

## China's Defence Budget 2012: An Analysis

*Mandip Singh and Lalit Kumar*

*Brig Mandip Singh is Senior Fellow at the Institute for Defence Studies and Analyses (IDSA), New Delhi. Lalit Kumar is a senior corporate executive and international management consultant.*

**March 28, 2012**

### **Summary**

China's Defence Budget for 2012 continues to follow anticipated trend lines in keeping with its plan of carrying out Revolution in Military Affairs in a calibrated, coordinated and comprehensive manner. The actual figures of the Chinese Defence budget continues to be a source of conjecture and no standard factors can assist in accurate prediction of the real expenditure. The allocation for 2012 appears to suggest that 'it is business as usual' for the PLA, although there are reports of a substantial rise in salaries and expenditure on improving the living standards even as it finds new ways to woo young men and women to join the PLA. It would be prudent to assume that the bulk of the monies will be directed at ensuring domination of the Asia- Pacific by developing its ' Anti-Access Area Denial' strategies while building on a nascent expeditionary capability for power projection and protection of its interests globally. As far as India is concerned, we will see no let up in the momentum of infrastructure development in the TAR and the possible establishment of the PLA's first base overseas in the Indian Ocean in the near future.

On 4 March 2012, amidst little fanfare and just ahead of the opening of the National People's Congress (NPC), China announced its draft Defence Budget for 2012. At 670.2 billion Yuan (US \$106.4 billion) it represents an 11.2 per cent year-on-year increase from last year's budget figures of 602.6 billion Yuan. Li Zhaoxing, spokesperson for China's National People's Congress (NPC), the country's highest legislative body, was quick to declare that the budget was 1.28 per cent of the country's gross domestic product (GDP), down from 1.33 per cent in 2008; and that the year-on-year increase of 11.2 per cent was much less than the 12.7 per cent year-on-year increase from 2010.<sup>1</sup> Li also noted that China's budget was "reasonable and appropriate", and went on to clarify that "China is committed to the path of peaceful development and follows a national defence policy that is defensive in nature." This was clearly an attempt to put to rest any fears that China may be raising the bar on its military spending with the intent of announcing its growing military prowess on the world stage. Reasserting China's peaceful intentions, Li ended his statement thus: "The limited military strength of China is solely for safeguarding its national sovereignty and territorial integrity, and will not pose a threat to any country."<sup>2</sup>

An assessment of the Budget, however, seems to suggest otherwise. China's Defence Budget has seen a double digit increase over the last decade, in keeping with its quest to develop a military capable of fighting "local wars under conditions of informationalisation". This was apparent in Chinese Premier Wen Jiabao's opening day address to the 11<sup>th</sup> NPC where he said that China must enhance its military ability to win "local wars" even as there were growing concerns over China's assertiveness in the South China Sea, Indian Ocean Region, and in the Arunachal Pradesh border dispute with India. Defending the budget allocation, Major General Luo Yuan, a researcher with the Chinese People's Liberation Army (PLA) Military Science Academy, said that China has always maintained its defence spending at a "moderate and sufficient level" – "Moderate" means China will not raise its military spending merely for the purpose of boosting scale, while "sufficient" means the spending has to meet necessary demand for national defence.<sup>3</sup> *Xinhua*, the official Chinese news agency, said that the three implications of China's rising budget were "adherence to its central task—economic development", a display of the "government's confidence in coping with its ever more complicated exterior environment", and an "explicit message that China is adamant in maintaining the national security and global peace". Quite clearly, a veiled implication of intent to deal with security threats vigorously.<sup>4</sup>

---

<sup>1</sup> "China's Defence Budget to Grow 11.2 pct in 2012: Spokesman", *Xinhua*, March 4, 2012, available at English.news.cn, accessed on March 6, 2012.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

<sup>4</sup> "Three Implications of China's Rising Defence Budget", *Xinhua*, March 5, available at English.new.cn, accessed on March 6, 2012.

## Understanding China's Defence Budget

China's defence white papers have always linked the Defence Budget to its economy. In a sense, it sanctifies the relationship between the PLA and the CPC – clearly the PLA being subservient to the Party. The PLA does not break down its budget by individual service. However, the Central Military Commission, four General Headquarters Departments, Navy, Air Force, Second Artillery, National Defence University, Academy of Military Sciences, and the National University of Defence Technology (known as “major commands”), all have their own budgets which are allotted from the overall defence budget. The Defence Budget covers the following categories:

- *Personnel expenses*, mainly covering salaries, insurance, food, clothing, and welfare benefits for officers, non-commissioned officers, and enlisted men as well as for civilian employees.
- *Training and maintenance expenses*, which cover troop training, institutional education, construction and maintenance of installations and facilities, and other expenses on routine consumables.
- *Equipment expenses*, covering research on, experimentation with, and procurement, maintenance, transportation, and storage, of weaponry and equipment.

The accurate percentages spent on each of these categories vary but are generally between 31 per cent and 36 per cent each.<sup>5</sup> In 2009, over 96 per cent of the total Budget was spent on the active force and just three per cent and one per cent on the militia and reserve force, respectively.<sup>6</sup> These figures could serve as a guideline for the breakdown in the budget expenditures for the future.

The process of making the budget is an annual, time-bound exercise. It has been called the “down-up-down” approach<sup>7</sup> where the General Logistics Department (GLD) of the PLA first works with the Central Military Commission (CMC) and the Ministry of Finance to establish total expenditure targets, and then initiates a bidding system from the lower military region (MR) and district-level headquarters. These are then put together to reach the final expenditure figures for the central defence budget.<sup>8</sup> Once approved, these are then disseminated down to Military Region/district level.

---

<sup>5</sup> Dennis J. Blasko, 'An Analysis of China's 2011 Defense Budget and Total Military Spending – The Great Unknown', *China Brief*, Volume 11, Issue 4, March 10, 2011.

<sup>6</sup> “China's National Defence Paper 2010”, Chapter VIII, March 31, 2011, available at [http://news.xinhuanet.com/english2010/china/2011-03/31/c\\_13806851\\_32.htm](http://news.xinhuanet.com/english2010/china/2011-03/31/c_13806851_32.htm), accessed on March 6, 2012.

<sup>7</sup> Monika Chansoria, *China: Military Modernisation and Strategy*, Knowledge World Publishers, 2011, p. 128.

<sup>8</sup> Ibid

## What Does China's Defence Budget Exclude?

The level of transparency in the Chinese Defence Budgets has been improving over the years. It is still not fully transparent, but considering the fact that prior to 1998 China simply released an aggregate figure of total defence spending, the country has come a long way. Since 1998, China has been publishing biennial National Defence Papers which cover the Defence Budget in some detail; and since 2008, it submits a "Simplified Reporting Form" to the UN Secretary General, giving basic information about its military expenditure.<sup>9</sup> Willy Lam, a leading China expert at the Chinese University of Hong Kong, says that "funding for modernizing the country's military was not included in the published Budget."<sup>10</sup> According to *The Guardian*, "... (the [B]udget) according to foreign defence experts, may be 50 per cent higher as China excludes outlays for its nuclear missiles and other programmes."<sup>11</sup> A RAND report dated 2005 identifies those items not included more accurately: procurement of weapons from abroad, expenses for paramilitaries, nuclear weapons and strategic rocket programmes, state subsidies for the military-industrial complex, some military-related research and development, and extra-budget revenue.<sup>12</sup> Provincial governments also fund the PLA deployed within their provinces. These are payments for the use of airbases, naval bases, etc., which are not reflected in the Defence Budget. The other major exclusion in the Budget is the proceeds from the sale of weapons and equipment manufactured at the armament factories owned by the PLA.<sup>13</sup>

## Extra Budgetary Income

Sources of extra-budgetary income are many but difficult to evaluate as they vary from year to year. Besides, insufficient data precludes applying a standard factor for addition. This still remains in the realm of conjecture. Listed below are some inferences:<sup>14</sup>

- Funds from Central/Provincial governments for mobilisation, conscription and demobilisation;

---

<sup>9</sup> Andrew S. Erickson and Adam P. Liff, "Understanding China's Defense Budget: What It Means, Why It Matters", *Pacific Forum CSIS, PacNet*, Number 16, March 9, 2011, available at <http://csis.org/files/publication/pac1116.pdf> accessed on March 28, 2012.

<sup>10</sup> "China Boosts Defence Spending", *The International News*, Monday, March 5, 2012.

<sup>11</sup> "Chinese military spending increases by 11.2% in latest budget", *The Guardian*, March 4, 2012, available at <http://www.guardian.co.uk/world/2012/mar/04/china-increases-defence-spending-11-2>, accessed on March 6, 2012.

<sup>12</sup> Keith Crane et al., "Modernizing China's Military: Opportunities and Constraints", RAND Corporation, 2005, available at [http://www.rand.org/pubs/monographs/2005/RAND\\_MG260-1.pdf](http://www.rand.org/pubs/monographs/2005/RAND_MG260-1.pdf), accessed on March 6, 2012. Also see, Chansoria, n. 4, p. 144.

<sup>13</sup> Ibid.

<sup>14</sup> Chansoria, n. 4, p. 136.

- Sale of land;
- Food produced and consumed by PLA units including their sale;
- Commercial guest houses, hotels, troop service centres and China XinXing Corporation (the largest commercial conglomerate of the General Logistics Department).

## Media Reactions

Reactions to China's latest defence budget from the world media have been mixed, ranging from concern to caution. China's "ultimate goals for the Asia-Pacific region are undoubtedly hegemonistic," noted *The Taipei Times* in an editorial.<sup>15</sup> Already, China has used "economic and non-military tactics" to draw Taiwan and others into "its sphere of influence." Alluding to the famous quote by Theodore Roosevelt, "speak softly, but carry a big stick", the *Taipei Times* editorialised that with such a "big stick at its disposal, China will soon reach the point where it can take whatever it wants."<sup>16</sup> Further, China will soon have the "biggest, baddest military machine in the neighborhood," and become "the region's Big Brother."

*The New York Times* said that the growing gap between China's rising military expenditures and slowing spending by other countries in the region has reinforced the realisation that the United States may not remain the single dominant power in the Asia-Pacific region if Chinese military spending keeps escalating.<sup>17</sup>

The *Asahi Shimbun* quoted a high ranking Chinese military officer as saying that China's Defence Budget last year was 1.7 times what it announced, and that this year's spending plan could also "fall considerably below actual defence spending."<sup>18</sup> In its editorial, the daily stated that "Chinese leaders must understand that blurring the reality of the expansion of China's power helps spread the idea that it is a threat to the world." Noting that "China is becoming a superpower," the daily further added that "It is not suitable that such a big country remains inward-looking."<sup>19</sup>

The *Jakarta Post* said: "...growing Chinese power and East Asia's economic importance is

---

<sup>15</sup> "Speak softly, but carry a big stick", *The Taipei Times*, March 6, 2012 available at <http://www.taipeitimes.com/News/editorials/archives/2012/03/06/2003527089>, accessed on March 25, 2012.

<sup>16</sup> Ibid.

<sup>17</sup> Jane Perlez, "Continuing Buildup, China Boosts Military Spending More Than 11 Percent", *New York Times*, March 4, 2012, available at <http://www.nytimes.com/2012/03/05/world/asia/china-boosts-military-spending-more-than-11-percent.html>, accessed on March 7, 2012.

<sup>18</sup> "Japan 'concerned' Over China Military Budget Boost", *Agence France Presse*, Tokyo, March 5, 2012.

<sup>19</sup> Ibid.

driving neighboring countries to boost defense spending and has prompted the US to redirect defense resources to the region.”<sup>20</sup> Coming after it did US President Barack Obama’s announcement of his new Asia-Pacific “pivot” strategy, the increase in China’s Defence Budget would be directed at shoring up its much trumpeted “anti access, area denial” strategy to counter the US and its allies in the Asia-Pacific.

The reaction in India has been guarded. According to *The Hindu*, “China’s military spending is directed towards deployments in the South China Sea, where disputes have surfaced with many of China’s neighbours and Beijing wary over increasing U.S. activity in the Asia-Pacific, and also towards Taiwan, which has historically been the People’s Liberation Army’s focus but has begun to recede as a priority with the recent warming in Cross-Strait relations.”<sup>21</sup> But *The Tribune* pointed out that “Asian neighbours, however, have been nervous about Beijing’s expanding military, and this latest double-digit rise could reinforce disquiet in Japan, India, Southeast Asia and self-ruled Taiwan, which China considers part of its territory.”<sup>22</sup> Of course, China’s forays in the Indian Ocean, combating piracy in the Gulf of Aden, and its quest for a base in the Indian Ocean, ostensibly to protect its diaspora off the east coast of Africa and the sea lanes, contribute to India’s concerns.

## Analysis of the Budget

The Chinese Defence Budget increased at an average of 3.5 per cent between 1978 and 1987, 14.5 per cent between 1988 and 1997, and 15.9 per cent between 1998 and 2007. Over the past 10 years, the official Budget has increased by roughly 3.6 times (up from 166 billion RMB in 2002 to 601 billion RMB today).<sup>23</sup> In 2012, it stood at over four times the 2002 figure. As a percentage of the world share of total defence spending, China spends 7.3 per cent of the world share, second only to the US, which is way ahead at 43 per cent of the world total. India’s share of world defence expenditure is less than three per cent.

---

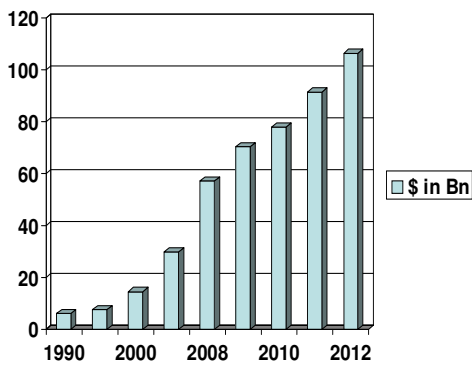
<sup>20</sup> Christopher Bodeen, “China to up defense spending by 11.2 pct in 2012”, *The Jakarta Post*, March 13, 2012, available at <http://www.thejakartapost.com/news/2012/03/04/china-defense-spending-112-pct-2012.html>, accessed on March 7, 2012.

<sup>21</sup> Ananth Krishnan, “China’s defence budget shoots up to \$100 billion”, *The Hindu*, March 4, 2012 available at <http://www.thehindu.com/news/international/article2960059.ece>, accessed on March 25, 2012.

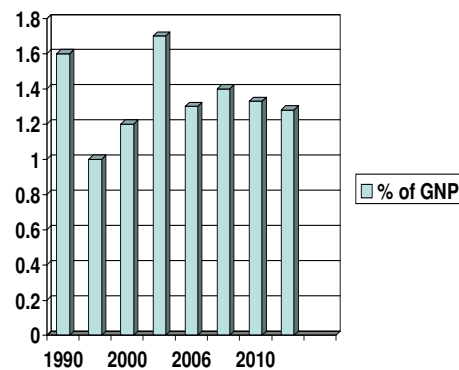
<sup>22</sup> “China’s defence hike raises alarm”, *The Tribune*, March 4, 2012, available at <http://www.tribuneindia.com/2012/20120305/main1.htm>, accessed on March 19, 2012.

<sup>23</sup> Erickson and Liff, n. 9.





CHINA'S DEFENCE BUDGET IN US \$



CHINA'S DEFENCE BUDGET AS PERCENTAGE OF GNP

According to SIPRI, an analysis of military expenditure in the last decade suggests that China has increased its spending by a whopping 256 per cent in comparison to, say, India which has done so by 60 per cent. As a percentage of its GDP, China spends 2.2 per cent to India's 2.8 per cent (2010 figures), but the per capita expenditure on defence for China is a whopping \$88 as compared to India's \$34 and Pakistan's \$31.<sup>24</sup> In a report, IHS Jane's stated that by 2015, China's Defence Budget will double from \$119.8 billion to \$238.2 billion, thus closing the gap with the US, which is actually imposing cuts on its defence spending.

Interestingly, the figure of 670.2 billion Yuan announced by Li Zhaoxing, spokesperson for the NPC, at the press conference on March 4, 2012, is at variance with that placed before the NPC – reportedly 650.311 billion Yuan – and passed by that body on 14 March 2012. The "Report on the Implementation of Central and Local Budgets for 2011 and Draft Central and Local Budgets for 2012" states:

"The appropriation for national defence is 650.311 billion Yuan, an increase of 11.4 per cent. This comprises 647.92 billion Yuan of central government spending and 2.391 billion Yuan in transfer payments to local governments. We will support modernization of national defense and the military, improve training and living conditions of service men and women, and enhance the armed forces' capability to accomplish diverse military tasks."<sup>25</sup>

The difference of 20 billion Yuan has not been explained. Further, it is reasonable to assume that 119.39 billion Yuan set aside for "cutting edge technologies" from the Science

<sup>24</sup> See <http://www.rickety.us/2011/06/2010-defense-spending-by-country/>, accessed on March 14, 2012.

<sup>25</sup> "Report On The Implementation Of Central And Local Budgets For 2011 And On Draft Central And Local Budgets For 2012", Fifth Session of the Eleventh National People's Congress, March 5, 2012, available at [http://www.npc.gov.cn/englishnpc/news/Supervision/2012-03/14/content\\_1713989.htm](http://www.npc.gov.cn/englishnpc/news/Supervision/2012-03/14/content_1713989.htm), accessed on March 23, 2012.

and Technology budget of 228.5 billion Yuan, and the seven billion Yuan set aside for “strategic emerging industries” from the Resource Exploration, Electricity and Information budget of 87.726 billion Yuan, may in full or in part contribute indirectly to the defence effort.<sup>26</sup>

Given all this, there continues to be scepticism on the real figures of the Chinese budget. According to Srikanth Kondapalli,

“Since the Chinese budget does not include modernisation, dual-use technologies, R&D [research and development] aspects and export-import numbers, the figure that we saw on Sunday is not the ultimate truth. Western estimates say the actual figure should be at least double, although Indian estimates place the budget at \$150 billion rather than the Pentagon’s \$220 billion figure.”<sup>27</sup>

In 2002, the Chinese Budget was \$20 billion whereas US estimates of its actual budget was four times more. In 2009, the official Chinese budget was \$70 billion but estimates put it at \$150 billion, a factor of over two times.<sup>28</sup> Of course, no justification was given for the discrepancy. The Japanese daily, *Sankei Shimbun*, said in a story out of Beijing that US and European defence organisations share the view that China’s “stealth” (read concealed) defence spending was up to three times the size of the announced military budget.<sup>29</sup> The estimates vary because of the following reasons: (i) China’s opacity in furnishing details of costs, transactions etc; (ii) appropriate exchange rate of RMB into dollars – whether purchasing power parity (PPP) rates are to be applied; and, (iii) varying definitions of what constitutes the Defence Budget, for example, humanitarian aid and disaster relief, commercial ventures owned by the military, social welfare projects for troops like housing, etc. Therefore, it is difficult to apply a standard factor to the declared Budget to ascertain the real Chinese Budget.

## Who Will Benefit From the Budget?

### Salaries and Living Habitat

The largest share, an increase of almost \$11 billion, is to go for salaries of the armed forces. The leadership had announced a five to 40 per cent increase in the salaries of

<sup>26</sup> Ibid.

<sup>27</sup> Defence IQ blogs, available at <http://intellibriefs.blogspot.in/2012/03/rising-sun-chinas-defence-budget.html>, accessed on March 14, 2012.

<sup>28</sup> Blasko, n. 2.

<sup>29</sup> “China’s Defence Budget a Threat to Region: Taiwan”, *The International News*, March 6, 2012, available at <http://www.thenews.com.pk/Todays-News-1-96283-Chinas-defence-budget-a-threat-to-region-Taiwan>, accessed on March 19, 2012.



armed services personnel in March 2011, to be implemented biannually.<sup>30</sup> Arthur Ding, a professor of international relations at Taiwan's National Chengchi University, opines: "... the salaries, will take a major portion of the increase and also they are recruiting, they are somewhat switching to voluntary force gradually, I would say, and (to maintain a) voluntary force would take tremendous budget, tremendous money to recruit sufficient manpower."<sup>31</sup> There is also a concerted effort at improving the living habitat of troops in a bid to raise morale in keeping with its growing economy.

## **Anti-Access/Area Denial (A2AD) Capability Developments**

### Traditional A2AD Domain

Anti-Ship Ballistic Missiles designed to target forces at sea, combined with overhead and over-the-horizon targeting systems to locate and track moving ships; conventional and nuclear-powered attack submarines capable of firing advanced Anti Ship Cruise Missiles (ASCMs); Surface combatants – LUZHOU, LUYANG-I/II class; Maritime Strike Aircraft- JB-7 and JB- 7A, H-6G; and, Air Superiority fighter (ASF) like the SU-30 MK2, armed with ASCMs.

### Air and Air Defence Components

Russian S300 PMU/SA-10 and S300 PMU1/SA-20 air defence missiles, as well as the indigenous HQ-9 (similar to SA10/20 family) designed for the defence of vital facilities against mass strikes by aircraft, strategic cruise missiles, tactical and theatre ballistic missiles, and other air attack weapons over a full range of altitudes and speeds in heavy electronic counter measures (ECM) environments. Production of Fourth-generation aircraft (for example, Su-27/J-11 and Su-30 variants) as well as the indigenous J-10 for local air dominance will be expedited with the purchase of 150 J-11 and 120 J-10 engines ordered from Russia. Acquisition and development of longer-range Unmanned Aerial vehicles (UAVs) and combatised versions like UCAVs for expanding long range reconnaissance and strike.

### Futuristic Programmes

China will continue to invest heavily in the J-20 stealth fighter development including avionics and high performance jet engines. The progress on the 35 satellite constellation second generation satellite navigation system is likely to be on schedule.

---

<sup>30</sup> Lin Liyao, available at [http://www.china.org.cn/china/2011-03/09/content\\_22094634.htm](http://www.china.org.cn/china/2011-03/09/content_22094634.htm), china.org.cn, March 9, 2011 accessed on March 28, 2012.

<sup>31</sup> Stephanie Ho, "China Boosts 2012 Military Spending", *VOA News*, March 4, 2012, available at <http://www.voanews.com/english/news/China-Boosts-2012-Military-Spending-141342473.html>, accessed on March 25, 2012.

### Ballistic Missile Defence

- Procurement: Eight battalions of SA-20 PMU2 systems (range 200 km) were imported in 2006 and another eight battalions were ordered which are likely to be imported from Russia.
- Local Development: China is proceeding with R&D for a missile defence umbrella at exospheric altitudes (>80 km). Improvements and development in the HQ-9 systems will continue.

### **Strategic Capabilities**

#### Nuclear Forces

China's nuclear arsenal currently consists of about 200 intercontinental ballistic missiles (ICBMs), including the silo-based CSS-4 (DF-5); the solid-fueled, road-mobile CSS-10 Mods 1 and 2 (DF-31 and DF-31A); and the more limited range CSS-3 (DF-3). This force is complemented by liquid-fueled CSS-2 IRBMs and road- mobile, solid-fueled CSS-5 (DF-21D) MRBMs for regional deterrence missions. China will acquire additional CSS-10 Mod 2s and enhanced CSS-5s. The first of the new JIN-class (Type 094) nuclear submarines (SSBN) appears ready and operationalised with the JL2 long range missile. The production of the other JIN class will continue.

#### Advanced Technologies

China will continue to invest in a range of systems, including Multiple Independently Targeted Reentry Vehicle (MIRVs), decoys, chaff, jamming, thermal shielding, and anti-satellite (ASAT) weapons.

#### Power Projection

The current aircraft carrier will continue its sea trials and complete its fitment of equipment; and the development of the J-15 shipboard fighter for its air wing will continue. Two more aircraft carrier keels were laid in 2010 and these will continue to be funded.

#### Strategic Mobility

The Y-20, 4-engined, 50-ton payload aircraft is likely to have its first flight around end-2012. Investments will continue for its development. For mobility by sea, the PLA has launched two Type 071 Landing Platform Docks (LPD) and a third is under construction.

### **Ground Forces**

PLA's large ground force has not experienced the same dramatic modernisation as other branches of the PLA. Much of this effort is focused on units garrisoned near Taiwan. Additional amphibious assault vehicles – Type 05 (ZBD-05) – will enter service in key units, improving the ground forces' capability to conduct amphibious attacks. Throughout the PLA, small numbers of modern main battle tanks (Type 99), armoured vehicles

Type 97/ Type 04, self-propelled artillery, and air defence weapons will enter service in selected units. The focus on “informationalisation” will continue down to the battalion level.

## Assessment

In conclusion, one can assess that for the PLA ‘it’s business as usual’. A focused, calibrated, roll on plan for modernisation, force structuring and enhancement of technological skills in the PLA is underway. The notable points that emerge from the budget are:

- The 2012 budget will not impact, retract, or curtail the ongoing military modernisation programme.
- The budget provides support for China’s expeditionary and power projection programmes – aircraft carrier operationalisation, acquisition of Landing Platform Dock (LPD), J20 fighter aircraft, and Y20 long range aircraft programmes will be on track. According to Su Hao, Professor at the Centre for Strategic and Conflict Management, Beijing: “They are new issues like protection of citizens and investment overseas”,<sup>32</sup> which justify increased expenditure.
- The focus of this year’s expenditure will continue to remain the Asia-Pacific region, with “catching up” with the US drawing the largest portion of the budget. This would mean large investments in cyber warfare, anti-ship missiles, and space technology (mainly development of Intelligence, Surveillance, and Reconnaissance capability).
- Increased funding for anti-piracy and diaspora protection may result in the establishment of the first overseas Chinese base in the Indian Ocean.
- On the land border, development of laterals (both rail and road) and habitat in inhospitable terrain will continue to get adequate attention.

---

<sup>32</sup> As cited in Subhash Kapila, “China’s Defence Budget 2012: Implications For India’s Security Analysed”, Paper No. 4964, *South Asia Analysis Group*, March 15, 2012, available at <http://www.southasiaanalysis.org/\papers50\paper4964.html>, accessed on March 23, 2012.