazil, Russia, India, China, South Africa (BRICS) Bank, suggesting a push towards a more balanced relationship with China. In addition China has promised to invest in high speed railway infrastructure and offered to finance 30 percent of India's infrastructure development.

The upbeat mood on the economic relations notwithstanding, given Modi's nationalist stance, he is not likely to soft pedal the

9. The statistics were collected from http://www.ciis.org.cn/english/2013-08/23/content_6239926.htm.

political constraints of the relationship. He has already told China to “give up its expansionist attitude.”¹⁰ During her interaction with her counterpart, External Affairs Minister, Sushma Swaraj also made the same point, stating that India and China must overcome geo-political differences in order to create an environment of cooperation and form strong economic ties.

Even so, both sides seem to be aiming to improve the nature of relations, so, for the time being, issues of border delimitation are being kept secondary while the economic engagement is being enhanced.

SHIFTING THE NATURE OF TRADE RELATIONS

Given the huge potential of trade relations between India and China, some policy changes are necessary to be able to realise it. One such change could be the Foreign Exchange Management Act, which could allow a greater inflow of FDI into the country. This influx would not only benefit the economy by increasing the GDP and India’s position in the global market, but also shift India to more favourable terms in the Indo-Chinese relationship by increasing purchasing power parity.

Additionally, in order to increase the extent of Indian goods being exported to China, there should be special emphasis on investments and trade in the services and knowledge-based sectors rather than exporting simply raw materials. Potential items of trade between India and China are marine products, oil seeds, salt, inorganic chemicals, plastic, rubber, optical and medical equipment, and dairy products. There is also great potential in areas like biotechnology, Information Technology (IT) and Information Technology Enabled Services (ITES), health, education, tourism, and the financial sector, all of which would allow for greater revenue to be generated from Indian exports, decreasing the trade deficit and, once again, helping to make trade relations favourable to both sides.

Of course, if India and China could somehow resolve the territorial disputes that have caused so much friction between them, it would allow both countries to focus on creating a productive and cooperative relationship. However, it may still be possible

10. This quote and Sushma Swaraj’s stance was released at <http://indianexpress.com/article/india/politics/narendra-modi-dares-china-asks-it-to-give-up-expansionist-plans/>

to marginalise the political differences by placing the economic relationship on the fast track. As both countries develop a deeper stake in each other's economy, it is possible that increased trade could subsume the political differences between them, as a more productive and fruitful economic relationship would provide a more valuable reason to avoid friction and conflict, allowing both to move past the historical political differences. However, there is also a possibility that the inherent differences in political ideologies (China is mainly Communist, whereas India is Capitalist) could create differences, preventing the productive relationship that many hope for.

CONCLUSION

Due to the unique historical background and the declining trade between India and China, the bilateral relationship is vulnerable to friction. In the future, it will be important for both parties to analyse and evaluate the current situation to come up with a series of policies and strategies to maximise the positive interactions between the two nations and transition into a relationship that is favourable to both sides. However, in order to create a sustainable trade relationship, India must diversify its pool of exports to China to generate greater revenue and decrease the trade deficit.

Overall, we can look forward to positive enhancements of the relationship in the future: where conflicts had comprised the core of the interaction earlier, these are now taking a backseat and mutual benefit is coming to the forefront. As the Chinese always say, interesting times lie ahead.

CHINA'S NUCLEAR ENERGY SCENARIO: THREE YEARS AFTER FUKUSHIMA

MANPREET SETHI

China's rapid socio-economic transformation, which is today being studied as a model of unprecedented economic growth, was enabled by a phenomenal surge in electricity production and consumption. From a total electricity production base of only 282 billion kilowatt hours(kWh) in 1979, China is today the largest electricity producer at 4,604 billion kWh¹ (compared to India's 835 billion kWh).

China's economic growth, premised on industrial production, was powered by the rapid addition of thermal plants through the 1980-90s to provide low cost electricity. This, however, has exposed the country to new and interrelated challenges. The first pertains to energy security. China's dependence on external fuel sources has substantively increased from the happy situation in the 1960s when the country was largely self-sufficient in energy. The present energy vulnerability poses a threat to the nation's economic security, and, consequently, has become a driver for national security strategies.

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1. Sang Dongli, "Nuclear Energy Development in China", in Xu Yi-chong, ed., *Nuclear Energy Development in Asia: Problems and Prospects* (New York: Palgrave Macmillan, 2011), pp. 43-67.

A second challenge is evident in the price which China is today paying in environmental and health mitigation costs owing to the high air pollution and environmental degradation. It is estimated by the World Bank that these costs cause an economic loss of nearly 6 percent to China's Gross Domestic Product (GDP).² Not surprisingly, therefore, the focus since the late 1990s has been to intensify the search for, and exploitation of, clean and reliable energy sources. Consequently, China has turned to nuclear power in a big way, besides wind and solar. It has embarked on the world's most ambitious nuclear power programme which envisages increasing the share of nuclear electricity from a lowly 2 percent today to 11 percent by 2040.

This is where another challenge arises for Beijing. Until 2011, a China that was determined to fulfill its ambitious nuclear programme could do so with scant regard for public protests. But, in the post-Fukushima³ environment, implementation of nuclear expansion plans demands a greater sensitivity to public opinion. How will an authoritarian system handle this, especially since Party legitimacy depends as much on continued economic growth (which requires electricity) as on social stability (which requires generating that electricity with respect for public sentiment)? The paper explores the rationale and role of nuclear energy in China's energy mix and the manner in which the programme is being pursued since Fukushima.

RATIONALE AND ROLE OF NUCLEAR ENERGY IN CHINA'S ENERGY MIX

Rising Energy Demand

China averaged an economic growth rate of 9.6 percent in 1980-2010. Industrialisation and the resultant urbanisation that saw the migration of more than 200 million people from rural to urban areas,

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2. "Nuclear Power in China", *World Nuclear Association*. October 2013.. <http://www.world-nuclear.org/info/inf63.html>. Accessed on October 22, 2013.
 3. On March 11, 2011, an earthquake measuring nearly 9.1 on the Richter scale triggered a tsunami 45 ft high off Japan. This caused a nuclear emergency at the three operating nuclear plants at Fukushima as they suffered a power breakdown that led to a loss of coolant accident and a partial core meltdown of one of the reactors. After the Three Mile Island accident in 1979 and the Chernobyl accident in 1985, this was the third major accident in the history of nuclear power plant operations.

and which continue unabated, keep China's energy demand ahead of supply despite a huge addition to the overall electricity production. China first began to experience an electricity deficit in the 1980s with the opening of the economy to market reforms. As industrial manufacturing and infrastructure development accelerated, electricity demand grew at a staggering monthly rate of 15 percent.⁴ China responded by rapidly building coal-fired plants. Consequently, the proportion of coal in total energy consumption had increased to 76.2 percent in 1990.⁵ In the past 25 years, more than two-thirds of the newly added generation capacity has used coal, causing shortages in domestic coal supplies, and making China dependent on imported coal.

Rising Environmental Problems

The production of low-priced, coal-fired electricity quickly made China the world's second largest carbon dioxide emitter. Focussed purely on economic growth up to the 2000s, China cared little for the environmental crisis that it was creating for itself and others. Rather, Beijing resented international views that demanded changes in its development strategy, alleging that climate change and pollution were concerns crafted by developed nations to slow/deny the growth of the developing countries.

However, by 2000, China had begun to realise that it was as much a victim of climate change as a contributor. A need was then felt to take measures that would reduce greenhouse gas (GHG) emissions. The 11th national Five-Year Plan (2006-10) attempted to address the issue primarily at three levels. First, by focussing on energy conservation and energy efficiency; second, by mandating the shutdown of older coal-fired power plants; and third, by turning to low carbon electricity sources. In keeping with these objectives, a self-imposed national target of a 20 percent reduction in energy intensity by 2010 was introduced; 50 Gigawatt-electric (GWe) of small and more than 20-year old coal-fired plants were identified and ordered to be shut down, a target that was achieved ahead of schedule in 2009. Another

4. Wei Zhihong, "China's Challenging Fast Track", *IAEA Bulletin*, vol 46, no. 1, June 2004, pp 18-21.

5. Jiang Zemin, *Research on Energy Issues in China*, trans by Central Translation Bureau, Beijing (Burlington, MA, USA: Elsevier – Academic Press, 2004), p. 23.

11 GWe of coal plants were phased out in 2010. Accordingly, the contribution of coal to the total energy production came down from 76.2 percent a decade earlier to 68 percent by 2010.

Rising Economic Implications

Besides the environmental cost of the use of coal, the economic implications have been evident in the logistics of transporting coal across the country. According to the International Atomic Energy Agency (IAEA), 48 percent of the railway capacity, 50 percent of the waterway capacity and 25 percent of the highway capacity is locked up in transporting coal.⁶ Deteriorating health as a result of environmental degradation imposes an additional economic burden on the state due to loss of labour and productive work hours as a result of sickness. It has been estimated that 750,000 people die in China of pollution related illness every year⁷. According to a 2007 World Bank report entitled, "The Cost of Pollution in China: Economic Estimates of Physical Damage", air and water pollution damage imposes a loss of 5.8 percent to the annual GDP of China.⁸

With growing realisation and acknowledgment of these implications, China has shifted focus to nuclear power (and renewable energy) to replace the electrical output lost due to phasing out of old and inefficient coal plants. This partially explains the pick-up in China's nuclear energy development from 2000 onwards compared to the relatively slow pace in the 1980s-90s. Indeed, by the close of the decade of the 2000s, China was engaged in an, as articulated by former Premier Jiang Zemin, "urgent task of blazing a new and distinctively Chinese trail in energy development in order to achieve its strategic goal of modernization at the lowest possible

6. Chris Meyer, "China and Nuclear Energy: Solving an Energy Crisis – Part 4", *Energize*, issue 42, March 2011, pp. 18-19.

7. Of course, not all these deaths are due to air pollution. Rather, modernisation, industrialisation and urbanisation that have happened in China with its sole focus on economic growth and with scant regard for the environment have led to pollution of all kinds, including of water and food. Exposure to heavy metals from industries, excessive use of chemicals in agriculture, addition of noxious substances during food production have led to "cancer villages" and "diseases of transition" caused by this uneven transition from poverty to affluence. For more, see Special Section on "Dying for Development", *China Quarterly*, no. 214, June 2013.

8. Xu Yi-chong, "Nuclear Energy in Asia: An Overview", in Xu Yi-chong, ed., *Nuclear Energy Development in Asia: Problems and Prospects* (New York: Palgrave Macmillan, 2011), p. 6.

cost to its energy resources and the environment”⁹. In January 2010, China established a National Energy Commission (NEC), directed by none less than then Premier Wen Jiabao. Admitting that Chinese growth had been “unbalanced, uncoordinated and unsustainable”¹⁰, he set out to redress the situation by crafting new national energy development plans, reviewing energy security, and coordinating international cooperation in nuclear power.

APPROACH TO NUCLEAR POWER

The Early Years

Compared to the other major nuclear energy producing nations, China is a late entrant. While it had tested a nuclear weapon in 1964, it embarked upon the peaceful use of nuclear energy nearly two decades later. The first nuclear plant at Qinshan (Zhejiang province) was of 300 megawatt (MW) and domestically designed. It was connected to the grid in December 1991. Two more nuclear plants of 900 megawatt electric (MWe) capacity each, imported from France, were the next to follow at Daya Bay (Guangdong province) in 1994.

As stated earlier, the pace of nuclear reactor construction in China really picked up only in the 2000s. And, it is to the credit of China’s well known determination that once it had decided to move on from the objective of “moderately develop nuclear power” as outlined in the 9th Five-Year Plan (1996-2000) to “actively promote nuclear energy” in the 11th Plan (2006-10), it put substantive energy and resources into achieving it. Indeed, a number of reactors were constructed between 2000-10 and China today has 17 operational nuclear plants, contributing about 2 percent to the country’s total electricity production. With the aim of achieving targets as high as 60 GWe (from the present level of 20 GWe) by 2020 and 200 GWe by 2030, the country today has 28 reactors under construction, the maximum ever to be simultaneously constructed in a country. Considering that in 2009, China had a 10 GWe nuclear production which had doubled by 2013, the targets that China has set for itself appear attainable. This is supported by the fact

9. Zemin, n.5, p. 25.

10. Ruchir Sharma, *Breakout Nations: In Pursuit of the Next Economic Miracle* (London: Penguin Books Ltd., 2012), p.17.

that the country has developed its own Pressurised Water Reactor (PWR) design of a 1,000 MWe plant (which it also intends to export), has expanded uranium exploration and mining, including in other countries, and has the full fuel cycle capability.

An interesting feature of China's nuclear programme is that it comprises different technologies and generations of reactors from France, the USA, Russia and Canada. Instead of standardising on one type of reactor technology, China has a strategy of importing technology from whichever country has offered it on good terms. By following this approach, China has circumvented the need to wait for maturation of own technology, and, thus, quickly expanded nuclear energy. Meanwhile, China is presently engaged in designing a Generation III+ reactor with France, and also with the USA. Many of these are planned to be constructed in the coming years and will become the workhorse of the Chinese nuclear programme.

What has Changed After Fukushima?

In the wake of Fukushima, China announced a temporary suspension of approval for new nuclear power projects as it carried out a safety assessment of all its reactors. A national inspection group comprising the National Energy Administration (NEA), the National Nuclear Safety Administration and the China Earthquake Administration was instituted for the purpose. Based on its recommendations, a series of Research and Development (R&D) projects was launched by the NEA in February 2012 to improve plant safety related technology and emergency preparedness in the event of an extreme disaster. The dictum changed from "actively promoting nuclear power" to "steady development with safety". In May 2012, a new safety plan was issued. Further, in October 2012, speaking on the occasion of the release of a White Paper on Energy Policy, Premier Jinping laid utmost emphasis on safety, insisting that the new reactors comply with the new generation safety standards. As per China's 12th Five Year Plan, \$ 13 billion will be spent on improving nuclear safety at the operating, and under construction, nuclear reactors¹¹. So, in theory, China appears to be staying the course on its nuclear plans.

11. *World Nuclear Association*, 2013.

However, as public concerns on nuclear safety have grown, the need for the government to become more sensitive to public mood has also increased. This was starkly brought out when the plan to build a \$ 6 billion uranium processing plant in Guangdong province had to be cancelled in July 2013 in deference to public protests over health and environmental fears. This was attributed to “breakdown of trust, post Fukushima, in official assurances of public safety”.¹² This has brought in a new dimension to nuclear decision-making in China and a new dilemma.

Chinese officialdom is clear that it needs nuclear energy to meet the rapidly increasing electricity demand to power the industrial production and economic growth of the country. Indeed, the Party realises the centrality of electricity generated from environmentally friendly sources, in order to sustain an economy that relies on energy intensive manufacturing. A large proportion of industries in China such as metallurgy, chemical engineering and building materials industry involve high energy consumption. These industries, in fact, account for 47.9 percent of total energy consumption in all industries.¹³ At the same time, the rapidly burgeoning urban middle class is a huge electricity consumer. Access to modern amenities has also awakened this segment of society to its right to a more participative decision-making that takes cognisance of its concerns and fears.

Fukushima, in this context, has emerged as a rallying platform to make this demand with greater stridency. Therefore, today’s China is compelled to meet its energy requirements while respecting public sentiment. How will this happen? The next section examines how China will/can use nuclear expansion in its socio-economic transformation.

INTEGRATING NUCLEAR EXPANSION WITH CHINA’S SOCIO-ECONOMIC TRANSFORMATION

The Party leadership in China is particularly fearful of social instability that could threaten economic development and the Party’s political legitimacy. Ever since taking power in 2012, Premier Xi

12. Charlie Zhu, “Public Trust Crisis Threatens China’s Nuclear Power Ambitions”, *Reuters*, July 18, 2013.

13. Zemin, n.5, p. 74.

Jinping has repeatedly emphasised social stability as his topmost priority. He believes that “winning or losing public support is an issue that concerns the CPC’s survival or extinction”¹⁴. Rapidly altered expectations are not that easy to control in modern times with the Information and Communication Technology (ICT) revolution. Hence, the challenge before China is huge. Despite its many controls, Chinese citizens have been known to have deployed smart phones and used social media to organise protest campaigns. In fact, Chinese official estimates suggest that 100,000 mass incidents (which according to China is a protest involving more than 100 participants) occur every year. Interestingly, China’s official budget for 2012 accounts for \$ 109 billion for military spending and \$ 114 billion for police and public security.¹⁵

Nuclear power has been conceived of as one way of addressing China’s energy poverty by maintaining a low carbon economy. But, the ICT revolution has magnified public apprehensions post-Fukushima. A traditionally closed nuclear decision-making will have to handle this issue sensitively through better communication. This calls for a more proactive approach from the nuclear industry and the government to reassure them. But can China change this attitude without changing its closed political system? Will the changing social dynamics of China, which ironically has been triggered by betterment of the economic status of the masses and access to electricity that runs the ICT, have political repercussions?

This is a question difficult to answer at this moment but it is a situation worth watching. In fact, there are several mechanisms in the existing Party system of China that it could exploit to handle the situation. For instance, China has a “unique blend of centralization and decentralization that has sustained growth for a historically unprecedented 30 years”¹⁶. As explained by a former chief economic adviser to the Government of India in a recent article, China follows a system in which the overall guidance on the broad directions of growth is provided by the Party. But then it is left to every level

14. “China Protest Forcing Nuclear Retreat Shows People Power”, *Bloomberg News*, July 15, 2013.

15. Cheng Li and Ryan McElveen, “Can Xi’s Governing Strategy Succeed?”, *Current History*, vol. 112, issue 755, September 2013. p. 209.

16. Arvind Virmani, “A Right to Growth”, *Indian Express*, October 21, 2013.

of government and Party, as also in every state and province, to experiment on how best to achieve the objective. Their ability to achieve the growth objective then becomes the measure of their performance and they are rewarded accordingly “through promotion and economic opportunities”¹⁷. Local leaders adopt their strategies to bridge national priorities with local interests. They strengthen formal incentives and create informal ones. In the case of nuclear power too, it is possible that the local administrations in the provinces will become far more proactive in engaging the public on the need and safety aspects of nuclear power. In this, a government that runs on Party cadres might be able to provide a far more penetrated network to reach out to the people to assuage their concerns. But, this is an area where further academic research is possible.

Ironically, while China has grown stronger in its military might and has a more assertive foreign policy today, its leaders appear more insecure at home and fearful of the domestic challenge of social unrest. While maintaining economic growth is critical for maintaining stability at home and to retain the legitimacy of the Party, the need to do so in a people friendly manner is also equally necessary. The handling of the nuclear issue will be worth monitoring in this context. The nuclear establishment and the government will have to be more receptive to public views and undertake more proactive engagement. Otherwise, if the state attempts to steamroll opposition, nuclear energy may well end up ‘powering’ more than just economic growth and social transformation in China.

17. Ibid.

MAPPING THE CYBER DRAGON: CHINA'S CONDUCT OF TERROR IN THE CYBER WORLD

E. DILIPRAJ

Cyber – widely considered as the fifth domain of warfare—is a conflict ridden domain where actual war is a rare case scenario but other forms of conflicts are an everyday affair between the challenging players. Now, the question that arises is: what are the other forms of conflict in the cyber domain? The answer to this question in simple words is: since the cyber domain involves players ranging from individuals to nation-states, the various forms of conflict in it range from cyber theft, hacking, cyber espionage, data collection through exfiltration, to cyber sabotage, cyber terrorism, cyber propaganda, cyber warfare, etc. Furthermore, cyber is the only domain where even one individual with the appropriate abilities and intentions can cause a huge impact.

Taking the case of countries, among all the major players of the world, one country which participates in, and practises, all the above mentioned forms of cyber conflict, not only in the military sector but also in the civilian sector, is the People's Republic of China (PRC). Therefore, for a broader perspective of global cyber security, it is imperative to understand the various types of *modus operandi* and other methodologies of different groups, in both military and civilian sectors

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involved in cyber conflicts, from China who are creating potential terror in the cyber domain.

CYBER ENVIRONMENT OF CHINA

The Asian giant is not only the largest populated country of the world but also has the largest number of internet users, with more than 618 million people subscribed to the use of the internet at the end of December 2013.¹ The Chinese use the internet everyday mainly for the following purposes:

- Personal and business communications.
- Entertainment by watching, and downloading, videos, listening to, and downloading, music.
- Social networking.
- Online shopping.
- Gaming.

With more and newer applications in mobile phones being introduced, new websites for shopping, gaming and social networking along with the increase in the number of videos and music files being uploaded in the internet, the number of users of the internet in China is growing at an alarming pace.

But the irony here is that China is one of the few countries which has the most strict censorship norms on the internet² and is also one of the five countries, along with Bahrain, Iran, Vietnam and Syria which conducts intrusive surveillance on the users of the internet in its own territory.³ (Can the USA be added to this list?) Moreover, China is the leading exporter of censorship technologies to countries like Saudi Arabia, Iran, North Korea, etc which all practise strict censorship in their country's internet. Also, within the country, a number of government departments and bodies are involved in monitoring and censoring the internet. The following are the government departments involved in internet monitoring:

- The Internet Affairs Bureau and the Centre for the Study of Public

1. "33rd Statistical Report on Internet Development in China," *China Internet Network Information Centre*.
2. "Top 10 Countries that Censor the Internet", Listverse at <http://listverse.com/2010/10/02/top-10-countries-that-censor-the-internet>. Accessed on July 2, 2014.
3. "Era of Digital Mercenaries", *The Enemies of Internet*, at <http://http://surveillance.rsf.org/en/>. Accessed on July 2, 2014.

Opinion of the State Council Information Office (effectively the government).

- The Internet Bureau and the Information and Public Opinion Bureau of the Publicity Department (formerly the Propaganda Department).
- The Ministry of Industry and Information Technology (MIIT).
- The Internet Information Security Supervision of the Ministry of Public Security.
- The Ministry of Industry and Information Technology’s Internet Illegal Information Reporting Centre.

Furthermore, with everything in China connected to the Communist Party of China (CPC), the internet is no exception; the internet in China is controlled by various bodies which operate in the Party’s interest. The framework of these control bodies which monitor and manipulate the internet in China is as follows:

Table 1: Internet Control Bodies in China



Source: “Era of Digital Mercenaries”, <http://surveillance.rsf.org/en/>. Accessed on July 2, 2014.

All the above mentioned government agencies and bodies of China which filter and monitor internet content in the country, use certain tools and methods which operate under the name “Golden Shield Project” (金盾工程). This project was initiated in 1998 and it became operational in November 2003. It mainly filters the access to foreign websites in China. By controlling the internet gateways where traffic travels between China and the rest of the world and by using a combination of firewalls and proxy servers at these gateways, China succeeds in analysing and manipulating internet traffic. The basic rules which China applies while monitoring and controlling the internet are:

- do not jeopardise social stability;
- do not organise; and
- do not threaten the Party.⁴

Any online content which directly or indirectly violates these three rules will result in censorship. Whenever there is a violation of any of these rules, the Golden Shield Project initiates its censorship methods on the particular Internet Protocol (IP) address which is requesting the information on the officially banned keywords or websites. The methods followed under the Golden Shield Project to censor information are as follows:

- Domain Name Server (DNS) poisoning.
- Blocking access to IPs.
- Analysing and filtering Uniform Resource Locators (URLs).
- Inspecting and filtering packets.
- Resetting connections.
- Blocking Virtual Private Networks (VPNs).

Apart from the above mentioned tools and techniques to conduct censorship, Chinese officials also conduct their internet monitoring and surveillance programme effectively by employing more than two million “internet opinion analysts” across the country to monitor and analyse public opinion on the Chinese social media. Specially designed software is used by these internet

4. “How Does China Censor the Internet?”, *The Economist*, April 21, 2013, at <http://www.economist.com/blogs/economist-explains/2013/04/economist-explains-how-china-censors-internet>. Accessed on July 2, 2014.

opinion analysts, who are mostly government employees, to trawl through various blogs, microblog posts and social networks, and dissect public opinion on local issues by identifying accusations of corruption and poor governance. The extracted information is then analysed and reports are forwarded to the local leadership, from that of the country to that of the province, on a daily basis via text messages.⁵

Moreover, in certain cases, when a netizen is found to be vocal against the Chinese politics or the Party or any of its leaders or in general violates the basic rules of China's censorship and monitoring, the officials keep special track of the particular user's online activity. The police will tap all his/her phone lines, read his/her mails and other social media posts and also monitor his/her other online activity. Thus, the targeted user loses his/her privacy in the cyber space and is forced to live a transparent life.⁶ Also, there are regular instances of arrests of users who are found violating the strict cyber censorship rules. Those who are found to be vocal against the state or the Party, especially in the Autonomous Xinjiang Province, are arrested on the pretext of curbing the spread of *jihadi* ideas. Thus, the authorities control people who share their dissatisfaction in the online social media.⁷

STATE SPONSORED CYBER TERROR

While the cyber environment inside China is in a state of curfew, with strict censorship and surveillance, the cyber capabilities possessed by the government act without restrictions while flexing its virtual muscles beyond its borders. China's cyber warfare capabilities are an asset for itself but a real threat for other countries of the world. According to a US report on "China's Military and Security

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5. "Two Million 'Internet Opinion Analysts' Employed to Monitor China's Vast Online Population", *South China Morning Post*, October 3, 2013, at <http://www.scmp.com/news/china-insider/article/1323529/two-million-employed-monitor-chinese-public-opinion>. Accessed on July 6, 2014.
 6. "The Transparent Chinese", *The New York Times*, November 17, 2013, at http://www.nytimes.com/2013/11/18/opinion/xuecun-the-transparent-chinese.html?_r=1&. Accessed on July 6, 2014.
 7. "Uighur Muslims in China Arrested For 'Online Jihad'", *International Business Times*, October 28, 2013, at <http://au.ibtimes.com/articles/517429/20131028/china-internet-jihad-online-xinjiang-province-muslim.htm#.U7pmzMbgtgj>. Accessed on July 6, 2014.

Developments”, cyber warfare serves three key purposes for China. These are:

- Data collection through exfiltration.
- To constrain an adversary’s actions or slow his response time by employing cyber technologies and targeting network-based logistics, communications and commercial services.
- To serve as a force multiplier combined with kinetic attacks during times of crisis or conflict.⁸

Most of China’s covert cyber operations deal with data exfiltration, espionage, industrial espionage and theft of sensitive information. While many countries across the globe have been subjected to China’s covert cyber operations, two countries that have suffered the most are the US and India.

The Main Targets: India and the US

Though India’s policy of development is non-aggressive and believes in peaceful coexistence, the Asian giant China never allows India to be a passive neighbour as it views it as a potential competitor. While the other conventional aggressive strategies would reveal China’s true intentions, it also engages India through covert cyber operations in both the government and the private sector. Hence, with its covert cyber operations, China acts as a cyber bullying neighbour by threatening, attacking and gathering sensitive information from India’s premier institutions.

For instance, in 2012, computers in the campus of India’s Eastern Naval Command were infected with Chinese malwares. The virus which infected the systems through a Universal Serial Bus (USB) drive was accidentally inserted into one of the systems which collected all the data from the computers that were not connected to the internet and sent the data to a certain IP address in China when the same USB was inserted to a system connected to the internet.⁹ The fact that the Eastern Naval Command is home to India’s indigenously built nuclear powered submarine, the *INS Arihant*, where it is under

8. “Military and Security Developments Involving the People’s Republic of China”, *Annual Report to Congress, 2011*, USA.

9. “Indian Navy Investigates Cyber Attack on Military PCs”, *BBC*, July 04, 2012, at <http://www.bbc.com/news/technology-18703508>. Accessed on July 7, 2014.

sea trials, made it an attractive target for the attacks. Though the IP address to which all the data were sent, was traced back to China, the benefit of the doubt was given to it as it is very hard to find 'smoking gun' evidence in any sophisticated cyber attack.

In a similar manner, in 2013, reports claimed that the computers in DRDO (Defence Research and Development Organisation) had been compromised by the Chinese and a large number of electronic files stolen and wired back to a server located in Guangdong province in China, including the files on the Cabinet Committee on Security (CCS), the country's highest decision-making body on defence and security affairs. The Indian authorities became aware of this attack accidentally while the NTRO (National Technical Research Organisation) was investigating another case.¹⁰ With these and more attacks everyday on Indian computers by the Chinese covert cyber operators, India has become a target of cyber espionage and other forms cyber attacks by the Chinese government, thereby suffering a serious persistent threat to its cyber security.

Similarly, another country which is being constantly targeted by China through its covert cyber operations is the US. In fact, the magnitude of cyber attacks on the US is much bigger than the attacks on India. The specific targets of the Chinese cyber attacks are the technological research and development centres in both the government and the private sector. The US accuses China of cyber espionage, technology theft, intelligence gathering, exfiltration of information, research on Department of Defence (DoD) operations and the creation of dormant presences in DoD networks for future operations in various government and private agencies.¹¹

The Chinese strategy is to look for vulnerabilities and weak points in the network and conduct their advanced persistent attacks on those vulnerable areas. For instance, in November 2006, the Chinese hackers virtually intruded into the network of the US Naval War College (NWC) and started looking for particular data which forced the college to shut down its e-mail and other computer systems for

10. N C Bipindra. "Chinese 'hack' DRDO Computers; Antony Seeks Report", *The New Indian Express*, March 14, 2013, at <http://www.newindianexpress.com/nation/article1500336.ece>. Accessed on July 7, 2014.

11. Josh Rogin, "Cyber Officials: Cyber Hackers Attack 'Anything and Everything'", *FCW.com*, February 13, 2007.

several weeks. Later, the cyber forensic analysis on the attack showed that the Chinese were looking for the war-games which were being developed in the NWC.¹² Thus, the Chinese hackers keep analysing their targets' networks and are always on the lookout for vulnerable spots to begin their attack.

Besides, Chinese hackers are also on the hunt for rich technical data to support their country's research and development projects, mainly for defence and security related development programmes. While defence related research projects require lots of time, manpower and money to gain technological expertise, stealing similar technology from another country proves profitable for China in the shortest time possible with little effort. Therefore, in recent years, unofficial cyber theft has become one of the research and development methods for China's defence related development programmes. This is evident from the high scale organised covert cyber theft operations by China in the US in the recent past.

In September 2003, a computer-network security expert, Shawn Carpenter, working for the Sandia National Laboratories of the US was the first to uncover a high profile, sophisticated and well organised covert cyber espionage operation which was later traced back to China.¹³ Although initially it was considered a regular cyber attack on the US networks, it was later realised that it was one of the biggest organised covert series of cyber operations on the US. Secret investigation on this series of attacks was moved as "Titan Rain", which started in 2004, and by 2005, it was found that the attackers had already compromised the computer networks in the National Aeronautics and Space Agency (NASA), Lockheed Martin, the World Bank, Redstone Arsenal Military Base, and many other important military and other technological development centres across the US. Huge stockpiles of documents related to solar panning and fuel tanks for the Mars Reconnaissance Orbiter belonging to NASA, a huge collection of files related to army aviation and missile development belonging to Redstone Arsenal, specifications related to an aviation-mission-planning system for the army helicopters, and the flight-planning software, Falconview 3.2, used by the army and air force,

12. Ibid.

13. Nathan Thornburgh, "Inside the Chinese Hack Attack", August 25, 2005, at <http://content.time.com/time/nation/article/0,8599,1098371,00.html>. Accessed on July 8, 2014.

were among the sensitive data in the big list of information stolen from US computer networks.¹⁴

A cyber forensic investigation on these attacks carried out by the Federal Bureau of Investigation (FBI), also taking a few independent cyber network security experts into confidence, traced back the attack to the southern Chinese province of Guangdong where three main Chinese routers were found to be used for establishing a first connection from a local network to the internet to carry out these attacks.¹⁵ It was speculated that all these attacks were carried out at lightning speed—it would only take 10-30 minutes for the attackers to compromise the computers and steal all the information from it. The attackers were so well organised and their attacks so sophisticated that they always made a silent escape, wiping out their cyber footprints and, at the same time, leaving behind an almost undetectable beacon which would allow them to reenter the network at will whenever they wished to.

The Chinese have totally denied all these charges against them on cyber espionage and technological thefts from the US and call them “totally groundless, irresponsible and unworthy of refute.” They have also refused to cooperate with the US authorities on any investigation, especially regarding “Titan Rain”. Although there is no “smoking gun” evidence either with India or with the US, to prove that China was responsible for all the cyber attacks and other covert espionage operations against them, the cyber forensic investigators of both these countries are convinced that these attacks originate from China and also that the attackers have strong backing from the Chinese government or, in other terms, China is sponsoring cyber terror.

Unit 61398

As the US had undergone a series of cyber attacks since 2003, investigations were being carried out on a few detected major attacks with the help of private cyber security companies across the country in order to unmask the real culprits behind the attacks. As part of one such investigative operation, the Information Security Company

14. Nathan Thornburgh, “The Invasion of the Chinese Cyberspies”, *TIME*, September 5, 2005.

15. *Ibid.*

'Mandiant'¹⁶ came to the aid of the US in 2006. Since then, the cyber security experts of 'Mandiant' started monitoring and tracking one particular group of attackers who were conducting advanced threats on the US networks. This group of attackers was given the name "Advanced Persistent Threat 1 (APT1)". As the number of attacks and the quantity of information being stolen were steadily increasing from time to time, the experts in 'Mandiant' felt the heat to identify the real attackers. Thus, a more stringent cyber investigation by 'Mandiant' traced back the operations of APT1 to four large networks in Shanghai, of which two were found to be allocated directly to the Pudong New Area in the same city.¹⁷

It was while investigating these four large networks, especially the two networks in the Pudong New Area, that a major breakthrough was achieved in this case. It was found that the two networks in the Pudong New Area were emerging from a 12-storey high-rise building situated on Datong Road in Gaoqiaozhen which houses a part of Unit 61398¹⁸ of the People's Liberation Army (PLA). Unit 61398 is part of the PLA's Cyber Command, fully institutionalised in the CPC, and is supported with resources for its operations from China's state owned enterprises. In fact, Unit 61398 is the 2nd Bureau under the 3rd Department in the PLA General Staff Department (GSD), which comes directly under the control of the CPC's Central Military Commission.¹⁹

Based on the magnitude of the attack operations carried out by the group APT1, it was earlier speculated that the size of the group would be in the hundreds. But later, after revelation of the fact that APT1 is nothing but Unit 61398 of the PLA, the calculations about the size of the group multiplied to thousands of individuals who are trained in computer security, computer networking operations, especially in

16. Mandiant was an American cyber security firm. It rose to prominence in February 2013 when it released a report directly implicating China in cyber espionage. On December 30, 2013, Mandiant was acquired by FireEye in a stock and cash deal worth in excess of \$1 billion.

17. "APT1: Exposing One of China's Cyber Espionage Units", *Mandiant*, February, 2013.

18. Unit 61398 is a Military Unit Cover Designator (MUCD) of a certain unit in the PLA. Generally, in the Chinese military, five digit MUCDs are given to any unit to provide basic anonymity and for standard reference that facilitates communications and operations.

19. *Ibid.*

the English language as most of their targets are primarily English speaking countries. During the investigations, it was also found that China's state-owned information technology enterprise 'China Telecom' has built dedicated special fibre optic communication lines to the unit's building on Datong Road to support the operations of Unit 61398 under the guise of "national defence construction".²⁰

More recently, in May 2014, the FBI of the US filed charges of cyber espionage against five individuals belonging to the PLA alleging that they are part of Unit 61398 and have been deeply involved in the cyber espionage operations on the US for the past few years. The US even asked China to extradite these five Chinese nationals to the US in order to face trials. But China, as always, has denied all the allegations against it regarding state sponsored cyber espionage and cyber theft and stated that the allegations are irresponsible and unprofessional. Also, in this particular case, it refused to extradite the five Chinese nationals.²¹

HACKER GROUPS

While the cyber capabilities of China's Cyber Army units are beyond question, the Chinese private hacker groups also exhibit almost similar capabilities.

Hidden Lynx

Hidden Lynx is one of the elite groups of hackers in the world who have been active from 2009 and offer their hacker services for hire. It is being speculated that the group has 50 to 100 people and they are more sophisticated than the group APT1 or Unit 61398. It is identified that this group operates in a two-pronged strategy, namely, "Team Naid" and "Team Moudoor". Team Naid distributes a Trojan named "Trojan.Naid" for limited attacks against high value targets and Team Moudoor distributes a Trojan named "Backdoor.Moudoor" for large-scale operations across industries. The involvement of this group was recognised in different operations like the 'Bit9 Incident',

20. "Unit 61398: Chinese Cyberspies", CBC News, February 20, 2013, at <http://www.cbc.ca/news/world/unit-61398-chinese-cyberspies-1.1367960>. Accessed on July 10, 2014.

21. Raf Sanchez, "China Hacking Charges: The Chinese Army's Unit 61398", *Telegraph*, May 19, 2014, at <http://www.telegraph.co.uk/news/worldnews/asia/china/10842093/China-hacking-charges-the-Chinese-armys-Unit-61398.html>, accessed on July 11, 2014.

‘VOHO Campaign’ and ‘Operation Aurora’.²² The fact that much of the attack infrastructure and the tools used during their various campaigns originate from the network infrastructure in China, leads to a suspicion regarding the involvement of the PLA and CPC in Hidden Lynx.

Honker Union

Honker (客) Union, which means Red Hackers Union, is a huge group of voluntary hackers with patriotic and nationalistic feelings towards China. In 2001, when a US spy plane and a Chinese fighter jet collided over the South China Sea, a diplomatic fire sparked between the US and China which also ignited a hacker war between the patriotic hackers of the two countries. United in a group, Honker Union, the Chinese patriotic hackers started their operations on May 1, 2001, and attacked the government websites of the US—they even managed to shut down the website of the White House for a brief period. The publicity they gained in China through this attack attracted around 80,000 individual hackers to join this group in the next few months which made ‘Honker Union’ the largest hacking group of the world.²³

Apart from this attack, the Honker Union is also suspected of being involved in another high profile cyber attack on Japan 2012 over the dispute over the Senkaku Islands, over which the Chinese claim sovereignty, naming these as the Diaoyu Islands. At least 19 Japanese websites, including those of a government ministry, courts and a hospital came under cyber attack. There was also a huge number of messages posted by 4,000 people boasting about the attack by China in one of China’s leading chat sites, ‘YY Chat’.²⁴

Due to the fact that this group had a free hand during its operations in spite of strict surveillance in China, it can be speculated

22. Stephen Doherty, et. al, “Hidden Lynx – Professional Hackers for Hire”, *Symantec*, Version1.0, September 17, 2013.

23. “From Hackers to Entrepreneurs: The Sino-US Cyberwar Veterans Going Straight”, *South China Morning Post*, August 21, 2013, at <http://www.scmp.com/news/china/article/1298200/hackers-entrepreneurs-sino-us-cyberwar-veterans-going-straight>. Accessed on July 12, 2014.

24. “Chinese Cyber Attacks Hit Japan Over Islands Dispute”, *The Globe and Mail*, September 19, 2012, at <http://www.theglobeandmail.com/news/world/chinese-cyber-attacks-hit-japan-over-islands-dispute/article4553048/>. Accessed on July 12, 2014.

that the PLA supported this group's activities and would have also recruited many of its members into its cyber army, like Unit 61398, so as to enhance its capabilities.

CONCLUSION

Although the general cyber environment of China is strictly controlled, monitored, censored and kept under surveillance round the clock and throughout the year, all these restrictions are only for the general public. At the same time, the government owned and backed cyber armies, and other patriotic hacker groups in China have got a free hand to carry out their operations which help in feeding China's national interest. Though China denies all allegations about its relations with any hacking incident in the public forum, it gives very strong support and backing along with the necessary resources, to its hacking groups in order to conduct various cyber attacks, to gather information through espionage and to conduct intellectual property theft from various countries. From the method of operations of various hacker groups in China, a pattern can be understood, i.e the government hackers like Unit 61398 are used for conducting espionage and intellectual property theft operations and the other voluntary patriotic hacker groups like Honker Union are used to conduct Distributed Denial of Service (DDOS) style of cyber attacks and operations to spread malware.

The numbers of hackers in both the military and voluntary groups in China are increasing day by day which is a big threat to the cyber security of the world. It is believed that there are more than 20 units similar to Unit 61398 in the command chain of the PLA which is a worrying factor. Apart from this, the existence of other voluntary patriotic hacker groups like Honker Union, that are enhancing their numbers and skills, makes the situation worse. The fact that everything in China is some way connected to the CPC makes it easy for the Party to effectively coordinate, and use, them under one command. But it may also be noted that all these groups might turn into rogue groups and backfire at the CPC if anything goes wrong in the future which will not only create a chaotic situation for the CPC but for the whole of China.

CHINA'S BURGEONING ANTI-SATELLITE ACTIVITIES

P. A. PATIL

Employment of space technology in the first Gulf War led Chinese defence analysts to recognise the significance and effect of space control in contemporary warfare. While the United States is the leader in the space arena, the importance of space for inclusive growth has been gauged the world over by space-faring nations as well as space aspiring ones. Some of these nations, with China as a frontrunner, have made credible advances to pose a challenge to US hegemony in space. Realising the importance of space assets, the Chinese political leaders and military planners initiated a series of policy changes to counter a futuristic US dominance in space. Since then, backed by a robust economy and flourishing academia, China is seen to be fast growing as a space power and the developmental activity in space is advancing at a rapid pace, supported by indigenous expansion of the space industry. As per an assessment by the United States Department of Defence of April 2014, "China conducted at least eight launches in the year 2013 to expand its space-based intelligence, surveillance, reconnaissance, navigation, meteorological and communications satellite constellations".¹ The report also brought out the improvement

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1. Office of the Secretary of Defence, "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2014", April 24, 2014, at http://www.defense.gov/pubs/2014_DoD_China_Report.pdf. Accessed on August 22, 2014.

in the Chinese multi-dimensional programme aimed at limiting or preventing an adversary's use of space-based assets during times of crisis or conflict. This assessment is correct as China has been steadily making advances in space-based technology and is showing a strong urge to display its deterrence capability in space with sporadic Anti-Satellite (ASAT) display. This article focusses on how and why China wants to improve its strategic space capabilities and why it does not shy away from showcasing its small advances in ASAT technology albeit in an environment encapsulated by secrecy.

NEED FOR A MINIMAL CREDIBLE DETERRENCE CAPABILITY

In the current world order, the United States is the pioneer in the space domain and with its phenomenal advances in space ventures, it would not be in the right perspective to attempt a comparison with other space-faring nations. Effective use of space assets by the United States has highlighted the fact that states cannot become great powers unless they demonstrate mastery over, and deployment of, space power in the service of their national objectives. Over the past two decades, the US has been involved in major conflicts like Operation Desert Storm, Operation Allied Force, Operation Enduring Freedom and Operation Iraqi Freedom. In addition, it has carried out special covert operations on a number of occasions as part of its so-called global war on terror. If we analyse these conflicts, a commonality that emerges is the superior war-fighting ability that the US forces accrue from space-based services. The other distinct but more important point is that in these so-called wars (war on terror), the US, as the supreme power was pitted against an inferior opponent and did not face much resistance as the opposing nation-states did not possess even meagre deterrence capability. This display of one-sided military might and dicta has been a major cause of concern and has infused insecurity amongst the new space-faring nations. China is well aware of the enormity of the space services used by the United States in varied facets of the societal, commercial and military arenas. It has justifiably assessed that until and unless it projects a credible deterrence in some form, it could be subjected to political, economic and military coercion in the future. Thus, in the face of US space assets becoming increasingly indispensable to its grand design,

China seeks to build up a minimal deterrence posture focussing on the vulnerability of US space assets.

CHINA'S SPACE AMBITIONS

Following the Sino-Soviet split in the 1960s, China started to develop a series of indigenous rockets mainly based on the primitive R-series of missiles procured from the USSR. This led to the development of the Long March launch vehicle family and the first successful satellite launch in 1972.² Since then, Long March rockets have been used with reliable consistency. Entering the commercial launch market in the year 1990, China successfully launched satellites for varied applications spanning communication, navigation, reconnaissance, meteorology, and has also been successful in the launching of its Shenzhou series of manned and unmanned spacecraft since November 1999. In 2003, a Long March booster put the first Chinese astronaut into space, with China becoming only the third state to launch humans into space.³ China successfully launched its first mission to the moon, Chang'e-1, on October 24, 2007, and followed it up with its second moon mission, Chang'e-2 on October 1, 2010. Currently, its space scientists have planned for an unmanned Mars exploration mission between 2014 and 2033, and are contemplating a manned landing on Mars during the middle of this century.⁴ The successful launch of the Tiangong-1 space station on September 29, 2011, followed by the subsequent rendezvous and docking of the Shenzhou spacecraft has consolidated China's international standing in space. In its latest efforts, China has successfully achieved a soft landing on the moon with its robotic rover "Yutu" also known as "Jade Rabbit". China maintains that its space programme is for a peaceful rise and it does not vie for space dominance. The multi-pronged approach in commercial and exploratory research in space activities emphasises China's resolve to achieve the status of a major

2. Prof Keith Hayward, "The Chinese Aerospace Industry — A Background Paper", *Royal Aeronautical Society*, at <http://aerosociety.com/Assets/Docs/Publications/DiscussionPapers/ChineseAerospaceIndustryDiscussionPaper.pdf>. Accessed on January 27, 2014.

3. Ibid.

4. Srinivas Laxman, "China's Space Mission: The Long March to the Moon and Mars", *Asian Scientist*, at <http://www.asianscientist.com/features/chinas-space-mission-moon-mars/>. Accessed on July 28, 2014.

space power while reinforcing its outlook towards the use of the space programme for peaceful purposes.

OUTLOOK TOWARDS WEAPONISATION OF SPACE

While China continues its stride in its space advances in support of societal and commercial services, it has consistently worked towards integrating and improvising space services in the military domain. Of late, China is also seen as advocating the concept of weaponisation of space and is actively pursuing ambitious, incremental and multi-pronged activities in this field. As per China, "The weaponisation of space is an inevitable developmental trend" and the "commanding height" of strategic competition in the 21st century "will not be on Earth, but in space".⁵ The recent strides made by China in support of its commercial space ventures coupled with its vocal outlook on military space strategy have aroused concern among the space-faring nations. China has reportedly also been experimenting with directed energy weapons to attack satellites. The People's Liberation Army(PLA) writings emphasise the necessity of "destroying, damaging, and interfering with the enemy's reconnaissance ... and communications satellites," suggesting that such systems, as well as navigation and early warning satellites, could be among the targets of attacks designed to "blind and deafen the enemy".⁶ The same PLA analysis of the US and coalition military operations also states that, "destroying or capturing satellites and other sensors will deprive the opponents of initiative on the battlefield and make it difficult for them to bring their precision guided weapons into full play".⁷ While China has engaged itself in technology associated with space weapons, it has also consistently voiced a strong opinion in support of a "weapon free outer space". This is evident in its efforts made along with Russia to push for an international Code of Conduct to avoid weaponisation of space, under the aegis of the UN. China is also in favour of signing the treaty on Prevention of Arms Race in Outer Space (PAROS). The United States, in spite of having a well-established ballistic missile

5.. Mary C. FitzGerald, "China's Military Modernization and its Impact on the United States and the Asia-Pacific", March 30, 2007. Statement on "China's Military Strategy for Space," before the U.S.-China Economic and Security Review Commission.

6. n. 1.

7. Ibid.

defence system and possessing technical advantages in potential space weaponry, has consistently refused to negotiate PAROS in the Conference of Disarmament (CD).⁸ The failure of ratification of this treaty by the US has left little choice for China but to continue research and development in space weapons.

HIT-TO-KILL ASAT TECHNOLOGIES

The use of kinetic kill vehicles as ASAT weapons did not surface for more than two decades after the disintegration of the USSR. However, in the interim, the emerging powers had been contemplating development and testing of ASAT weapons using indigenised launch vehicles. And on January 11, 2007, China, using a multi-stage rocket, successfully conducted its first ASAT test, destroying its own inactive polar orbit satellite, the "FengYun-1C," at an altitude of 865 km. The disintegration of the satellite created one of the largest clouds of debris, polluting outer space badly and posing danger to space assets and future space activities. President Emeritus of the Henry L. Stimson Centre, Michael Krepon called the Chinese ASAT test predictable, and said that it was an indicator to the United States, showcasing China's advancement in this field.⁹ American intelligence had intimation of an impending ASAT test as it was already aware of two experimental evaluations conducted on July 7, 2005, and February 6, 2006. These two tests used the solid-fuelled medium-range SC-19 class of missile, launched on a mobile launcher carrying an interceptor designed to crash into enemy satellites.¹⁰ Though no target was hit, it was not clear if these tests were aimed to destroy any target. However, the experimental evaluations of the SC-19 seem to have contributed to the successful interception of the FY-1C satellite on January 11, 2007. There have

8. "Proposed Prevention of an Arms Race in Outer Space (PAROS) Treaty", Inventory of International Non-proliferation Organisations and Regimes, *Centre for Non-Proliferation Studies*, at <http://cns.miis.edu/inventory/pdfs/paros.pdf>. Accessed on March 18, 2014.

9. Marc Kaufman and Dafna Linzer, "China Criticized for Anti-Satellite Missile Test", *Washington Post*, January 19, 2007, at http://www.washingtonpost.com/wp-dyn/content/article/2007/01/18/AR2007011801029_2.html. Accessed on August 22, 2014.

10. Michael R. Gordon and David S. Cloud, "US Knew of China's Missile Test, but Kept Silent", *The New York Times*, April 23, 2007, at http://www.nytimes.com/2007/04/23/washington/23satellite.html?pagewanted=print&_r=1& Accessed on July 9, 2014.

been reports suggesting that China may be planning to conduct another ASAT test in medium earth orbit.¹¹ One aspect that requires attention is the muted response of the US to the experimental evaluations of tests conducted prior to the engagement of the FY-1C and its subdued response regarding the phenomenal debris created post disintegration. Was it that the US was not confident of the intelligence inputs and had only a hazy picture of the monitored activities? The second important question that arises is: was the US able to identify and track the missile launch in real time? The answers to both these questions could be contemplated and would bring out the constraints of the Space Surveillance Network (SSN) fielded by the United States. Surveillance and tracking is a complex and costly affair, with vast infrastructural requirements and seamless positioning of sensors in the three-dimensional space. The US SSN comprises electro-optical, passive radio frequency and radar sensors. This SSN has inherent limitations as it works on a predictive procedure to keep track of space objects and it is difficult to track an unannounced activity in space. Thus, even with information of a likely space launch, it is extremely difficult to capture and track a launch event with a limited number of sensors and their geographical distribution,¹² unless information of the exact location of the launch site and timings is available. The other reason for the US not having reacted to the Chinese ASAT test would be that it would serve to project to Congress the requirement for future research, development and testing in relation to space weapons.

BALLISTIC MISSILE DEFENCE SYSTEM

In January 2010, China conducted another test, this time on ground-based mid-course missile interception technology. With these two tests, in 2007 and 2010, it is possible that China has bridged the gap of linking the anti-satellite and missile defence systems and made certain headway in "hit-to-kill" technologies.¹³ Confirmation that this

11. Ajey Lele and Gunjan Singh, "China's Space Strategy and Modernisation", *ORF Issue Brief*, February 2013.

12. Maj Edward P. Chatters IV, USAF and Maj Brian J. Crothers, USAF, "Space Surveillance Network", at http://www.au.af.mil/au/awc/space/au-18-2009/au-18_chap19.pdf. Accessed on July 17, 2014.

13. Rosita Dellios, "China and Outer Space". *Humanities & Social Sciences Papers*. Paper 571, 2012.

was indeed another test of the same SC-19 ASAT system comes from a classified State Department cable that was leaked by Wikileaks in 2011.¹⁴ The technology associated with mid-course Ballistic Missile Defence (BMD) technology is strikingly similar to the direct ascent kinetic kill ASAT technology and provides an inherent counter-space capability. In January 2013, China publicly reported another “mid-course missile interception test” and based on similarities of its description by the Chinese media to the 2010 test, one can assume the use of the SC-19 missile series which is yet to be acknowledged by the US government.¹⁵ It is reiterated that the technologies used for the BMD and direct ascent ASAT attacks are complementary to each other and Chinese research and development in this field has matured significantly.

SUB-ORBITAL ASAT?

On May 13, 2013, China launched a rocket from the Xichang Satellite Launch Centre in Sichuan province. The rocket reached an altitude of 10,000 km and the ceiling covered was one of the highest sub-orbital launches worldwide since 1976. The rocket apparently did not place any satellites or objects in orbit and, as per the Pentagon, this launch could be the first interceptor test aimed at destroying a satellite in higher orbit.¹⁶ While admitting that the launch did take place, China maintains that the rocket carried a science payload to study the Earth’s magnetosphere.¹⁷ As per one of the reports, “The system appears to be designed to place a kinetic kill vehicle on a trajectory to deep space that could Reach Medium Earth Orbit (MEO), Highly Elliptical Orbit (HEO), and Geostationary Earth Orbit (GEO)”.¹⁸ If true, this would represent a significant development in China’s ASAT capabilities as no other nation has tested such a system.¹⁹ A detailed analysis of the satellite imagery reveals that the research mission was

14. Brian Weeden, “Through a Glass Darkly: Chinese, American, and Russian Anti-satellite Testing in Space”, March 17, 2014, at http://swfound.org/media/167224/Through_a_Glass_Darkly_March2014.pdf. Accessed on July 9, 2014.

15. Ibid.

16. Andrea Shalal, “US sees China Launch as Test of Anti-Satellite Muscle: Source”, *Reuters*, at <http://www.reuters.com/article/2013/05/15/us-china-launch-idUSBRE94E07D20130515>. Accessed on July 17, 2014.

17. Ibid.

18. Weeden, n. 14.

19. Ibid.

actually a test of a new anti-satellite weapon based on a road-mobile ballistic missile.²⁰ In this context, one may refer to an exhaustive neutral analysis by Brian Weeden, technical adviser for the Secure World Foundation, who has scrutinised the event and analysed the technicalities challenging the feasibility of such a mission.²¹ The motive behind the sub-orbital launch is a subject of hypothesis, but China seems to have covered credible ground, reaching new heights in the realm of outer space. The experiment has helped boost the confidence of the Chinese space agencies, providing the required thrust for futuristic space missions.

CO-ORBITAL TECHNOLOGY

China is also reported to have developed parasitic satellites as an additional method to deploy an ASAT weapon.²² In its annual reports to Congress in 2003 and 2004, the Pentagon asserted that China has “developed and tested an ASAT system described as a parasitic micro-satellite”, i.e., a small satellite that attaches itself to a target satellite to disrupt or destroy that satellite on command. Though this report is unconfirmed, the progress made by China in launching a number of recoverable satellites and mastering docking practices does give a strong indication of such a development. In terms of co-orbital ASAT development, China’s recent BX-1 micro-satellite test, which was carried out as part of the manned Shenzhou-7 mission, demonstrated technology that can be used as a base for future covert satellite inspection missions, as well as co-orbital ASAT attacks.²³ The BX-1 test could be visualised as a simulated run to test capabilities required for a co-orbital ASAT attack as the satellite passed close to the International Space Station.²⁴ The Chinese are also believed to be

20. Andrea Shalal, “Analysis Points to China’s Work on New Anti-Satellite Weapon”, *Reuters*, at <http://www.reuters.com/article/2014/03/17/us-china-space-report-idUSBREA2G1Q320140317>. Accessed on July 9, 2014.

21. *Ibid.*

22. M.V. Smith, “Ten Propositions Regarding Space Power”, School of Advanced Airpower Studies, Air University, Maxwell Air Force Base, Alabama, June 2001, at <http://www.au.af.mil/au/awc/awcgate/saas/smith.pdf>. Accessed on August 22, 2014.

23. Ian Easton, “China’s Evolving ASAT Weapons Programs and Their Implications for Future US Strategy”, *Project 2049 Institute*, at http://project2049.net/documents/china_asat_weapons_the_great_game_in_space.pdf

24. Brian Weeden, “China’s BX-1 Microsatellite: A Litmus Test for Space Weaponization,” *The Space Review*, October 20, 2008, <http://www.thespacereview.com/article/1235/1>. Accessed March 20, 2014.

investing in small (nano) satellites technologies which could be used as space mines.²⁵

ROBOTIC ARM IN SPACE

On July 20, 2013, China had launched a set of three satellites called Chuangxin-3 (Innovation-3), Shiyan-7 (Experiment-7), and Shijian-15 (Practice-15).²⁶ As per available reports, one of the small manoeuvrable satellites was equipped with a robotic arm that was tested to capture another satellite.²⁷ While the reports on the actual mission remain unverified, Pentagon officials believe the small satellite activity is closely associated with China's secret ASAT programme.²⁸ The report also goes on to state that the robotic arm could have been an experiment to facilitate future maintenance and repair activities in relation to space assets.²⁹ Experimenting with a robotic arm to physically control space assets or using it for on-station maintenance, points to the advances the Chinese scientific community has made in a span of one decade. This technology in future could be sought internationally to manipulate the orbits, improve the longevity of satellites and safeguard satellites from probable collisions with debris. China can also use it as an ASAT system without contravening the legal obligations of placing of weapons in space.

DIRECTED ENERGY WEAPONS

China has been pursuing development of Directed Energy Weapons (DEWs) since 1990. Believing firmly that the DEW and Electromagnetic Pulse (EMP) weapon creation by means other than a nuclear blast would be able to change the course of future wars, China has emphasised research and development in the field of ground-based laser systems and radio frequency weapons for degradation of satellites. As per the 1998 Pentagon report to Congress, "China already may possess the capability to damage, under specific conditions, optical sensors on satellites that are very vulnerable to

25. Lele and Singh, n. 11.

26. "China Testing New Satellite-Hijacking Space Weapons", October 4, 2013, at <http://www.china-defense-mashup.com/china-testing-new-satellite-hijacking-space-weapons.html>. Accessed on July 9, 2014.

27. Ibid.

28. Ibid.

29. Ibid.

damage by lasers”, and that “given China’s current interest in laser technology, it is reasonable to assume that Beijing would develop a weapon that could destroy satellites in the future”.³⁰ The assumption gained credibility when in August and September of 2006, China reportedly used high-powered, ground-based lasers to illuminate US reconnaissance satellites. Reports stated that these were either ASAT tests or relatively “low-power” laser ranging devices intended to precisely determine satellite orbits for ASAT targeting purposes.³¹ While China does advocate use of laser weapons to disable satellites and is pursuing research in this direction, the generation, handling and focussing of the laser beam is a complex affair. Laser weapons capable of attacking a space system will be constrained by the size of equipment, power feeds, generating a focussed beam of required intensity and pointing the beam for a finite time on the target. As per the existing records, the US has reported that its satellites encountered illumination from low powered laser beams. Any experimental laser research directed towards space would result in capturing of this information. Just by citing illumination of satellites, it is not possible to specifically assert that China is capable of generating a weapon grade laser to act against satellites. The United States has been working on a weapon grade laser for more than three decades and has invested considerable resources in various projects, with only a modest rate of success. The generation and development of, and targeting with, a weapon grade laser has its own complexities involving power, cooling, equipment size, beam formation and beam pointing. Being new in this field, China would take a few more decades to master this technology.

CONCLUSION

China is fast growing as a space power and its developmental activity in the space field is advancing at a rapid pace. To circumvent any kind of political, economic or military coercion (in particular from the

30. Report to Congress, “Future Military Capabilities and Strategy of the People’s Republic of China” (Washington, DC: Department of Defence, November 1998) at <http://fas.org/news/china/1998/981100-prc-dod.htm>. Accessed on August 22, 2014.

31. Desmond Ball, “Assessing China’s ASAT Program”, *APSNet Special Reports*, June 14, 2007, <http://nautilus.org/apsnet/assessing-chinas-asat-program/> Accessed on March 20, 2014.

United States), its focus on exploiting the vulnerability of US space assets is in line with the posturing for minimal deterrence capability. Traversing on a robust space programme aimed at the societal and economic well-being of its citizens, China has been a strong supporter of peaceful uses of outer space. It has advocated that outer space be kept free of weapons and has earnestly made efforts to enforce legal obligations on the international community to prevent the weaponisation of space. As the United States has been a stumbling block in the ratification of PAROS, China has been left with no option but to pursue its space advances with an open ended approach towards space weaponisation. It has exploited and developed space technologies that would serve to create space weapons at short notice. Working in this direction, it has demonstrated kinetic kill capability to attack space assets from the ground, and if reports are to be believed, has made considerable progress by experimenting with co-orbital systems capable of maturing as space weapons. China's multi-pronged approach to decimate the adversary's space assets would include incorporating and improvising of DEWs. In the prevailing situation, the acquisition and proliferation of DEW capabilities by any country would raise apprehensions amongst the other nations.

SALIENCE OF SOUTH CHINA SEA IN CHINA'S STRATEGIC CALCULATION

SANA HASHMI

Much has been said about the 21st century being the Asian century. In the post-Cold War era, the focus of global politics has been shifting from Europe to Asia which is majorly attributed to the phenomenal growth of several Asian countries. One of the most prominent amongst those features is the unprecedented rise of China. China is the second largest economy in the world with a Gross Domestic Product (GDP) of approximately US\$ 9 trillion. Its GDP growth rate stood at 7.7 percent in 2013. China surpassed the Japanese economy to become Asia's largest economy in 2010 and speculations are rife that China is soon going to overtake the US economy to become the largest economy of the world by 2020. A comparative study released by the World Bank's International Comparison Project in 2011 estimated that the Chinese economy is likely to surpass the US economy by late 2014.¹ China's defence budget rose to approximately US\$ 121 billion in 2014 comprising just 2.2 percent of China's GDP. A *Jane's* report predicts that by 2015, China will increase its defence budget to US\$ 238 billion, surpassing that of the North Atlantic

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1. "Still a Long Haul before China Overtakes US as World's Largest Economy", *People's Daily*, May 8, 2014, at <http://english.peopledaily.com.cn/98649/8620754.html>. Accessed on June 4, 2014.

Treaty Organisation's (NATO's) eight largest militaries, after the United States, combined.²

While Asia is home to major economies of the world, territorial conflicts are one of the determining features of Asian politics. Notably, the 20th century was, by and large, dominated by the land border disputes and in the case of China, it has been involved in long-standing border disputes with its neighbours since 1949. When the People's Republic of China (PRC) was established, it faced the long-drawn-out task of demarcating its borders on almost all the fronts. China is landlocked from three sides and shares a land border with 14 sovereign nations and a maritime boundary with six countries. It has resolved land border disputes with 12 neighbouring countries but is yet to address its border issues with India and Bhutan. With the exception of China's boundaries with India and Bhutan, its land borders have all been demarcated. However, none of its maritime disputes has been resolved yet and as of now, the chances of reaching a consensus seem bleak. One may note that it is mostly China's maritime disputes that are adversely affecting its good neighbourly policy and proving to be an irritant in its relations, mainly with Japan, Vietnam and the Philippines.

Of late, the Chinese government has made it obvious that with respect to its maritime disputes in the East and South China Seas, it is reluctant to compromise. This can be substantiated by quoting Chinese President Xi Jinping who, in 2013, stated, "We are strongly committed to safeguarding the country's sovereignty and security, and defending our territorial integrity".³ It is in the context of China's assertive behaviour with respect to its maritime disputes in the South China Sea that this article seeks to examine the trajectory of the South China Sea dispute, particularly with regard to China's naval ambitions and its power projection in the disputed sea.

2. Andrew S. Erickson, "China's Near Seas Challenges", *The National Interest*, January-February 2014, at <http://nationalinterest.org/article/chinas-near-seas-challenges-9645>. Accessed on July 230, 2014.

3. "Timeline: China's Maritime Disputes", *Council on Foreign Relations*, 2014, at [http://www.cfr.org/asia-and-pacific/chinas-maritime-disputes/p31345#/#/](http://www.cfr.org/asia-and-pacific/chinas-maritime-disputes/p31345#/). Accessed on August 2, 2014.

BACKDROP

The South China Sea dispute is considered to be one of the most complex issues of contemporary times having the potential to alter the geo-politics of the East Asian region. China lays claim to the entire Spratly Islands and their 820,000 sq km area; the archipelago contains more than 550 islands, sandbanks, reefs, and shoals, many of which are also partially or fully claimed by Brunei, Malaysia, Philippines, Taiwan, and Vietnam.⁴ What makes the situation precarious is the involvement of multiple claimants such as China, Taiwan, Brunei, Malaysia, Indonesia, the Philippines and Vietnam. The presence of extra-regional powers like the US, Japan, Australia and India that have their own economic and strategic stakes in the Southeast Asian region, makes the conflict all the more difficult to comprehend.

Though the conflict began to gain prominence in the recent times, it dates back to the Kuomintang era. It started in 1947 when Chiang Kai-shek presented a u-shaped eleven-dashed line map so as to demarcate China's maritime boundary in the South China Sea. The claim by the nationalist government included areas from the Pratas Islands to the Paracel and Spratly Islands. When the Chinese Communist Party (CCP) took charge in 1959, it readily adopted the Kuomintang's cartographic tool to reinforce its claims on the South China Sea. In the 1950s, the Chinese government removed the portion encompassing the Gulf of Tonkin, simplifying China's maritime boundary to nine dashes and to this day, China invokes the nine-dash line as the historical basis for its territorial claims in the South China Sea.⁵ To substantiate its claims, China maintains that it has historical linkages with the sea and was the first to discover, name, develop, conduct economic activities on, and exercise jurisdiction over, the Nansha Islands which is the Chinese name of the Spratly Islands.⁶

Nevertheless, despite making public proclamations about its claims in the South China Sea, till the 1970s, the issue of the disputed sea did not emerge as a potential irritant between China and its

4. Andrew Erickson and Austin Strange, "Pandora's Sandbox: China's Iron Building Strategy in the South China Sea", *Foreign Affairs*, July 13, 2014, at <http://www.foreignaffairs.com/articles/141632/andrew-erickson-and-austin-strange/pandoras-sandbox>. Accessed on August 4, 2014.

5. n. 3.

6. For details on China's claim on the sea, see <http://www.fmprc.gov.cn/eng/topics/3754/t19231.htm>. Accessed on August 15, 2012.

Southeast Asian neighbours. The China-Soviet Union split, the Vietnam War, and China's unresolved border disputes with many of its neighbours were the major driving forces for China not bringing its maritime disputes into the limelight. However, as soon as the Paris Peace Accords of 1973 were signed to end the Vietnam War, which also halted US military involvement in the war, China began to flex its muscles. In the 1974, People's Liberation Army Navy (PLAN) troops began to occupy the western portion of the Paracel Islands by planting flags on several islands and seizing a South Vietnamese garrison; and Beijing built a military installation, including an airfield and artificial harbour on Woody Island, the largest of the Paracels.⁷ China now has around 1,000 PLAN troops stationed in the Paracels. In response to this, Vietnam also began to station its troops in the Spratly Islands and till now, the islands are under the administration of Vietnam.

Since the late 1980s, there have been scores of direct military confrontations between China and the Southeast Asian states. In 1988, China and Vietnam got involved in an armed confrontation when approximately 70 Vietnamese sailors were drowned in the South China Sea. In January 1996, China had a large-scale military confrontation with the Philippines in the Mischief Reef which adversely affected Beijing's relations with Manila. Owing to the ever-increasing confrontations between China and the Southeast Asian states, ASEAN proposed a Declaration on the Conduct of Parties in the South China Sea, which was signed in 2002. This multilateral effort is still not proving to be of any help as China pushes for the solution at the bilateral level. However, this amity was short-lived and tensions sparked off again in May 2009 when Malaysia and Vietnam jointly submitted their claims with detailed maps to the United Nations Commission on the Limits of the Continental Shelf (UNCLCS). In response to this, China lodged a strong protest to the UN secretary-general and alleged that the joint submission "seriously infringed China's sovereignty, sovereign rights and jurisdiction in the South China Sea" and that it would "seriously request" the commission not to consider their submission.⁸

7. n. 3.

8. Nong Hong, *UNCLOS and Ocean Dispute Settlement: Law and Politics in the South China Sea* (Oxon: Routledge, 2012), p. 20.

Even the signing of the Code of Conduct could not put an end to the confrontation. In fact, China and the Philippines, along, with Vietnam, have been accusing each other of violating the Code of Conduct. In 2012, Manila sent its warship to confront Chinese fishermen in the Scarborough Shoal which resulted in China sending its own surveillance vessels to protect its fishermen.⁹ In June 2012, Vietnam passed its Maritime Law which required all foreign naval ships to obtain prior permission from Vietnam before passing through the water around the Spratly and Paracel Islands. In response to this, Vice Foreign Minister Zhang Zhijun summoned Vietnamese Ambassador to China Nguyen Van Tho to lodge a solemn representation to the Vietnamese side concerning the recent passing of the Vietnamese Maritime Law that extends the country's jurisdiction to islands claimed by China.¹⁰ Of all the claimants, the China-Vietnam confrontation seems to be never-ending. Vietnam claims that China has been detaining and seizing Vietnamese fishing craft, particularly near the Paracels and in 2009 alone, 33 ships were detained and 433 crew members were impounded.¹¹ In 2011 again, China began to create obstacles for Vietnam by intimidating Vietnamese oil exploration vessels operating within Vietnam's Exclusive Economic Zone (EEZ).¹² Vietnam also claims that Chinese ships cut the cables towing seismic equipment on two occasions, on May 26 and June 9, 2011.¹³

IMPORTANCE OF SOUTH CHINA SEA FOR CHINA

There is ample evidence to suggest that the South China Seas holds immense importance for China and in no way does it want to let go of these claims. Three reasons can be cited for China's uncompromising

9. n. 3.

10. "China Opposes Vietnamese Maritime Law over Sovereignty Claim", *Xinhua*, June 21, 2012, at http://news.xinhuanet.com/english/china/2012-06/21/c_131668632.htm. Accessed on August 2, 2014.

11. Carlyle A. Thayer, "The Tyranny of Geography: Vietnamese Strategise to Constrain China in the South China Sea", *Contemporary Southeast Asia: A Journal of Internal and Strategic Affairs*, vol. 33, no. 3, December 2011, pp. 348-369.

12. For a more detailed study on this issue, refer to Sana Hashmi, "South China Sea Imbroglia: An Indian Perspective", *Air Power Journal*, vol. 8, no. 1, Spring 2013, pp. 149-166.

13. "Vietnam Says Chinese Boats Harassed Oil Exploration Ship", *Reuters*, May 27, 2011, at <http://www.reuters.com/article/2011/05/27/vietnam-china-idAFL3E7GR15720110527>. Accessed on July 27, 2014.

stance towards other claimants in the South China Sea. First, China wants to have unhindered access to the international waters on its eastern side. In this context, Peter A. Dutton, professor of Strategic Studies and director of the China Maritime Studies at the US Naval War College, gives a reason for China's assertive postures vis-a-vis its maritime disputes by stating, "The Chinese have long felt vulnerable from the sea, and their current maritime strategy seeks to reduce that vulnerability by extending a ring of maritime control around China's periphery".¹⁴ For this, China requires control over the Spratlys, or at least the ability to prevent external powers from interfering with its naval movements in an area that would extend to the Strait of Malacca.¹⁵ This argument seems tenable when it is taken into consideration that the dispute, involving the overlapping claims of six governments to territorial sovereignty and maritime rights, encompasses the main sea lines of communication that connect Southeast Asia with Northeast Asia, and covers large fishing grounds that may contain vast reserves of oil and natural gas.¹⁶ Former PLAN Commander Adm Liu Huaqing observed, "Whoever controls the Spratlys, will reap huge economic and military benefits".¹⁷ Additionally, it is one of the busiest sea lanes in the world with one-third of the sea-borne trade passing through it and about 80 per cent of China's crude oil imports going through the South China Sea.¹⁸

Second, it has proven oil reserves of seven billion barrels and an estimated 900 trillion cubic feet of natural gas, a potentially huge bounty.¹⁹ China is the world's most populous nation which has driven the country's quest for securing energy resources. To maintain its double digit growth rate, China needs to fulfil its energy requirements. Therefore, China has quickly risen to the top ranks in global energy demand over the past few years and it is now the world's second

14. Peter A. Dutton, "China's Maritime Disputes in the East and South China Seas", *Naval War College Review*, January 14, 2014, p.7.

15. Leszek Buszynski, "The South China Sea: Oil, Maritime Claims and US-China Strategic Rivalry", *The Washington Quarterly*, vol. 35, no. 2, Spring 2012, p. 146.

16. M. Taylor Fravel, "China's Strategy in the South China Sea", *Contemporary Southeast Asia: A Journal of International and Strategic Affairs*, vol. 33, no. 3, December 2011, pp. 292-319.

17. *Ibid.*

18. Hashmi, n. 12.

19. Robert D. Kaplan, "The South China Sea is the Future of the Conflict", *Foreign Policy*, August 15, 2011, at http://www.foreignpolicy.com/articles/2011/08/15/the_south_china_sea_is_the_future_of_conflict. Accessed on January 20, 2012.

largest oil consumer, behind the United States, and became the largest global energy consumer in 2010.²⁰ With an increasing energy demand, China is trying to diversify its energy resources and also endeavours to be self-sufficient. If China can control the South China Sea, it will have unhindered access to the energy reserves beneath the sea.

Third, China has always used the historical narrative to justify its claims on disputed territory. Ever since China came into existence as a nation-state, it has laid claims of sovereignty over the territories which it regarded as “lost territories”. It claims that during the late 18th century, its territories under the Qing Empire were illegally taken away by the Western powers and were compromised by imposing unequal treaties on it. Therefore, with regard to its land borders, China, since the Kuomintang era, has maintained that its ill-defined boundary from all the sides is yet to be negotiated, defined, delineated and demarcated. Nevertheless, in the case of its maritime boundaries, China has a different story to narrate. The Chinese leadership has so far maintained that its maritime boundary in the South China Sea was demarcated by the nationalist government and till now, it gives the reference of the nine-dashed line as the basis for its historical claims in the disputed sea. In fact, the Chinese leadership, from the time of Deng Xiaoping, has always referred to it as “China’s historical territory since ancient times.” Normally, the overlapping territorial claims to sovereignty and maritime boundaries ought to be resolved through a combination of customary international law, adjudication before the International Court of Justice or the International Tribunal for the Law of the Sea, or arbitration under Annex VII of the United Nations Convention on the Law of the Sea (UNCLOS), and while China has ratified UNCLOS, the treaty by, and large, rejects “historically based” claims, which are precisely the type that Beijing periodically asserts.²¹ While China’s expansive claims to most of the waters, islands and natural resources of the entire South China Sea—which are echoed by Taiwan, the other part of “one China”—

20. “China: Overview”, US Energy Information Administration”, 2014, at <http://www.eia.gov/countries/cab.cfm?fips=ch>. Accessed on May 20, 2014.

21. Mohan Malik, “Historical Fiction: China’s South China Sea Claims”, *World Affairs Journal*, May-June 2013, at <http://www.worldaffairsjournal.org/article/historical-fiction-china%E2%80%99s-south-china-sea-claims>. Accessed on August 1, 2014.

rest on a mixture of hoary historical accounts and international law, the others claiming sovereignty over the islands—Brunei, Malaysia, the Philippines and Vietnam—all base their case on the UNCLOS.²² Therefore, from the historical perspective as well, the disputed sea is important to China.

CHINA'S NAVAL POWER: AN OVERVIEW

Robert Kaplan upholds that by displaying assertive behaviour vis-a-vis its maritime disputes, China, whose land borders are more secure than at any time since the height of the Qing dynasty at the end of the 18th century, is engaged in an undeniable naval expansion.²³ His argument holds true when one takes China's military manoeuvres into account. The PLAN is undergoing a qualitative revolution in its equipment as Beijing moves away from the last two decades of 'leap-frog' shipbuilding development.²⁴ In April 2013, China issued a White Paper with the theme "The Diversified Employment of China's Armed Forces". According to the White Paper, PLAN is China's mainstay for operations at sea and is responsible for safeguarding its maritime security and maintaining its sovereignty over its territorial seas along with its maritime rights and interests.²⁵ Currently, the PLAN has a total strength of 235,000 officers and men, and commands three fleets, namely, the Beihai Fleet, the Donghai Fleet and the Nanhai Fleet; the PLAN also comprises submarines, surface vessel, naval aviation, Marine Corps and coastal defence arms.²⁶ In line with the requirements of its offshore defence strategy, the PLAN endeavours to accelerate the modernisation of its forces for comprehensive offshore operations, develop advanced submarines, destroyers and frigates, and improve the integrated electronic and information systems.²⁷ According to *Jane's Fighting Ships, 2010-2011*, the

22. "A Good-Neighbor Policy for Peace in the South China Sea", *Bloomberg*, August 12, 2012, at <http://www.bloomberg.com/news/2012-08-12/a-good-neighbor-policy-for-peace-in-the-south-china-sea.html>. Accessed on August 25, 2012.

23. Kaplan, n. 19.

24. IISS, *The Military Balance 2014* (London: IISS, 2014), p. 207.

25. "The Diversified Employment of China's Armed Forces", White Paper, April 16, 2013, at http://eng.mod.gov.cn/TopNews/2013-04/16/content_4442750.htm. Accessed on April 20, 2013.

26. *Ibid.*

27. *Ibid.*

Chinese Navy is made up of 135 major combatants (submarines plus large surface combatants) and an assortment of lesser vessels arrayed into three fleets: the North Sea, East Sea, and South Sea fleets.²⁸ In September 2012, China commissioned its first aircraft carrier named the *Liaoning* into the PLAN. In addition to this, a naval aviation platform is in production in Shanghai which may be a second aircraft carrier or a large amphibious assault vessel.²⁹ As of now, China appears to be satisfied with the quality of its vessels, with six of the Type-052C destroyers built and three of the new Type-052D ships already launched in 2013, and with the class likely to exceed the Type-052Cs in numbers.³⁰

All these details are sufficient to point towards China's naval preparedness in the event of any future conflict due to its maritime disputes with its neighbours; hence, there is reason for its neighbours to worry. China evidently still lacks adequate military means to make the South China Sea a Chinese lake, but it might make strides in that direction while still working on its naval projects.³¹ As the PLAN is undergoing a major naval transformation to project its power in the near seas, the Southeast Asian states are more likely to feel vulnerable. In such a situation, the Southeast Asian states are likely to encourage an increase of the presence of extra-regional powers such as India and the US in the region while simultaneously enhancing their own military capabilities. So, to prepare themselves against China, both claimants and extra-regional countries are visibly responding to China's seaward march, and Singapore, Malaysia, Indonesia, and even Vietnam are procuring submarine forces to hedge against China.³² The Philippines is building a new naval base in the South China Sea amid growing tensions with China and is installing various radar outposts around the base to allow the military to better monitor events in the South China Sea.³³ In addition to this, in April 2014,

28. "Defense Spending in a Time of Austerity," *Economist*, August 26, 2010, at <http://www.economist.com/node/16886851>. Accessed on August 3, 2014.

29. n. 24, p. 208.

30. *Ibid.*, pp. 207-208.

31. Toshi Yoshihara and James R. Holmes, "Can China Defend a 'Core Interest' in the South China Sea", *The Washington Quarterly*, vol. 34, no. 2, 2011, p. 54.

32. *Ibid.*

33. Zachary Keck, "The Philippines is Building a New Naval Base in South China Sea", *The Diplomat*, October 8, 2013, at <http://thediplomat.com/2013/10/the-philippines->

the US and the Philippines signed a 10-year pact that would allow a larger US military presence in this Southeast Asian nation.³⁴ This move by the Philippines sends a strong signal to China that it would not bow down in the dispute. Additionally, the presence of the extra-regional powers in the ASEAN region, coupled with the Southeast Asian states' reluctance to accept a China dominated maritime order in the near seas presents China with a challenge.

One may note that as China continues to accumulate military capabilities, it will feel more confident about managing its claims, less threatened by other states in these disputes, and less likely to use force.³⁵ One may argue that China will display assertive postures in the maritime disputes only when it has gained economic and military ascendancy. Though its economic ascendancy is reaching recommendable heights, its naval transformation will still take a few more years. Hence, considering that China's naval capabilities are not substantive enough at the moment, it may be argued that China is taking recourse to assertive behaviour and, in the meantime, is building up its capabilities at a swift pace.

In summation, for the foreseeable future, the South China Sea dispute will continue to remain unresolved. Nevertheless, armed conflict does not seem likely to take place as China has begun to focus on strengthening its relations with the Southeast Asian countries; thereby reinforcing its position in the region. In all probability, what China will do is continue delaying the solution of conflicts to while simultaneously underpinning its claims and strengthening its military position in the region.

is-building-a-new-naval-base-in-south-china-sea/. Accessed on October 9, 2013.

34. "Philippines Agrees to 10-year Pact Allowing US Military Presence", *The Guardian*, April 27, 2014, at <http://www.theguardian.com/world/2014/apr/27/philippines-us-military-presence-china-dispute>. Accessed on August 3, 2014.

35. Fravel, n. 16, p. 314.

RELEVANCE OF TIBET ISSUE IN INDIA'S NATIONAL SECURITY

TSEYANG LHAMO

From the security perspective, China's occupation of Tibet in 1950-51 precipitated developments which had a strong bearing on security concerns in the region, particularly for India. India is closely connected to Tibet by virtue of historical and cultural links, and geographical proximity. This proximity coupled with India's unwavering support to the Tibetan cause has resulted in India being the only country to bear the repercussions of China's consolidation in Tibet. The Tibet issue, from its outset, has a wide range of security implications for India and it has been an irritant in the Sino-Indian bilateral relations. Taking these into consideration, it is pertinent to delve into various aspects of the Tibet issue which are directly linked to India's national security.

GEO-STRATEGIC IMPORTANCE OF TIBET

Tibet is strategically located at the heart of Asia and for centuries, had acted as a buffer state, keeping the two Asian giants—India and China—geographically apart. Tibet plays a significant role in the India-China rivalry for dominance in Asia. As for India, strategically, Tibet must deny a vantage point and a mounting military base to any foreign power.¹ The main reason for the Chinese takeover of Tibet

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1. V.P. Malhotra, *Tibetan Conundrum* (New Delhi: Knowledge World, 2006) ,p. 91.

was strategic rather than historical claims or ideological motives. The Chinese realised the strategic importance of Tibet early and decided to shut China's back door in 1950.² China's occupation of Tibet not only altered the power equation in the region but also enabled China to exercise geo-strategic influence over much of South Asia, thus, challenging India's presence in the region. Loss of Tibet as a buffer zone crippled the security of India's northern borders, forcing it to maintain thousands of soldiers along the Himalayan frontier.³ Traditional ethnic Tibet constitutes approximately one-fourth of China's landmass. The Tibetan plateau is situated at more than 4,500 m above sea level, hence, is commonly called the "roof of the world". It has a total land area of 2.5 million sq km and is sparsely populated. The Tibetan plateau is endowed with around 132 different rich and untapped minerals.⁴ It is no wonder that the Chinese refer to Tibet as 'Xizang' meaning 'Western Treasure House'. Thus, Tibet has given immense leverage to China.

CHINA'S CONTROL OVER WATER RESOURCES

Almost 65 percent of Asia's population and approximately 30 percent of the world's population receives fresh water from rivers originating in Tibet.⁵ India's primary concern has been that the Tibetan ethnic area is a source of water for India and Asia at large. The Indian subcontinent is nourished by the perennial flow of four major rivers originating from the Kailash range in western Tibet, namely, the Brahmaputra, Sutlej, Sindhu/Indus and Macha Khabab which enters western Nepal as the Karnali before becoming the Gaghara in India to join the holy Ganges. Other mighty rivers flowing from Tibet such as the Yangtse, Yellow, Salween and Mekong sustain the lives of millions in China, Myanmar, Laos, Cambodia, Thailand and Vietnam.⁶

China's rule over Tibet has led to Chinese control over all these rivers. Hence, China wields enormous advantage in terms of the

2. Dawa Norbu, "Chinese Strategic Thinking on Tibet and the Himalayan Region", *Strategic Analysis*, vol.32, no.4,2008, pp.687-688.

3. Arijit Mazumdar, "India-China Border Dispute: Centrality of Tibet", *Economic and Political Weekly*, vol. 41, no. 41, 2006, p.4325.

4. Thupten Samphel, "Geopolitical Importance of Tibet", <http://tibet.net/2012/09/13/geopolitical-importance-of-tibet/>, September 13, 2012. Accessed on July 11, 2014.

5. Malhotra, n.1, p. 89.

6. Ibid.

flow and utilisation of the rivers. China now enjoys the advantage of being an upper riparian state, an advantage which was once enjoyed by Tibet. At the backdrop of the immense geo-strategic significance of Tibet, China's actions in Tibet, which have adverse effects on its environment and the river system, comprise a matter of great concern for the nations around China. Analysts are of the opinion that China will use Tibet's water resource as a strategic commodity and as a tool for energy and economic diplomacy with its neighbours, as and when required.⁷

China's unilateral act of damming and diverting rivers from south to north are major concerns for the lower riparian states in South Asia and Southeast Asia. Its diversion of the Brahmaputra and construction of hydro power plants has caused great concern in India. Chinese activities like damming, water diversion projects, extensive mining, nuclear waste dumping, industrial and other related activities risk causing eco-disasters by the aggravating meltdown of the Himalayan glaciers. Additionally, China's reluctance to enter into institutionalised water sharing arrangements with the downstream riparian states causes further concern. China's control over the riverhead of Asia's waters has major implications for lower riparian states like India.

TIBET AND THE SINO-INDIAN BORDER DISPUTE

The border dispute between India and China mainly comprises two main sectors. The Western Sector refers to the Aksai Chin region and the Eastern Sector comprises the Indian state of Arunachal Pradesh. China has laid claims to the Indian state of Arunachal Pradesh covering an area of approximately 90,000 sq km, which China considers as part of Tibet or Southern Tibet. In addition, under the so-called China-Pakistan 'Boundary Agreement' of 1963, Pakistan illegally ceded 5,180 sq km of Indian territory in Pakistan occupied Kashmir (PoK) to China.⁸

In order to bring out the relevance of the Tibet issue to the long pending border dispute, it must be noted that when India and China

7. *Reappraisal of India's Tibet Policy* (New Delhi: Foundation for Non-violent Alternatives, 2013), p. 27.

8. *China's Strategic Posture in Tibet Autonomous Region and India's Response* (New Delhi: Vivekananda International Foundation, 2012), p. 36.

discuss the border dispute, they are actually discussing Indo-Tibetan lands. The India-China border issue is closely linked with the Tibet issue. Jagat S Mehta, who was the main representative at the 1960 meeting of Indian and Chinese officials on the boundary question, has stated that most of the evidence presented by the Chinese side consisted of official Tibetan documents. Moreover, China claims Aksai Chin by declaring that it was once part of Tibet's Xinjiang and Ngari district.⁹

China's claim over Tawang on the basis of old Tibetan religious and monastic links again highlighted the relevance of the Tibet issue in the China-India border dispute. China laid claims on Tawang in 1984 on the grounds that it was the birthplace of the 6th Dalai Lama and, hence, central to Tibetan Buddhism. Additionally, China's refusal to accept the McMahon Line as a boundary in the Eastern Sector again brings out the relevance of the Tibet issue in the Sino-Indian border dispute. To elaborate further, with regard to the Eastern Sector, India and China have different perceptions of the Simla Accord of 1914. The McMahon Line was drawn up in a tripartite conference among Indian, Chinese and Tibetan representatives in Simla in 1914. China had subsequently disregarded the Line. China refused to recognise this agreement, arguing that Tibet was under its suzerainty, hence, had no authority to enter into agreements with other nations. During the Simla Accord, Tibet acted as an independent nation which was evident from the fact that Tibet was one of the signatories to the agreement. Endorsement of the legality of the McMahon Line by India contradicts China's claim that Tibet is historically an inalienable part of China. China deliberately overlooks the fact that at the Simla Convention (1914), Tibet had exercised its power to sign a treaty as an independent country. Besides, such arguments by India could be used to bolster Tibet's case for independence.¹⁰ China is well aware that unless and until Tibet is recognised as an inalienable part of China, its occupation of Tibet would lack legitimacy and would be considered an imperial conquest. Thus, conflicting claims on the border dispute eventually come down to the Tibet issue.

9. Dawa Norbu, *China's Tibet Policy* (Great Britain: Curzon press, 2001), p.287.

10. Srinath Raghavan, "The Case for Restraint on Tibet", *Economic and Political Weekly*, April 5, 2008, p.12.

The Tibet issue is one of the reasons preventing India and China from reaching an understanding on their border dispute. It appears that China is deliberately keeping the border issue alive and is following a 'go slow' policy. Some analysts have argued that an unsettled border provides China the strategic leverage to keep India guessing about its intentions, and nervous about its capabilities, while exposing India's vulnerabilities and weaknesses.¹¹

Some analysts have pointed out that the Chinese have persisted in their policy of keeping India under pressure.¹² This is well mirrored in numerous unfriendly gestures on the part of China towards its border dispute with India. To elaborate further, on the eve of Hu Jintao's visit to India, the Chinese ambassador to India made a statement claiming the whole of Arunachal Pradesh as part of China, which was further confirmed by Chinese Foreign Minister Yang Jiechi. Chinese walked the talk by denying visa to Indian dignitaries from Arunachal Pradesh on the grounds that the state was part of China and, hence, the official did not need a visa. Numerous stapled visas to the residents of Arunachal Pradesh and Jammu and Kashmir (J&K) then followed. The Chinese also blocked a loan from the Asian Development Bank for a project in Arunachal Pradesh, and have been engaging in military provocation, including routine border intrusions and incursions along the Line of Actual Control (LAC).

China strongly objected to the Dalai Lama's visit to the Tawang monastery in Arunachal Pradesh. However, in spite of massive pressure from China, India allowed the Dalai Lama to visit Tawang in 2009. China also objected to Dr Manmohan Singh's visit to Arunachal Pradesh. Irrespective of such criticism, Manmohan Singh visited the state twice and even had an audience with the Dalai Lama in 2010. Chinese adventurism at the India-China disputed border continues, as the Depsang incursion in April 2013 and the Chumar incursion in July 2013 reflect.

Some of the intrusions are deliberate acts of provocation, aimed at sustaining claims on Indian territory. These incidents signal a

11. Mohan Malik, "China and India Today: Diplomats Jostle, Militaries Prepare", <http://www.worldaffairsjournal.org/article/china-and-india-today-diplomats-jostle-militaries-prepare>. Accessed on August 5, 2014.

12. Rajiv Sikri, "Tibet Factor in India-China Relations", *Journal of International Affairs*, vol. 64, no. 2, Spring/Summer 2011, p. 64.

message to India that it should be far more active in resolving the Tibet issue, given that settlement of this issue will not only open up greater prospects for resolving the border dispute but also lead to the presence of friendly people along the India-China border. Assuming that China's reluctance to resolve the border dispute with India is partly due to the persisting Tibet issue, early resolution of that issue would certainly allay the fears in the Chinese about India aiding or interfering in the Tibet issue.

INFRASTRUCTURE DEVELOPMENT IN TAR AND INDIA'S CONCERNS

India has been concerned about infrastructure development carried out by China in the Tibet Autonomous Region (TAR). No doubt, such development is driven by requirements such as growth and development of the region, integration of the region with mainland China and to secure Chinese control over an estranged ethnic minority. However, the significant role played by infrastructure during a conflict in terms of facilitating troop movements has come under the purview of India as well as military strategists. Besides, dual use of the infrastructure for civilian and military purposes further adds to India's concerns.

China's infrastructure development plan in the TAR is laid down in its "Western Development Campaign Policy" strategy. It forms a vital feature of the 12th Five-Year Plan (2011-15). A careful analysis of the "Go West" strategy reveals that it is primarily aimed at gaining strategic capability for China rather than removing the economic backwardness of the region. China has developed 41,000 km of road network in Tibet, including five major highways and a number of subsidiary roads.¹³ In the 12th Five-Year Plan, it is proposed to increase the road network to 70,000 km. The road infrastructure in the TAR has a combined capacity of 1, 15,000 metric tonnes, which facilitates easy, and swift movement of troops, war-like materials and equipment. In addition, all the major passes of military significance are connected by roads.¹⁴

The Golmud-Lhasa Railway, covering a distance of 1,142 km, has been operating since 2006. Further extension of the Golmud-Lhasa

13. Deepak Kapoor, "India's China Concern", *Strategic Analysis*, vol.36, no.4, 2012, p. 672.

14. n. 8, p. 27.

railway line to Shigatse has been completed and it will begin operating soon. There are also plans to extend the Shigatse line to the Nepal border and further to Chumbi Valley. The plans of extending the Golmud-Lhasa Railway line further to Yadong and Nyingchi would bring it close to Sikkim and Arunachal Pradesh. This will be further extended to Dali in Yunnan province. This line, running parallel to Arunachal Pradesh, will enable the People's Liberation Army (PLA) to rapidly relocate troops stationed in Kunming, Dali and Kaiyuanan to the TAR.¹⁵ The railway line, facilitating troops' transport to Lhasa as early as 2007, clearly depicts its use for military purposes.¹⁶ Besides highways and railways, there are seven airports in the TAR region, which are operational, and of strategic significance to India.¹⁷

Thus, China's massive infrastructure developments in the TAR region undoubtedly stand as a serious security challenge to India, especially when the quantum of infrastructure development far exceeds the genuine needs of Tibet or the Tibetan people. Additionally, steady militarisation of Tibet has been a perennial concern for India. The Chinese military arsenal on the larger Tibetan plateau, including areas outside the TAR, is reported to have eight missile bases, with at least eight inter-continental ballistic missiles, 70 medium range and 20 intermediate range missiles.¹⁸ Infrastructure developments in the TAR, coupled with enhanced military capability, comprise not only a security concern for India but also facilitate China to approach the border dispute from a position of much greater strength.

PRESENCE OF THE DALAI LAMA AND TIBETAN REFUGEES IN INDIA

India hosts the largest number of Tibetan refugees, including the Dalai Lama and the Tibetan government-in-exile. India's decision to grant asylum to the Dalai Lama and the Tibetan refugees stemmed from long-standing spiritual and cultural links between Tibet and the India and also Indian public's high regard for the Dalai Lama.

15. Ibid., p.25.

16. Ibid.

17. Ibid., p. 26.

18. Abanti Bhattacharya, "Chinese Nationalism and the Fate of Tibet: Implications for India and Future Scenarios", *Strategic Analysis*, vol.31, no.2, 2007, p. 258.

Apart from establishing the Tibetan government-in-exile, the Tibetans enjoy a favourable environment in India to preserve their distinct culture, religion and identity and, most importantly, they are able to continue their struggle for Tibet's cause while in exile in India. The geographical proximity of India to Tibet has not only made the Tibetans feel close to their homeland but also helped in accommodating most Tibetans fleeing from Chinese rule.

It is pertinent to discuss the current state of the negotiations as these comprise the best mechanism for resolving the ongoing Tibet issue. The dialogue, intended to bring about an amicable solution to the Tibet issue, commenced in 1979; nine rounds of dialogue have taken place. The last was the 9th dialogue held in 2010, which was a failure. There has been no further dialogue.

To make matters worse, the Tibetan envoys who had participated in the dialogue process, resigned in June 2012 due to the failure of the dialogue to result in any substantial solution, and the lack of a positive response from Beijing. Nevertheless, the Tibetan government-in-exile remains committed towards engaging with China through meaningful dialogue or negotiation. The Government of India should support the 'Dalai Lama's middle way' on the ground that it is possibly the best and most workable solution towards reconciliation between Tibet and China. It also safeguards China's territorial sovereignty and integrity.¹⁹

INDIA'S CONCERNS OVER POST-DALAI LAMA SCENARIO

The post-Dalai Lama scenario has been a matter of grave concern for India as it is filled with uncertainties. Beijing anticipates that the Tibet issue would resolve itself soon after the passing away of the Dalai Lama. It also anticipates that it would have a decisive say with regard to the next Dalai Lama, as it did with the Panchen Lama. To substantiate further, Beijing had undertaken various acts which attempt to strengthen the basis for its decisive say on the next Dalai Lama. These were: firstly, China's reincarnation law of 2007 was an act of preparing a legal basis for it. Secondly, in 2006, Beijing cautiously started describing Buddhism as a non-aggressive and

19 A talk on "Tibet and The Security Environment", by Ambassador Dalip Mehta at Dharamsala on April 11, 2012, <http://tibetpolicy.net/multimedia/ambassador-dalip-mehta-tibet-and-the-security-environment/>. Accessed on July 23, 2014.

old Chinese religion, thus, officially endorsing Buddhism. Thirdly, the Chinese convened the first World Buddhist Forum in China in 2006 and then the second World Buddhist Forum was held in Wuxi, Jiangsu in, 2009, thus, attempting to claim a leadership role in the Buddhist movement.²⁰

A thick cloud of uncertainty hangs thick over the post-Dalai Lama scenario; many questions are being raised. There are two complex issues which concern India: firstly, who will be chosen as successor, and will the chosen successor be considered legitimate? The first issue needs to be addressed by giving due consideration to the Tibetans-in-exile, those in the TAR, and the Tibetans in the traditional Tibetan areas outside the TAR. The second issue pertains to how the Tibetan movement as a whole, will play out, in the absence of the undisputed and greatly revered leader, the 14th Dalai Lama.²¹ Many scholars and analysts have anticipated that the Tibetan Youth Congress (TYC) which seeks Tibet's independence as opposed to autonomy may drift away from the non-violent path. However, the Tibetans believe that they have enough unity to continue with the non-violent and peaceful path even in the absence of the Dalai Lama. Furthermore, the Dalai Lama has warned that any shift towards a more radical position is perilous.

The Tibetan government-in-exile is a significant institution with a well-established foundation; it has an elected prime minister who would definitely play a crucial role in leading the Tibetan people in the event of the absence of the Dalai Lama. Thus, the probability of the Tibetan movement fizzling out is highly unlikely. However, such an eventuality would test the real strength of the Tibetan government to lead the Tibetan people in unity along the path of non-violence, towards the goal of achieving genuine autonomy for the Tibetan people. Likewise, it would equally test India's ability to face enhanced pressure from China while keeping intact its support for the Tibetan people and the Tibetan government-in-exile. India should approach this eventuality by taking into consideration various factors: due care

20. Jayadeva Ranade, "The Dalai Lama and India-China Relations," *Issue Brief*, 17/09, December 2009, Centre for Air Power Studies, New Delhi.

21. "Tibet and India's Security: Himalayan Region, Refugees and Sino-Indian Relations", *IDSA Task Force Report*, May 2012, p.105.

must be taken so as not to severely weaken India vis-a-vis China; border negotiations should not get adversely impacted; and the significant dominance that India holds over international Buddhism, which is referred to as India's soft power, should not be reduced in the eyes of the international audience.²² India should also facilitate the transition and continuation of the Tibetan movement.

CONCLUSION

The Tibet issue continues to loom large in India's national security consciousness. In the backdrop of the ongoing tragic and extremely unfortunate self-immolations²³ by the Tibetans which sadly highlight the intensity of despair in the Tibetan plateau, it is clear that China not only lacks the legitimacy to rule Tibet, but is also grossly insensitive to the Tibet issue. China's tendency to blame outside hostile forces, mainly India and the US, for any ethnic outburst in Tibet, further reinforces the significant position that the Tibet issue holds in India's security calculations. Furthermore China's activities in Tibet, encompassing infrastructure development in the TAR, enhanced military capability, growing assertiveness and unilateralism in dealing with the border disputes and control over major rivers, including the Brahmaputra, have serious implications for India. Besides, China's insecurity over Tibet as the main driver of its approach towards India underlines the importance of the ongoing or evolving Tibet issue. Thus, the Tibet issue occupies a crucial position in India's national security and would continue to do so.

India's security is inextricably intertwined with the existence and survival of Tibet as a buffer state and the survival and strengthening of the Tibetan culture and religion.²⁴ India should be seen in support of Dalai Lama's effort for achieving genuine autonomy as it in no way threatens China's territorial integrity. Doing so would set a good example for other nations—there is high probability that other

22. Ranade, n. 20.

23. The most recent incident of self-immolation was reported on April 15, 2014, from Tawu County, Kardze Tibetan Autonomous Prefecture, Sichuan province, thereby touching 130 self-immolation cases of whom 112 have died. For details see, <http://tibet.net/2014/04/15/self-immolation-at-tawu-county/>

24. David M. Malone and Rohan Mukherjee, "India and China: Conflict and Cooperation", *Survival*, vol. 52, no. 1, 2010, pp 146-153.

nations would follow India. This should be preceded by building up favourable Indian public opinion for the Tibetans' demand for genuine autonomy. The responsibility to create awareness about the middle way policy and subsequently generate support, rests on the Tibetan people and government-in-exile. Some have proposed that India, because of its unique position as the de facto protector of the Tibetan national identity for more than half century, could play the mediator's role in breaking the impasse in the dialogue between the Chinese and Tibetans, and help bring about a mutually acceptable solution for the Tibetans-in-exile and the People's Republic of China (PRC).²⁵ Will the PRC accept such a proposal?

25. Prem Shankar Jha, "India's Tibet Problem", *Air Power Journal*, vol.4, no.2, Summer 2009, p. 19.

CHINA'S PERIPHERAL DIPLOMACY: RESPONSES FROM JAPAN, THE US AND INDIA

ANKIT KUMAR

The foreign policy of a country starts from within the confines of its geographical boundary, but its initial impact is most visible in its immediate neighbourhood. A nation is only as safe as its neighbourhood and so it seeks to have a peaceful neighbourhood on its periphery. China has realised this, hence, maintaining a peaceful and stable periphery remains a core priority of its diplomacy¹. For a country to become a major power, it first needs to become the unchallenged leader [hegemon] amongst its neighbours. For instance, before the US embarked on its ultimate goal of becoming the world's superpower, it made its intention absolutely clear about what it wanted in its neighbourhood. In the 19th century, the Monroe Doctrine declared that the US would not accept any kind of interference by any European power in America, thereby, allowing it to establish its unchallenged hegemony over its neighbours. Is China trying to devise a similar doctrine?

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1. Bonnie Glaser and Deep Pal, "China's Periphery Diplomacy Initiative: Implications for China Neighbors and the United States", *China-US Focus*, November 7, 2013, at <http://www.chinausfocus.com/foreign-policy/chinas-periphery-diplomacy-initiative-implications-for-china-neighbors-and-the-united-states/>. Accessed on July 14, 2014.

Though not in the exact manner, something similar is taking place in Southeast and Northeast Asia. China, on the might of its military and economic ascendance, is making its intentions known about being the rule shaper in Southeast and Northeast Asia, especially in the East and South China Seas. The two regions which had been the victim of superpower rivalry during the Cold War, are again staring at a similar fate. This time, it is not just two major players that are competing for influence, but a multitude of regional players are involved. China's policies in Southeast Asia appear to be aimed at isolating the claimants of the South China Sea from each other. Similarly, in Northeast Asia too there are signs of a challenge to US dominance. China seems to have found a degree of success in driving a wedge between the two allies of the US: Japan and South Korea. While the friction between its allies is a concern for the US, China's aim is not directed primarily against the US but at its Northeast and Southeast Asian neighbours, as China pursues its policy of "peripheral diplomacy".

As the US develops its "pivot to Asia" policy and regional players reassess their interests, there are chances that those countries that are at the centre of the power game and even those on the sidelines would seek to align with the one that serves their interest the best. After all, no country would want to maintain a hostile relationship with a world power in its neighbourhood. Cracks are beginning to show in the region with nations being divided into anti-China and pro-China blocs. In the light of China's peripheral diplomacy initiative, the US pivot to Asia and the scramble by regional players to secure their interests, this paper addresses three main issues. Firstly, how China plans to promote its influence in the Southeast and Northeast Asian regions by isolating the anti-China lobby. Secondly, Southeast Asian nations overlook an extremely critical part of the Sea Lanes of Communication (SLOC) of not only China but also of Japan, South Korea, the US and others, which creates a possibility of the Northeast Asian states joining with the Southeast Asian states over mutual concerns. Consequently, the paper would address how China plans to prevent the Northeast Asian states from uniting with the Southeast Asian states against China. Lastly, the paper seeks to assess as to what extent has China

succeeded in its objective of keeping the US out of the disputes, while seeking to maintain a non-confrontational approach with regard to the United States.

“PERIPHERY DIPLOMACY” INITIATIVE

China’s strategy in the near-term (till 2020) towards countries on its periphery, including those in Northeast Asia and Southeast Asia, was formulated by Chinese President Xi Jinping at a major conference on peripheral diplomacy held on October 24-25, 2013, in Beijing. A similar conference was last held in 2006.

At the conference, China’s foreign policy goals and the strategy to achieve those goals were enunciated. The top leadership of the Communist Party of China (CPC) agreed that starting from 2014 to 2020 (possibly extendable to 2025), China would seek to maintain a stable external environment that is conducive to domestic economic reform and growth. To achieve this goal, China would strive to make China’s neighbours “more friendly in politics, economically more closely tied, and have deeper security cooperation and closer people-to-people ties.”² In a way, Xi has reprised the *Panchsheel* philosophy and is using it as part of his peripheral diplomacy policy³. Xi enunciated that the neighbouring countries should be treated as friends and partners and China should make them feel safe and support them in the development process⁴. This is essential because the risk of eruption of conflict related to territorial sovereignty and natural resources in these areas is high and China would not like to get involved in a conflict at this critical juncture.

Xi Jinping and Premier Li Keqiang visited five Southeast Asian countries in October 2013 before the conference on peripheral diplomacy was organised. During their travels, Xi announced his proposal for a “Maritime Silk Road” to connect China with Southeast Asia, and Li put forward a seven-point proposal to

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2. “Important Speech of Xi Jinping at Peripheral Diplomacy Work Conference”, CCICED, at http://www.cciced.net/enciced/newscenter/latestnews/201310/t20131030_262608.html. Accessed on July 20, 2014.
 3. C. Raja Mohan, “Panchsheel 2014”, *The Indian Express*, at <http://indianexpress.com/article/opinion/columns/panchsheel-2014/>. Accessed on July 21, 2014.
 4. “Xi Jinping: China to Further Friendly Relations with Neighboring Countries,” *Xinhua*, at http://news.xinhuanet.com/english/china/2013-10/26/c_125601680.htm. Accessed on July 21, 2014.

deepen cooperation between China and the Association of Southeast Asian Nations (ASEAN) members. Details show that China would construct ports under the plan which would also include South Asia⁵. The visit was essentially a part of the groundwork for launching the peripheral diplomacy and it marked the beginning of China's peripheral diplomacy initiative in Southeast Asia. Soon, China also began its thrust in Northeast Asia. It seems to be following a two-pronged strategy to achieve its goals. Its first objective is to not let the Northeast Asian and Southeast Asian countries unify against China, and the second is to strengthen its claim on the disputed maritime territories by isolating what it calls the "claimants" from the other countries of that region. A possible third pillar of China's periphery strategy is aimed at countering the US' "Rebalance to Asia", preventing the formation of an anti-China coalition on its periphery, and weakening US alliances.⁶ However, Beijing wants to achieve this without confronting the US directly and so it keeps cautioning the US every now and then to keep out of territorial disputes. As the US tries to reciprocate China's non-confrontational approach, it has decided not to take sides on the territorial disputes, and to increase its ties with China. This might imply that China's strategy has succeeded so far.

China's efforts to promote influence, whether through bilateral or multilateral cooperation, are directed at establishing a new regional security order in Asia which is China-centric. It has achieved perhaps the highest degree of success in its efforts in Northeast Asia where it has succeeded in building a stronger partnership with Russia and has improved its relations significantly with South Korea. These partnerships are likely to grow stronger in the future. However, it needs to be underlined that Russia and China do not have a clear alliance as they also have a number of divergent interests. However, fortunately for China, more than through its own efforts, its case was helped by the tension between Russia and the West over Syria and Ukraine. Russia's frustration with the US and the West over

5. Ananth Krishnan, "China's 'Maritime Silk Road' to Focus on Infrastructure", *The Hindu*, at <http://www.thehindu.com/news/international/chinas-maritime-silk-road-to-focus-on-infrastructure/article5929297.ece>. Accessed on July 21, 2014.

6. Bonnie S. Glaser, "China's Grand Strategy in Asia", Statement before the US-China Economic and Security Review Commission. Accessed on July 22, 2014.

their attempts to install a pro-West regime in states which have been under Russia's "sphere of influence" has resulted in Russia siding with China on several issues. Seeking to capitalise on the opportunity that these events provided to China in building a stable and strong bilateral relationship with Russia, China too has enthusiastically supported Russia.

While securing its relations with Russia would be reassuring to China, it has too many flanks to secure in order to build its clout in the states on its periphery. China has been vigorously wooing Seoul by presenting itself as a well-wisher of Seoul and as the only solution to Pyongyang's nuclear programme. China's propaganda of colouring Japan as a threat to the peace of East Asia has resonated in Seoul, which has also expressed its concerns over Abe's plans of making Japan a "normal" country. Abe's views on the history of Japanese aggression and war-time atrocities, which lack atonement, have further harmed Japan's image in the region. China has managed to get South Korea on its side to confront Japan on historical issues.

In Southeast Asia, China's major concern is to stop the unification of ASEAN against China's assertiveness. Well aware of the alarm that its actions have caused in the recent past, Beijing plans to go a little slow on the South China Sea dispute. China's first aim is to contain the spread of the anti-China feeling in Southeast Asia, which is why it has offered generous economic packages to several countries. Its second objective is to isolate Vietnam and the Philippines from the other ASEAN members. Instead of dealing with ASEAN as a whole, China has insisted on having bilateral negotiations with the countries that have a territorial dispute with it. Beijing hopes that by having bilateral negotiations, it could use its influence and clout to get that country to agree to terms and conditions that are favourable to China.

China aims at creating an atmosphere where the Northeast Asian and Southeast Asian states assess their individual interests and act on that basis. This would preclude the formation of any bloc aimed at containing or balancing China. China's non-confrontational approach towards the US has elicited a similar response from the US. To add to that, it appears China has found some success in weakening US alliances in the region. While Seoul has been enticed by China in East Asia, China is also making overtures to Australia.

RESPONSE FROM JAPAN

In Northeast Asia, China's strategy may appear to isolate Japan from the others. For that objective, China has steadily tried to improve its relations with South Korea and Russia. Japanese Prime Minister Shinzo Abe's efforts to rebuild relations with Russia, including cooperation on security related issues, have received a setback in the wake of the Ukrainian crises. His uncompromising stance on history related issues and territorial disputes have worsened Japan's relations with South Korea and, in fact, have pushed Beijing and Seoul closer.⁷ Since assuming office, Abe has not been able to have a one-on-one talk with either Xi Jinping or Park Geun-hye whereas Xi and Park had held five summit meetings till July 2014. As Japan has territorial disputes with all these countries, China's plans become relatively easier to achieve. To wean South Korea away from Japan, Xi Jinping visited Seoul first and has cleverly denounced North Korea's nuclear weapon development activities (but without articulating the same). Xi and Park also agreed to build a "mature bilateral strategic partnership" based on mutual trust, including regular mutual visits of the countries' leaders and a strategic dialogue between high-ranking officials. China is already South Korea's largest trading partner, with \$274 billion worth of trade in 2013. This amount is more than the combined trade of South Korea with Japan and the US. The new economic agreements such as the Free Trade Agreement (FTA) and direct exchange between the yuan and won that the two countries are expected to ink by the end of 2014, would strengthen the economic ties between China and South Korea.⁸

To counter the China-South Korea joint front against Japan, Abe decided to engage with North Korea by the means of lifting some of the sanctions on it. The reason given by the Japanese government was that it was done in exchange for North Korea's offer to reinvestigate the case of Japanese nationals abducted by North Korea in the 1970s and 1980s. While this move might benefit Abe domestically, it nevertheless has irked the US and South Korea which have accused

7. "Abe Pushing Beijing and Seoul Closer", *The Japan Times*, at <http://www.japantimes.co.jp/opinion/2014/07/09/editorials/abe-pushing-beijing-seoul-together/> Accessed on July 23, 2014.

8. Ibid.

Japan of damaging the negotiations to find a solution to North Korea's nuclear weapons. Sensing the opportunity to get into the good books of Seoul, China too has sided with South Korea on the issue, though it had initially welcomed Japan's decision. Should everything go according to Xi Jinping's strategy, then both North and South Korea would eventually be in the Chinese camp and Japan's isolation in Northeast Asia would be complete.

The Abe administration's move to reinterpret the pacifist Constitution to enable Japan to exercise the right to collective self-defence has been welcomed by the US. As Japan looks to offer itself as a partial counter-balance to China, collective self-defence might pave the way for greater cooperation between Japan and other countries that share similar concerns. Abe has also lifted the ban on weapons export from Japan to facilitate better cooperation on security with its partners. Nevertheless, China and South Korea have expressed their shared concern over these moves by Abe.

Japan has been stepping up efforts to serve as at least a partial counter-balance to China's rising economic and military power in the region, by building new security ties with Australia and Southeast Asia and by serving as a more full-fledged ally of the United States. Japan has been moving slowly and carefully for years to set aside its post-war aversion to military power and play a larger security role in East Asia, a region still scarred by Japan's brutal imperialism in the early 20th century.

Since taking charge on December 2012, Abe has tried to rejuvenate Japan's Southeast Asia policy. During his first year in office, Abe visited 30 countries, including all the ten members of ASEAN and issued joint statements which supported Japan's enhanced presence in the region. Japan is looking forward to increasing its economic integration and enhancing its security ties with the ASEAN members. In his keynote address, "Peace and Prosperity in Asia Forevermore" at the Shangri-La dialogue on April 30, 2014, Abe said, "Japan intends to play an even greater and more proactive role than it has until now in making peace in Asia and the world something more certain". Japan has the explicit support of the leaders of all ASEAN members, Australia and India among others. Abe assured the ASEAN members that Japan would offer its utmost support for efforts by them to ensure

the security of the seas and skies and rigorously maintain freedom of navigation and overflight. Japan has already extended support to Vietnam and other nations that have territorial disputes with China by providing patrol ships, training and military surveillance equipment.

AN "ACCOMMODATIVE" UNITED STATES

Scholars of foreign policy in China concur that in the last few years, the US has exhibited signs that it may not have the willingness or energy to confront China directly, hence, it has adopted a non-confrontational approach when dealing with China.⁹ The US' timid response to China's announcement of an Air Defence Identification Zone (ADIZ) over the East China Sea may be a case in point. There is fear among Japanese policy-makers about being abandoned by the US.¹⁰ While all these cases might indicate a relative decline of its power, the US, nevertheless, wants to maintain its influence in the region, even at the expense of its allies, by accommodating China in the regional power structure.

There is no doubt that the United States announced its "rebalancing" to the Asia-Pacific in November 2011 only after gauging the threat that the US and its allies would face from a militarily powerful China. To back up its rebalancing strategy, the US has been bulking up its presence in the region. The *Quadrennial Defence Review*, released by the Department of Defence earlier this year, with the main focus on the US' rebalancing strategy, stated that the US is facing a challenging security environment. The report says that the US is likely to enhance its naval presence in the Pacific Ocean by increasing its troop strength in Japan and also Southeast Asia against the backdrop of China's rising maritime assertiveness¹¹. The US Navy plans to station 60 percent of its assets in the Pacific by 2020. The US Navy currently has some 50

9. "Diplomacy to Focus on Neighbourhood", *China Daily*, at http://www.chinadaily.com.cn/china/2014-01/02/content_17209275.htm. Accessed on July 23, 2014.

10. Isabel Reynolds, "Abe's Southeast Asia Push Adds to U.S. Ties Amid China Rift", *Bloomberg*, at <http://www.bloomberg.com/news/2014-02-25/abe-s-southeast-asia-push-complements-u-s-ties-in-china-rift.html>. Accessed on July 23, 2014

11. *Quadrennial Defence Review*, US Department of Defence, at http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf. Accessed on July 24, 2014.

ships in the Pacific and the number is expected to go up to around 65 by 2020. The plans will also include enhancement of the US' critical naval presence in Japan.

US President Barack Obama, during his tour of Northeast and Southeast Asia in April 2014, tried to reassure US allies of US commitment to the region. Sensing the increasing anxiety in Japan regarding this commitment, Obama even went to the extent of declaring that the US-Japan security treaty is applicable on the Senkaku Islands. However, the US' attitude towards China remains largely non-confrontational. While not having acquiesced to China's rise entirely, the US is helping countries that are in dispute with China to take on China with its support. It is providing these countries with advanced weapon systems which could deter China from using force to change the status quo on territorial disputes.

The US has encouraged and welcomed Japan's decision to take up a bigger role in regional security affairs. It is also supporting Japan in building better security ties with the Philippines and Vietnam by means of providing patrol vessels and training to troops. The Japanese and US governments have agreed to collaborate on the design of small, high-speed vessels capable of carrying helicopters. Japan aims to develop the capacity to deploy such vessels for transport and minesweeping operations in the region.

INDIA'S DIFFIDENT RESPONSE

Since independence, India has aspired for a peaceful neighbourhood. India's policy has never been to challenge or confront China. That is why India hopes to resolve the border dispute at the earliest and have a mutually economically beneficial relationship with China. However, it would be foolhardy to miss the bigger picture. If and when China establishes itself as a global power, India faces the risk of being marginalised in its own backyard. There is a need to understand China's intention in the longer run. After more than 18 meetings, very little progress has been made on the border issue. In addition, its repeated intrusions into the Indian side of the boundary tell a different story about China's intentions. Xi Jinping has said explicitly that China would not make any concessions on what it considers its

legitimate territorial rights. And so China has a good reason to delay the signing of any agreement which resolves the border dispute with India in its current status.

Meanwhile, China is trying to reach out to India's neighbours and has already succeeded in making inroads into India's neighbourhood. In line with its peripheral diplomacy, China is specifically targeting countries on the India-China border to counter India's influence and promote its own¹². India realises this, and that is why the new government has directed its initial attention towards Bhutan and Nepal. India's first priority is to secure its ties with its neighbours on the China border. A stronger China would create more problems for India. With the assurance that emanates from China's might, Pakistan may get tempted to challenge India over Kashmir one more time. Eventually, India may face a situation where its neighbours would side with China.

CONCLUSION

China is getting confident about the decline of American power and, hence, it has already initiated the process for setting up a new security order in Asia, where China is the leader. To achieve its goal, China is doing what rising powers, including the US, have done before, that is to frame one's national interests in universal terms, push other major powers out of its immediate vicinity, and replace the old regional order with a new one.¹³ Beijing is following a familiar path in international politics and its focus has renewed in its neighbourhood.

Cracks have appeared in Northeast Asia where China has succeeded in wooing Russia and South Korea partly because of the clumsy policies of the US and Japan, respectively. However, South Korea is not going to break off its alliance with the United States. So, in the near future, China would expedite its efforts to convince Seoul that only China can be the solution to North Korea's nuclear issue.

Japan's efforts to stop the change in status quo are likely to be futile. At best, Abe could revive Japan's economy and confidence,

12. Jayadeva Ranade, "Chinese Tilt to Indo-Nepal Axis", *The New Indian Express*, at <http://www.newindianexpress.com/columns/Chinese-Tilt-to-Indo-Nepal-Axis/2014/02/18/article2062304.ece>. Accessed on July 25, 2014.

13. C. Raja Mohan, "A New Asian Security Order?", *American Review*, at <http://americanreviewmag.com/authors/view/64>. Accessed on July 25, 2014.

strengthen security cooperation with the United States, and promote better relations with the Asian countries around China's periphery, thereby helping to constrain Chinese assertiveness and encourage China's peaceful development.¹⁴ However, Japan would try to form a semblance of a coalition with Vietnam and the Philippines to oppose China's assertion on territorial disputes.

China's peripheral diplomacy would have considerable impact on India and its neighbours. India is still caught in the hangover of the non-alignment policy, perhaps because Indian thinkers still subscribe to the idea that non-alignment is a policy that must always be followed. However, the fact is that non-alignment must not be viewed as a policy but rather as a strategy that was adopted to deal specifically with the situation that arose from the Cold War between the US and USSR. However, the belief that non-alignment is a policy that must be pursued under all circumstances is strong and as such Delhi appears to be a long way from developing an appropriate strategy to cope with Asia's new power play. China presents a threat to India's security and as long as the border dispute remains unresolved, India should remain wary of China's friendly overtures. However, it is important that the efforts to build trust must continue from both sides.

14.. Mike M. Mochizuki and Samuel Parkinson Porter, "Japan Under Abe: Toward Moderation or Nationalism?" *The Washington Quarterly*, vol. 36, issue 4, 2013, pp. 25–41.

CHINESE MEDIA LANDSCAPE: AN OVERVIEW

KRITI SINGH

As China races ahead to establish itself at the world's pinnacle, its emergence as one of the future superpowers is seen with both astonishment and apprehension. In addition to its political, economic and strategic growth, China has also made fair advances in its media industry. The vast landscape of the Chinese media constitutes various dimensions. During the Mao era, the Chinese mass media were mainly used as a weapon of propaganda and promoting the class struggle. The main aim of the mass media during that era was to communicate the messages in accordance with the Party line. The messages were Party oriented, not audience oriented. With the ending of the 1970s and beginning of the 1980s, the discontent of the audience with the mass media was evident, which paved the way for media reforms. The emphasis was on a broader role of the mass media, which included giving a voice to the masses, informing the masses, and opening up the market for the mass media. And, today, we see a tremendous growth in the Chinese media. This rate of change in China's media industry is not slowing down, and with China's recent shifts to a more consumer-driven economy, the need for interested businesses to stay on top of what's happening in the industry is more important than ever.¹

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1. Sasha Zhao, "White Paper from PR Newswire Explores China's Changing Media Landscape," *PR Newswire*, at <http://en.prnasia.com/p/lightnews-0-80-9346.shtml>. Accessed June 20, 2014.

To capture the very essence of the Chinese media landscape, this paper attempts to discuss:

- The five stages of Chinese mass communication studies (as a background study).
- The theoretical aspect of the Chinese media—the normative aspect.
- Huang’s and Ding’s model (1997) of the Chinese mass media.
- Provide an overview of the Chinese media landscape. The paper has divided the media landscape into four parts:
 - Print media.
 - Television media.
 - Radio media.
 - New media.
- Discuss media censorship in China.

FIVE STAGES OF CHINESE MASS COMMUNICATION STUDIES

The Chinese mass communication has taken a lot from the Western notions and moulded it as per their cultural needs. The history of Chinese mass communication can be divided into five stages:²

- Inception.
- Introduction.
- Inflection.
- Integration.
- Intensification.

Stage 1: Inception(1978-1981)³

Key features:

- Mass communication was first promoted by Chinese professors of journalism.
- One of the prominent names during this time was of Prof Zheng of Fudan University, Department of Journalism, who introduced the American concept of mass communication in China.
- Mass communication as a discipline in higher education was introduced along with Western communication.

2. Zhenbin Sun, “Communication Studies in China State of the Art”, *Chinese Communication Theory and Research: Reflections, New Frontiers, and New Directions* (Westport: Greenwood Publishing Group, 2002.), p.4.

3. Ibid.

- In 1981, the first quantitative study in Chinese mass communication was undertaken.

Stage 2: Introduction(1982-1985)⁴

Key features:

- Along with Fudan University's efforts, the key speeches by Wilbur Schramm⁵ made a great impact on Chinese mass communication.
- The First National Convention on Communication was organised, and mass communication was taken more seriously by the academicians.
- The Western concepts of communication were further promoted in Chinese communication.

Stage 3: Inflection(1986-1991)⁶

Key features:

- The Second National Convention on Communication was organised and the emphasis was on developing communication theories with Chinese characteristics, to set mass communication and journalism as the focus of Chinese communication.
- The first wave of Chinese books on communication appeared. The communication academicians started to study Chinese communication through the lens of Chinese culture, its contribution, connections and effects on communication.
- The researchers couldn't shield mass communication and journalism from the influence of the Chinese Communist Party's (CCP's) leftist officials. These leftists fought against any position or action that might weaken the CCP's control over the mass media or undermine the official ideology.⁷ Thus, one can see a lot of influence or control over Chinese journalism by the leftists.
- Courses and seminars related to mass communication were cancelled.

4. Ibid., p.5.

5. Wilbur Schramm, known as the "father of communication studies," organised and introduced communication studies in the United States.

6. Sun, n.2, p. 5.

7. Y. Xu, *Chinese Communication: Achievement and Weaknesses* (Xinwenyu Chuanbo Yianjiu, 1998), pp. 4,2-8.

Stage 4: Integration(1992-1996)⁸

Key features:

- A remarkable transformation took place after Deng Xiaoping's speech in southern China.
- A national conference on the audience of the mass media was held.
- The Third National Convention on Communication was organised in 1993.
- Scholars of various subjects were brought onto the same platform to discuss communication and a new trend was adopted to study Chinese mass communication, which was to connect it with Chinese cultural studies.
- The attempt was to synergise the Western concept that would be useful for Chinese mass communication studies and find out the problematic areas in the subject.

Stage 5: Intensification (1997-2000)⁹

Key features:

- Mass communication as a subject was finally accepted in China with the due approval of the Chinese government.
- Journals and newspaper promoted the topics and research related to Chinese communication.

THEORETICAL ASPECT OF CHINESE MEDIA

In order to understand the functioning of the media in various environments, it is necessary to analyse their existence from the theoretical framework, constructed by the communication connoisseur. The media do not exist in a vacuum. They have to function in a given society and work within its set parameters or norms. The media theories focussing on the functioning of the media, concerned about what the media ought to do in a given society, the obligations they have, working under the dominant ideological framework existing in the society and in accordance with the sociological norms, gave birth to the *normative theories*.

8. Ibid., p.6.

9. Ibid., p.6.

In principle, there are as many normative theories of journalism as there are political systems, from Marxism-Leninism to diverse conceptions of democracy.¹⁰ The credit for these normative theories goes to communication connoisseurs: S. Siebert, Theodore Peterson and Wilbur Schramm, in their work, *Four Theories of the Press: The Authoritarian, Libertarian, Social Responsibility, Soviet Communist Concepts of what the Press Should be and do* (1956).

If we look at the Chinese media from the prism of 'normative theories', we will find that theoretically, the Chinese media are based on the 'The Soviet Theory'. This theory is a combination of various ideologies, including Marxist, Leninist, Stalinist, and Georg Wilhelm Friedrich Hegel. Since the disintegration of the Soviet Union in 1991, versions of the Marxist-Leninist, or Soviet theory have survived in North Korea, Cuba, and Vietnam, and to a certain extent in China, as the most coherent, self-consciously elaborated examples. The Soviet normative theory of journalism posits that:¹¹

- The media should not be privately owned,
- The media should serve the interests of the working classes,
- Most importantly, the media should provide a complete, objective view of the world following Marxist-Leninist principles, as defined by the Communist Party controlled state.

Identified as a non-democratic theory, the Soviet normative theory is perceived negatively by the Western media and research.¹²

THE HUANG AND DING MODEL (1997) OF THE CHINESE MASS MEDIA¹³

In a bid to reform the Chinese media, various scholars came up with different models. The Huang and Ding model comprehensively reflects the real situation and character of the mass media in present-

10. Rodney Benson, "Journalism, Normative Theories," *International Encyclopedia of Communication*, at <https://steinhardt.nyu.edu/scmsAdmin/uploads/000/727/Benson%20Normative%20Theories%20of%20Journalism%20Comp%20Media%20Class.doc>. Accessed June 18, 2014.

11. Ibid.

12. Ibid.

13. Sun, n.2.

day China. Huang and Ding (1997) proposed a model of “ the balance between social control and the media’s interests,” claiming that reforms of the mass media are in essence a process of changing an ideological media into an industrialised media; this process lies in the interaction between social control over the mass media and the mass media’s own interests. The weaker the social control, the more commercialised the mass media becomes, and the stronger the media’s interests grow.

CHINESE MEDIA LANDSCAPE

Print Media

The Chinese have the largest newspaper market in the world. In 2009, around 43.9 billion copies were printed. Historically, China had early government-produced news sheets, called the *tipao*, which were first circulated among officials during the Han dynasty (202 B.C. to A.D. 221) and were printed at some point during the T’ang dynasty (618 to 906). However, primarily, missionaries and other foreigners introduced the modern newspaper in the 19th century.¹⁴

Presently, the Chinese newspaper media profile, according to the BBC, is as follows:¹⁵

- There are around 1,900 newspapers.
- Each city has its own title, usually published by the local government and a local Communist Party daily.

Print Media Consumption of Mainland China

Table 1 shows mainland China’s most important newspapers, together with the numbers for circulation and audience.

14. Mitchell Stephens, Collier’s Encyclopedia, “History of Newspapers.” at https://www.nyu.edu/classes/stephens/Collier’s_page.htm. Accessed August 3, 2009.

15. “China’s Profile”, BBC, March 21, 2014, at <http://www.bbc.com/news/world-asia-pacific-13017881>. Accessed on June 19, 2014.

Table 1

Name of Publication	Type	Copies Circulation in Million
Reference News 参考消息	Newspaper	3.4
People's Daily 人民日报	Newspaper	2.8
Global Times 环球时报	Newspaper	2
Southern Weekly 南方周末	Newspaper	1.7
New Weekly 新周刊	The magazine focusses on current events and lifestyle	310,000
Southern People's Weekly 南方人物周刊	The magazine focusses on interviews	200,000

Source: Rachel Wang, "A Brief Guide to China's Media Landscape", February 2014, at <http://www.danwei.com/a-brief-guide-to-chinas-media-landscape-february-2014/>. Assessed on June 20, 2014.

Television

Chinese television celebrated 50 years of its existence in 2008 and is rated as one of the most powerful and influential tools of the mass media. Television arrived in China in 1958. It is state-owned, with a single profit model. The main content of television comprises news, films, TV series and entertainment. The reforms movement in television was initiated in 1993, with the focus being to give quality news. The major player in the Chinese television industry is the China Central Television or Chinese Central Television (CCTV).

Presently, according to the conference report prepared by International Media Support, Danish National Commission for UNESCO (United Nations Educational, Scientific and Cultural Organisation) and Copenhagen Business School,¹⁶ in China there are now:

16. Sun Yusheng "The Reform of Chinese Television and the Rise of New Media," Paper presented at the conference titled The Growth of Media in China and its Impact on Political and Economic Development in China, Copenhagen, November 28, 2008, at <http://www.i-m-s.dk/wp-content/uploads/2012/11/ims-growth-china-2008.pdf>

- 294 TV stations.
- 1,283 channels.
- Four million TV sets.
- 1.2 billion viewers.
- All channels are free and everybody has access to at least 50 free channels, of which some are local.
- The total income from advertisement is US \$ 24.87 billion.
- Television advertisement income constitutes 25 percent i.e. US \$6.63 billion.

According to the BBC, the Chinese TV landscape comprises:¹⁷

- A competitive sector, especially in the cities.
- More than 3,300 local, regional and national TV channels till 2013.
- State-run CCTV is China's largest media company.
- CCTV dominance is challenged by provincial TV channels.
- China is a major market for pay TV, which is almost entirely delivered by cable.

Television Media Consumption of Mainland Chinese Media

Table 2 shows mainland China's most important electronic media consumption, together with the numbers of viewers.

Table 2

Channel	Viewers in Millions
CCTV (中国中央 台) State television broadcaster in mainland China with multiple channels	200 million to around a billion viewers
Hunan TV 湖南 Top provincial satellite TV station, focussed on entertainment programmes	65 to 800

Source: Rachel Wang, "A Brief Guide to China's Media Landscape", February 2014. At <http://www.danwei.com/a-brief-guide-to-chinas-media-landscape-february-2014/>. Assessed on June 20, 2014.

17. n.15.

Radio

The second most popular electronic medium, which is the radio, arrived in China in the year 1941. At present, the major player in the radio industry is the Central People's Broadcasting Station (CPBS) and China Radio International (CRI).

- CPBS is the Chinese official radio station.
- It has a total of eight channels.
- CPBS broadcasting hours: 156 hours /day.
- 2,600-plus radio stations are state-owned (BBC).
- Local broadcasting stations are located in each province.
- CRI is the only international radio of China.
- CRI broadcasting hours: 290 hours /day.
- According to another estimate, there are over 700 million listeners for China's national radio in mainland China.

New Media

New media comprises the forms of communication in the digital world, including publishing on CDs, DVDs and, most significantly, over the internet.¹⁸ The arrival of the internet changed the very dynamics of the Chinese media landscape. And the new media entered the Chinese media landscape in 1994. Presently, the major players in the new media are: Alibaba, Baidu, and Weibo. Some key features of the Chinese media are as follows:

- The Chinese government owns and controls the access routes to the internet, and allows private enterprises and individuals the rental of bandwidth from state-owned entities.¹⁹
- The Chinese new media comprises an operation that is fully international and commercialised.²⁰
- The strong control over the internet by the state and especially in combination with the few and closely monitored connections between the Chinese and the non-Chinese internet, means that

18. Ziff Davis, "Definition of New Media," LLC. PCMag Digital Group, at <http://www.pcmag.com/encyclopedia/term/47936/new-media>. Accessed July 24, 2014.

19. David Kurt Herold, "Escaping the World: A Chinese Perspective on Virtual Worlds," *The Journal of Virtual Worlds*, 5, no. 2, 2012, September 1, 2012, at <https://journals.tdl.org/jvwr/index.php/jvwr/article/view/6206/6040>. Accessed July 25, 2014.

20. Yusheng, n.16.

“China is not on the internet, it’s basically an intranet”.²¹

- Online virtual worlds, games, blogs, forums, etc. continue to be seen as spaces that offer young Chinese the possibility to escape their own ‘real’ lives and the pressures they are facing every day.²²

Presently, the Chinese social media profile, according to the BBC comprises:²³

- More than 618 million internet users.
- The world’s largest net-using population.
- Mobile platforms are the main means of online access.
- A big proportion of web users access the internet for instant messaging (86.2 percent), followed by news (79.6 percent) (China Internet Network Information Centre or CNNIC data).
- 78.5 percent, or 464 million, use mobile phones to access the internet (CNNIC Report 2013).
- Mobile phone netizens spend an average of 11.8 hours per week on going online (CNNIC Report 2013).
- There are ethical issues, like use of eroticism, reality and violence.

New Media Consumption of Mainland China

Table 3 depicts mainland China’s most important websites:

Table 3

Name of Online Platform	Type of New Media	Users in Millions
SinaWeibo	Microblog	Over 500 million registered users/65 million active users daily
Sina.com.cn	News portal	40 million Internet Protocol (IP) visitors daily
TencentWeibo	Microblog	About 540 million registered users/220 million Active Users Monthly (AMU)

21. Herold, n.19.

22. Ibid.

23. n.15.

TencentQzone	Nickname SNS, blogs, home pages	620 million AMU
TencentWeChat	Mobile text and voice messaging, friend networks	272 million AMU
QQ.com	News portal	51 million IP visitors daily
Baidu Post Bar	Forum and Q&A	Over 10 million registered users and over 200 million AMU
Baidu Search Engine	Search engine	Over 80 million IP visitors daily
Taobao and T Mall	Online mall and C2C ecommerce	Over 67 million IP visitors daily (combined); over RMB 1 trillion sales in 2012
Youku&Tudou	Companies have merged; video sharing and viewing, including TV shows Youku:	Over 10 million IP visitors daily at Tudou: over 1.26 million IP visitors daily
Douban	Interest based, nickname SNS	79 million registered users and over 200 million AMU
Renren	Real name SNS	184 million active users
Sohu	News portal	25 million IP visitors daily
Netease	News portal	16 million IP visitors daily 23 million unique visitors daily
iFeng	News portal	11 million IP visitors daily
Caixin	Financial business and politics news	One of the leading websites in finance, 153,000 IP visitors daily
Yicai	Financial and economic news	One of the leading websites in finance, 54 thousand IP visitors daily

Source: Rachel Wang, "Brief Guide to China's Media Landscape", February 2014, at <http://www.danwei.com/a-brief-guide-to-chinas-media-landscape-february-2014/>. Assessed on June 20, 2014.

MEDIA CENSORSHIP IN CHINA

The media in China is under the strict control of the government. Traditional media such as newspapers, radio, television and news

media, including the internet, blogs, websites, etc. are under continuous surveillance by the government. The main idea behind the strict government control is to suppress voices and ideologies, which stand against it. This often entails strict media controls using monitoring systems, shutting down publications or websites, and jailing dissident journalists, bloggers, and activists.²⁴

According to the Reporters Without Borders (RWB), “China jails more people involved in news and information than any other country. Since 2012, the Chinese authorities have increasingly arrested journalists and bloggers, cracked down harder on cyber dissidents, reinforced online content control and censorship, and stepped up restrictions on the foreign media”.

As per the 2014 World Press Freedom Index by RWB, the daily “directives” to the traditional media from the Department of Propaganda, the constant online censorship, the growing number of arbitrary arrests and the detention of the largest number of journalists and netizens in the world (including the 2010 Nobel Peace Laureate Liu Xiaobo) have made China a model of censorship and repression. China’s position on the 2014 World Press Freedom Index is 175 (out of 180 countries).²⁵

Since Xi Jinping took over as China’s President in March 2013, Chinese journalists have operated under increasingly tighter media restrictions. In July 2013, a new directive on journalists press passes barred journalists from releasing any information from interviews or press conferences via social media or mentioning such information at public events without the consent of their employer media organisations.²⁶

KEY MEDIA REGULATORY AGENCIES IN CHINA

- General Administration of Press and Publication (GAPP).
- State Administration of Radio, Film, and Television (SARFT).

24. Beina Xu, “Media Censorship in China,” *Council on Foreign Relations*, February 12, 2014, at <http://www.cfr.org/china/media-censorship-china/p11515>. Accessed August 2, 2014.

25. The 2014 World Press Freedom Index highlights the negative impact of conflicts on freedom of information and its protagonists.

26. “Censorship in China: Not Letting a Hundred Flowers Bloom.” *The Economist*, July 31, 2014, at <http://www.economist.com/blogs/analects/2014/07/censorship-china>. Accessed August 2, 2014.

- The Internet Affairs Bureau.
- Centre for the Study of Public Opinion of the State Council Information Office.
- Internet Bureau and Information and Public Opinion Bureau of the Publicity Department.
- The Ministry of Industry and Information Technology.
- The Internet Information Security Supervision of the Ministry of Public Security.
- The Ministry of Industry and Information Technology's Internet Illegal Information Reporting Centre.²⁷

MEDIA TABOOS

Notable censored subjects include, but are not limited to:²⁸

- Democracy.
- The Tiananmen Square protests of 1989.
- Maoism.
- Falun gong.
- Ethnic independence movements.
- Corruption.
- Police brutality.
- Anarchism.
- Gossip.
- Disparity of wealth.
- Food safety.
- Pornography.
- News sources that report on these issues.
- Unregistered religious content.

CONCLUSION

The history of the Chinese mass communication parallels the process of crucial socio-political reforms occurring in a vital period of Chinese history. It is impossible for the researcher not to focus communication studies on socio-political issues such as audience rights and needs, mass media and public opinion, the Party's leadership and the reforms

27. "The Internet in China," *Reporters Without Borders*, January 1, 2013, at <http://surveillance.rsf.org/en/china/>. Accessed August 3, 2014.

28. Kenji Minemura, *Asahi.Com*, March 26, 2010, at <http://www.asahi.com/english/TKY201003250329.html>. Accessed July 29, 2014.

of the mass media and competition, and the commercialisation of the mass media. In this sense, it is not communication that chooses China; instead, it is China that chooses communication in terms of its own needs, purposes and tradition.²⁹ The Chinese media system underwent an unprecedented transformation in the reform era that began in the late 1970s. While the Party-state continues to exercise tight control, and is gradually modernising its controlling mechanisms, market forces have permeated and transformed every aspect of the media system. Through a series of overlapping processes of accommodation, appropriation, state-engineered market consolidation, and selective incorporation of private and foreign media capital, Party-state power is increasingly converging with the power of capital in the Chinese media.³⁰ In sum, the media have abandoned their Maoist role as ideological brainwashers but continue to be vital ideological managers on behalf of the Party-state. With major state institutions being bureaucratised to regulate, accommodate and partake of selective elements of capitalism, official Chinese media have transformed themselves from being propaganda instruments to being what known as the “Party Publicity Inc”.³¹

29. Sun, n.2, p.5.

30. Yuezhi Zhao, “The State, the Market, and Media Control in China,” at http://www.sfu.ca/cmns/faculty/zhao_y/assets/documents/B10_Zhao_179-212_2004.pdf. Accessed August 3, 2014.

31. Chuan Lee, Chin-, Zhou He, and Yu Huang. ““Chinese Party Publicity Inc.’ Conglomerated: The Case of the Shenzhen Press Group”, *Media Culture Society*, 28, January 1, 2006, at <http://www.commr.d.nccu.edu.tw/material/photo/pdf/b629811ae8d94672b825e5cc2658388e.pdf>. Accessed August 3, 2014.

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