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China Brief is a bi-weekly journal of information and analysis covering Greater China in Eurasia.

China Brief is a publication of The Jamestown Foundation, a private non-profit organization based in Washington D.C. and is edited by L.C. Russell Hsiao.

The opinions expressed in China Brief are solely those of the authors, and do not necessarily reflect the views of The Jamestown Foundation.



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In a Fortnight

IS CHINA'S CARRIER AVIATION PROGRAM KICKING INTO HIGH GEAR?

By L.C. Russell Hsiao

China will soon be one-step closer to its long-standing quest to operate an aircraft carrier. Various reports confirmed that the aircraft carrier Varyag, which China purchased from Ukraine and has been under refurbishment at the port of Dalian, may be set for sea trials this summer—perhaps in July or as early as May (Navy Times, April 13; *China Times*, April 19). Chinese shipbuilding and military sources have indicated that the People's Liberation Army (PLA) has plans to build two new Varyag style carriers, followed by two larger nuclear-powered carriers which could be expanded to four or possibly six vessels (Asia Times, July 23, 2010; Aviation Week, January 5). While much speculation has arisen about the Varyag's name, hardware and launch date, the sea trials of China's first aircraft carrier raise important questions about the extent of its pilot training programs, which are an essential element for determining the effectiveness of its carriers' strike force.

On September 5, 2008, *PLA Daily* reported that the Dalian Naval Academy—China's premier military institution under the command of the navy headquarters—had established a program to recruit pilot cadets. The article revealed the recruitment of 50 pilots, ostensibly selected to receive a four year education in ship-based aircraft flight. It has been widely assumed that this program was for the recruitment and training of the PLAN's first class of carrier aviators (*PLA Daily*, September 5, 2008). Some analysts have speculated that if in fact the report is true then the first pilot program of recruiting pilot cadets is an indicator of an important decision made by the PLAN as a final stage of preparation for its highly touted carrier program (Chinamil.com.cn, September 10, 2008).

Another element of China's carrier pilot training program that is shrouded in mystery is how it

is training PLAN aircraft carrier pilots. After all, the Varyag will be China's first aircraft carrier. To that end, China has been building training centers and actively seeking outside expertise to help train its pilot in carrier naval aviation. There are also reports that China is building several carrier-based fighter pilot systems for training. A couple of these installations, which are reportedly located in Liaoning, Hubei and Shanxi provinces, are designed to simulate the deck of an aircraft carrier landing system. For example, the massive carrier pilot training base at Huludao, Liaoning province appears to be a near duplicate of the design of NITKA (*Nazemniy Ispitatelno—Tryeniroychniy Kompleks Aviatsii*: Land-based Naval Aviation Testing and Training Complex). The NITKA facilities are state of the art land-based installations for operating one of the Russian-designed carriers that utilize a ski ramp for take-off instead of the steam catapult and arresting cable/tailhook landing system used on U.S. and French aircraft carriers (*Taipei Times*, February 15). Another ground aircraft carrier fighter pilot simulation training system made of concrete and modeled after the Varyag appeared in the vicinity of Wuhan City, Hubei Province, with an almost identical medium-sized aircraft carrier landing runway and bridge (Russian World Arms trade and Analysis Center, February 9). Other facilities ostensibly for training of carrier personnel and engineering support specialists have been identified in Xian, Shanxi Province (*Taipei Times*, February 15).

China is also reportedly seeking to train pilots for ship-based aircraft at naval aviation training centers in Ukraine. The center is equipped with simulators for taking off from angled decks, landing with arresting wires, and emergency response operations (China Review News, April 21). Furthermore, Brazil and China had reached an agreement in 2009 to train personnel from the PLAN in Brazil. In the interview (available in Portuguese), Brazil's Defense Minister Nelson Jobim announced that the two sides reached a training agreement to stage PLAN officers aboard the NAe Sao Paulo, Brazil's Clemenceau-class aircraft carrier (See "PLAN Officers to Train on Brazilian Aircraft Carrier," *China Brief*, June 12, 2009).

There are currently nine navies with aircraft carriers in active service, and the United States, France, Russia and Brazil are the only four naval forces that have operational aircraft carriers capable of launching and recovering conventional aircraft. Reports that appeared in the Chinese press as well as its activities indicated that the PLAN may be planning to use a mix of CATOBAR and STOBAR launch and recovery systems for its carriers, which would explain why Chinese leaders have reached out to both Ukraine and Brazil for carrier aviation training (China Review News, April 21; Defasanet, May 13, 2009).

There remains a long period of training, development and exercises before the carrier becomes operational. It is likely that the Varyag will be used mainly for training purposes for a completely indigenous model. While a single carrier is largely symbolic, nevertheless it underscores the progress that China has made and its ambition to become a global maritime power. The upcoming sea trials for the

Varyag will mark China's ascension in a rare class of naval powers. While China has demonstrated that it is catching up with Western powers in terms of hardware, yet China's rise as a true naval power is far from assured. Much will depend on the extent to which it is able to educate and train the personnel that will ultimately determine military capabilities. This remains to be seen for now.

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The Rise of the Energy Faction in Chinese Politics

By Willy Lam

The appointment earlier this month of Su Shulin, Chinese Communist Party (CCP) secretary and general manager of Sinopec, as acting governor of Fujian Province highlighted the growing clout of the Energy Faction in Chinese politics. Senior executives of the Big Three *yangqi* (or centrally-controlled firms) in the oil-and-gas sector—Sinopec, China National Petroleum Corporation (CNPC) and China National Offshore Oil Corp (CNOOC)—have frequently been named to top-level provincial positions throughout the past decade. Jiang Jiemin, 55, general manager and party boss of CNPC, deemed the “big brother” among the three monopolies, is about to be made governor of Yunnan Province (Reuters, April 8, chinareviewnews.com, April 9; China Business Times [Beijing], April 12).

Su and Jiang, who are both alternate members of the CCP's ruling Central Committee, had in earlier parts of their careers already served in important provincial slots. Su, 49, was a member of the CCP Committee of Liaoning Province from 2006 to 2007. He is a ranking member of China's Sixth-Generation cadre corps—a reference to up-and-coming officials born in the 1960s. Jiang, 55, who started his career as an oilfield technician in 1972, was vice-governor of Qinghai Province from 2000 to 2004 (chinavita.com, April 8; *South China Morning Post*, April 10). Other top-level officials who earned their first spurs in the petroleum sector include Party Secretary of Hainan Province Wei Liucheng, who is a full member of the CCP Central Committee. Wei, 64, was CEO of CNOOC before being appointed deputy party secretary of Hainan in 2003. Equally significant is the fact that two Politburo members began their careers in the oil-and-gas sector. They are Politburo Standing Committee member in charge of law and order Zhou Yongkang, and Politburo member and Party boss of Tianjin, Zhang Gaoli (Bloomberg.com, April 8; *Financial Times*, March 3).

The power of the so-called Energy Faction has also been boosted by the increasing prominence of a host of electricity-related *yangqi*, most of which also run China's fast-burgeoning nuclear plants.

Foremost among these behemoths are the State Grid, China National Nuclear Corporation, China Huaneng Group, and Guangdong Nuclear Power Group (World-nuclear.org, April 13; Energychinaforum.com, March 30). Much more than the oil-and-gas field, the electricity and nuclear firms boast a number of senior executives with the background of princelings (a reference to the offspring of retired leaders). For example, the son and daughter of former premier Li Peng, respectively Li Xiaopeng and Li Xiaolin, have had successful careers in electricity-related corporations. Li Xiaopeng, 51, a former general manager of Huaneng, has served as Vice-Governor, and then Executive Vice-Governor, of resource-rich Shanxi Province since 2008 (Stratfor.com, April 7; Asianews.it [Rome], January 28).

The leaps-and-bounds growth of the energy conglomerates—plus the penetration of their senior managers into politics—has produced the first major CCP faction that is anchored upon an industrial sector (South China Morning Post, April 11; Freepressers.com, March 28; Apple Daily [Hong Kong], April 19). Traditionally, most Chinese cliques have been based on geography and political *guanxi* (connections). For example, the Shanghai Faction headed by ex-president Jiang Zemin consists of cadres who were either born in the Greater Shanghai Region or who spent the bulk of their career there. The Gang of Princelings is made up of the sons and daughters of party elders. Moreover, the Communist Youth League Faction (CYLF), arguably the CCP's largest camarilla, comprises officials with close affiliations with the League, which was once headed by President Hu Jintao (Chinaelections.net, March 17; *Daily Telegraph* [London], January 3).

What is the significance of the rise of the Energy Faction? On the positive side, these industrial behemoths have provided the party-and-government apparatus with relatively capable cadres who are conversant with modern management concepts, including ample exposure to global business norms. This is particularly vital in light of the fact that since the Tiananmen Square crackdown of 1989, the CCP's Organization Department has put its emphasis on grooming officials known for their unquestioned loyalty to the leadership. In their speeches over the past few years, Director of the Organization Department Li Yuanchao and Vice-President and Central Party School President Xi Jinping have indicated that the criteria for promotion are "morality and ability"—meaning political trustworthiness and professional competence—but with morality taking precedence over ability (*People's Daily*, March 16; Xinhua News Agency, August 15, 2009). Having begun their careers in the 1970s as junior workmen and technicians in oil-and-gas fields that are often located in climatically harsh regions, the likes of Su Shulin and Jiang Jiemin are considered to have an ideal combination of "morality" and managerial know-how. It is also not an accident that oil executives are among the first batch of entrepreneurs who have been inducted into the CCP's Central Committee.

The downside of the flourishing Energy Faction is that the dozen-odd oil-and-gas and electricity conglomerates seem to have

become too powerful for individual State Council departments to handle. Moreover, their monopolistic status militates against the overall spirit of economic liberalization and marketization, which underpins China's 33 year-old Reform and Open-Door policy. Last year, the three oil corporations raked in profits of 265 billion yuan (\$40.58), up 35.7 percent over that of 2009. Particularly given that petroleum and petrochemical products in China are often more expensive than those in the West, calls have been made for these super-rich corporations to "return wealth to the people" (China News Service, March 29; Xian Evening Post, March 29).

More significantly, in view of the record number of Energy Faction-affiliated executives who have snared senior party and government slots, questions about lack of proper scrutiny—and inadequate checks and balances—have loomed ever larger. Like other *yangqi* such as the four major commercial banks, the energy conglomerates are in theory under the direct control of the State Assets Supervision and Administration Commission (SASAC). Yet, given that the ministerial-ranked SASAC has the same party and administrative status as most of the state-held giants, it would be hard-put for the commission to maintain a tight grip over their charges (See "Chinese SOEs a Target of Hu-Wen's 'Inclusive Growth?'" *China Brief*, January 14). Perhaps in view of these concerns, the State Council set up early last year a high-level National Energy Commission (NEC) to take charge of energy policy as well as to oversee energy-related state firms. Its Director and Vice-Director are respectively Premier Wen Jiabao and First Vice-Premier Li Keqiang. Yet, the day-to-day work of the commission, which does not meet regularly, is handled by the National Administration of Energy, which is another ministerial-level unit (*People's Daily*, January 27, 2010; Epmag.com [Houston], February 9, 2010). Despite the NEC's star-studded membership, there is little evidence that it has enabled central party-and-state authorities to exercise tighter oversight over the energy behemoths.

There are also fears that the relentless trend of the fusion of business and politics within the energy sector might exacerbate corruption. This is in light of a number of high-profile graft scandals that have hit the oil and nuclear sectors in the past few years. For example, former Sinopec Chairman Chen Tonghai was given a suspected death sentence in 2009 for pocketing ill-gotten gains worth more than \$28 million. A year later, then chairman of the China National Nuclear Corp Kang Rixin was jailed for life for accepting some \$1 million in bribes. Kang was also stripped of his membership in the CCP Central Committee (Financial Times, July 16, 2009; BBC News, November 19, 2010).

The overweening clout of the Energy Faction is also evidenced by the controversy over whether China should press ahead with its ambitious nuclear-energy blueprint after the debacle of the Fukushima Dai-Ichi Plant in Japan. Within a week of the nuclear-leakage crisis, Premier Wen declared a temporary moratorium on the approval of new nuclear reactors in China. Relevant State Council organs also started examining the safety standards of existing facilities as well as those under construction. 26 nuclear

plants are being built in China, and at least 28 are planned for the coming decade (Xinhua News Agency, March 19; *Ming Pao* [Hong Kong], March 19).

China is unlikely to emulate countries such as Germany in announcing a halt on all nuclear plants. Premier Wen's cautionary gesture notwithstanding, lobbyists for the pro-nuclear lobby have been vocal in their claims that the Japan accident is "irrelevant" to China's energy calculations. Cai Guohan, a senior researcher on nuclear radiation in the Ministry of Environmental Protection, indicated that for China to slow down its nuclear program "will be tantamount to stop eating for fear of choking." Cai also asserted that China's coastal topography would render the country less susceptible to tsunami-related damages. China National Nuclear Corp specialist Chen Zhuzhou also contended that because most of China's reactors were using 21st-century technology, "our safety equipment and standards are much better than those in Japan" (Xinhua News Agency, March 29; Sina.com, March 26; *Global Times*, March 18).

In an apparent attempt to convince critics that the central government has the wherewithal to rein in the Energy Faction, the SASAC announced last week that both Sinopec and CNOOC would be setting up Western-style boards of directors to run their operations. It is understood that CNPC would introduce a similar reform soon. (Subsidiaries of the three oil giants, which are listed on the Hong Kong stock market, are already managed by boards of directors). Yet it is too early to tell whether the mere creation of a board of directors would either bring about a significant improvement in corporate governance or enable the State Council to keep closer tabs on the *yangqi's* business practices. After all, thirty other *yangqi* under the SASAC had already set up management boards as of the end of 2010 (China News Service, April 13; *Nanfang Daily* [Guangzhou], April 13). The fast-growing tentacles of the Energy Faction may ensure that only officials and executives who fervently back its sectoral interests would be appointed to the relevant boards.

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Japan's Approach to China's Control of Rare Earth Elements

By Cindy Hurst

Japan has been dealt a number of blows over the past few years which have put the country's high-tech production capacity at risk. Most recently the massive earthquake and subsequent tsunami that hit Japan in March has directly affected production efforts through rolling blackouts and damaged equipment. Another issue, and one that has been missed by public scrutiny, is the country's struggle to obtain steady supplies of certain key materials needed to produce its high-tech products. Some of those key ingredients are rare earth elements (REEs), of which China has been cutting back export quotas. China has also reportedly announced that it was going to create a REE strategic reserve, a measure that some analysts feel will give the country more control over the industry. In an industry that is ever changing, other countries, whose economies and national security depend on technologies produced with REEs, could learn by Japan's example.

While REEs have long been in the cross-hair of industry analysts, the issue of REE production and supply increased its public spotlight in 2010 after a territorial dispute between China and Japan over the Senkaku/Diaoyu islands during which China imposed a *de facto* ban on all rare earth exports to Japan. The ban, according to Japanese Economy, Trade, and Industry Minister Akihiro Ohata, further reinforced the idea that the country needed "to craft a long-term strategy to procure rare earths" (Kyodo World Service, October 1, 2010).

China first began cutting back export quotas for REEs in 2006. Japan, however, began to take action to reduce its reliance on its neighbor by early 2007. Dudley Kingsnorth, executive director of the rare earth consulting company Industrial Minerals Company of Australia (IMCOA), is forecasting global demand to increase from 124,000 tons annually in 2010 to 250,000-300,000 tons by 2020. Of this amount, he expects 110,000 to 130,000 tons to account for the rest of world (ROW) demand [1]. In what could be deemed a race for rare earth elements, Japan has already been placing itself at an advantage by taking early action.

REEs are the 15 elements that comprise the family of lanthanides on the periodic table, plus yttrium and scandium. These metals are vital to the production of hundreds of modern technologies such as cell phones, i-Pods, computer hard drives, green technologies, and critical military weapons systems. China dominates the industry, producing over 95 percent of the world's REEs, but the country has been steadily cutting back export quotas, causing worldwide concern [2]. These cuts are a result of several factors including China's desire to stomp out illegal activity, consolidate the industry and stockpile the metals. These cuts, while seemingly necessary for China, enslave nations to the whims of the country's production quotas. Meanwhile, Japan has been seeking to come up with

alternatives over the past five years.

While Japan's consumption of REEs has been increasing somewhat steadily over the past three decades, imports from China continue to go down. In December, imports were at 4,080 tons after trade resumed following China's de facto ban on shipments. In January Japan imported 1,783 tons from China. In February, that number dropped to 1,138 tons (Reuters, March 30). In 1995, the country consumed 7,654 metric tons. In 2000, that figure rose to 13,690 metric tons. In 2005, Japan consumed 18,855 metric tons. Prior to the earthquake and subsequent tsunami that occurred in March, Sojitz Corporation, a Tokyo based trading company and one of Japan's largest rare earth importers estimated that Japan would use 32,000 tons of rare earths in 2011 [3]. Experts estimate that in the near term, Japan's consumption rate will decrease as the country struggles to regain its footing in the production of high tech products and that the country's consumption rate in 2011 will be less than originally forecasted. The problem is that Japan does not possess any REEs of its own, forcing the country to rely wholly on imports, approximately 90 percent of which come from China (Japan Today, October 8, 2010). Therefore, because of its already tight supplies, Japan will likely continue to seek alternatives outside of China.

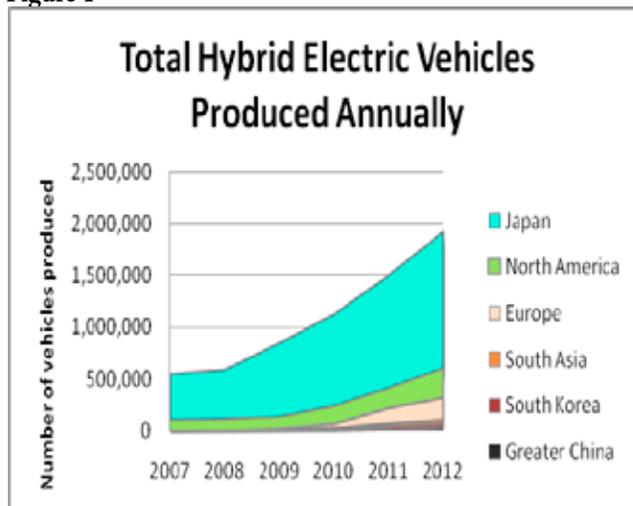
HISTORY OF JAPAN'S RARE EARTH ELEMENTS INDUSTRY

Japan used REEs as early as the 1940s when the country first saw their value as polishing agents and began producing lighter flints. By the 1960s, research, development and the use of REEs in the country expanded. By 1973, Japan began producing samarium cobalt (SmCo) magnets. Two years later Sony was using these magnets in their Walkman radios. In 1982, the Rare Earth Study Association was established. The name of the organization changed to The Rare Earth Society of Japan in 1995. In 1985, Japan began producing neodymium iron boron magnets (NdFeB), which are the strongest magnets available on the market today and make miniaturization possible [4].

Over the past two decades, Japan transferred some of its production bases to China, a strategic move to help Japan ensure future supplies. Today, however, due to China's steady export cuts and proven ability to use its rare earth resources as a political bargaining chip, Japan no longer feels comfortable relying on China. As a result, Japan has been seeking a more diverse supply by creating joint ventures and signing supply agreements with countries having known reserves of REEs. In addition, Japan has been actively pursuing other options, including recycling, and developing alternative materials that will lessen the country's dependence on REEs.

DIVERSIFYING SUPPLY

Figure 1



Source: IHS Automotive

The global demand for Japanese products is what drives Japan's demand for REEs. For example, Japan is a major producer and exporter of sintered rare earth magnets and NdFeB alloys, nickel-metal hydride batteries, auto catalysts, digital cameras, fluorescent lamps, and others. The country is also the largest global producer of hybrid electric vehicles (HEV).

HEVs rely heavily on REEs. According to IHS Automotive, an organization that provides automotive market forecasting services and strategic advisory solutions to automotive manufacturers, suppliers, and financial organizations, the rate of production of Japanese HEVs has increased steadily over the past decade. In 2007, Japan produced 443,253 units. By 2010, that number nearly doubled to approximately 883,000 [5]. According to some estimates, HEVs contain up to 25 pounds of REEs. For example, NdFeB magnets are used in electric motors because of their high efficiency and light weight. Lanthanum and cerium are used in the hybrid NiMH batteries [6].

The increase in demand for HEVs, coupled with China's cuts in rare earth quotas, has prompted Japanese companies, such as Toyota Motor Corporation, to seek REEs elsewhere outside of China to ensure production is not affected.

Beijing began cutting export quotas for REEs in 2006. By early 2007, Hiroshi Okuda, a senior advisor to Toyota Motor Corporation, was concerned enough to organize a forum on natural resources and diplomacy (Asahi Shimbun, February 4, 2008). In March 2007, Okuda began asking the question: "Is there a way we could purchase an entire mine?" [7]. Soon after, Toyota Tsusho Corporation, Toyota's trading house, set out to find alternative sources of rare earths by dispatching teams to Canada, Australia, and Vietnam [8]. Other Japanese companies soon followed suit.

In 2008 Toyota Tsusho and Sojitz Corporations established a joint venture with Coal and Mineral Industries Group (Vinacomin), a Vietnamese state-run company. In exchange for financial and technical support, Japan acquired the right to mine REEs at the Dong Pao mine in Lai Chau province, Vietnam. Mining operations could begin in Dong Pao as early as 2011 [9]. Sumitomo Corporation, Japan's third largest trading company, recently launched a feasibility study on a mine in Yen Bai, located in the northern province of Vietnam. They are expected to start exporting rare earths to Japan as early as 2013 (Vietnam Business and Economy News, January 7).

Sojitz Corporation also signed a contract with Lynas Corporation, an Australian mining company, which owns the Mount Weld mine (The Daily Yomiuri Online, December 9, 2010). Mitsubishi signed a contract with Molycorp, which owns the Mountain Pass Mine in California, to import 750 tons of rare earths yearly [10]. These are just a few examples. There have been many other deals between Japanese companies and leaders and the countries of Kazakhstan, Namibia and India, and Mongolia (Reuters, July 30, 2010; Jiji Press, November 19 2010; The Daily Yomiuri Online, December 9, 2010).

The Japanese government has also stepped in by creating a \$1.25 billion integrated policy to try to mitigate any future disruptions. According to Mr. Shigeo Nakamura, president of the Advanced Material Japan Corporation, \$490 million is going toward improving the production of REEs through technological innovation. \$370 million is going toward supporting Japan's foreign rare earth mining ventures. Japan is also planning to spend money on research and development to come up with alternatives and other projects [11].

RECYCLING RARE EARTH

The temporary ban of shipments of rare earth to Japan has had some leading companies focusing on recycling. Hitachi, hopes to meet 10 percent of its rare earth needs through recycling by 2013. Mitsubishi Materials Corporation began researching costs associated with extracting dysprosium and neodymium from washing machines and air conditioners.

One criticism of recycling rare earths is the cost. Most applications use such small quantities of rare earth that it is unlikely to be economical to recycle. For example, in cell phones, the 0.3 gram NdFeB magnet used to make the phone vibrate contains only about 0.1 gram of neodymium [12]. On the other hand, some applications require significantly greater amounts of REEs which would make them ideal candidates for future recycling. For example, MRI machines use two to three tons of the NdFeB magnets.

DEVELOPING ALTERNATIVE MATERIALS

Japan has been developing alternative materials that do not rely on REEs. For example, Toyota and Tesla Motors are in the process of developing an induction motor that does not rely on such elements.

Intermetallics Co. Ltd, a research and development company that specializes in permanent magnets, is developing a technology that could reduce the amount of dysprosium used in electric-motor magnets without affecting performance. Dysprosium can be added to NdFeB magnets to increase the coercivity of the magnets, which make them able to withstand greater temperatures before losing magnetic properties (Nikkei Telecom 21, October 22, 2010).

CONCLUSIONS

Despite an easing of tensions between Japan and China over the Senkaku Diaoyu Islands, some experts believe that a return to a free flow of rare earths from China's mines is unlikely for various reasons. The two countries share a history of bitter feelings and mistrust. Additionally, Chinese analysts believe that Japan has been hoarding REEs. According to a Chinese report, Japan imports about 92 percent of its rare earths from China. Yet, Japan uses only one third of its imports for production, with the rest going toward strategic reserves (*Qingnian Cankao*, November 9, 2010).

Experts believe that Japan should be able to stop worrying about supplies of REEs by 2012 or 2013. Kingsnorth predicts that between 2010 and 2013/14, the ROW rare earth production will increase tenfold from 4 to 6,000 tons of rare earth oxides produced annually to 40-60,000 tons. According to Kingsnorth, for the ROW to be self sufficient in 2020 then ROW supply will have to triple between 2013/14 and 2020, representing a 30-fold increase in the next ten years. Through its efforts over the past five years, Japan is paving the way to ensure it does not suffer any future shortfalls. The potential suppliers would have to step up the plate as well [13].

Finally, no one wants to be beholden to China anymore. As Japan forges ahead, it could well spark a new form of competition against China. Japan has long been a leader in technology and innovation. As Japan, through its technological prowess, regains its production capacity and weans itself off of China, it will continue to develop alternative technologies that might one day rival current technologies. It could be that the move to self-reliance may see other countries' manufacturers moving upstream as well in order to secure reliability of supply; a reversal of the trends of the past two decades.

Cindy Hurst is an analyst with the U.S. Army's Foreign Military Studies Office. She is the author of over two dozen major studies and articles, including: China's Rare Earth Elements Industry: What Can the West Learn, China's Ace in the Hole: Rare Earth Elements, and Common Misconceptions of Rare Earth Elements. Ms. Hurst is a lieutenant commander in the U.S. Navy Reserve. The views expressed in this report are those of the author and do not necessarily represent the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government.

NOTES:

1. Dudley Kingsnorth, "Rare Earth Opportunities – Real or

Imaginary?” BBY Rare Earths Conference, April 2011.

2. For more information on why China has been cutting back export quotas, see Cindy Hurst, “China’s Rare Earth Elements Industry: What Can the West Learn,” Institute for the Analysis of Global Security, March 2010.

3. Shigeo Nakamura, Rare Earth Statistics of Japanese Market in 2006, a presentation at the Beijing Conference of Minor Metal 2006, September 7, 2006; and Yuka Hayashi and James T. Araddy, “Japan Scrambles for Rare earth,” Wall Street Journal, October 15, 2010.

4. Eiji Nakamura, “The History of Rare Earths in Japan,” a presentation given during the Tokyo Rare Earth Conference, 2010.

5. At the time this report was written, the final tally had not been determined.

6. “Hybrid Electric Vehicles,” Molycorp website, accessed February 6, 2011, http://www.molycorp.com/hybrid_ev.asp.

7. Ibid.

8. Ibid.

9. “Coverage from Minor Metals & Rare Earths 2010 – Xiamen, China,” Rare Metal Blog, October 22, 2010; and Shigeo Nakamura, “Current Trends in the International Rare Earth Market, Rare Earth Conference in Tokyo, December 7, 2010.

10. Ibid.

11. “Coverage from Minor Metals & Rare Earths 2010 – Xiamen, China,” Rare Metal Blog, October 22, 2010; and Shigeo Nakamura, “Current Trends in the International Rare Earth Market, Rare Earth Conference in Tokyo, December 7, 2010.

12. Dudley Kingsnorth, Telephone Interview, September 24, 2010.

13. Dudley Kingsnorth, email correspondence, April 21, 2011 and Dudley Kingsnorth, Rare Earth Opportunities – Real or Imaginary?”

Taiwan’s Defense Transformation and Challenges Under Ma Ying-Jeou

By Fu S. Mei

The third anniversary of Taiwan’s landmark 2008 presidential election, which brought the Kuomintang (KMT) back to power, is approaching. Since Ma Ying-Jeou’s inauguration in 2008, Taiwan has made significant progress in improving relations with China and in expanding cross-Strait economic interpenetration. A review of the Ma administration’s record on national defense, however, suggests that the administration faces substantial challenges ahead in fulfilling its promises on national defense. As part of his campaign platform and subsequent declarations, President Ma pledged to implement the following objectives in his defense policy agenda:

- Transform Taiwan’s military to an all-volunteer force within 6 years;
- Restructure the military to a leaner, smarter, more elite

force;

- Commitment to defense spending at not less than 3 percent of GDP [1].

Indeed, Mr. Ma’s vision to reform Taiwan’s defense establishment, both in terms of strategic outlook and composition, is proving to be much more difficult and costly than perhaps expected. The ramifications of this trend are two-fold: both for cross-Strait security dynamics and for President Ma politically as he looks toward earning a second term in office.

DEFENSE TRANSFORMATION

The Ma administration’s goal is to transform Taiwan’s armed forces (currently a hybrid system of conscription and volunteer service personnel) into an all-volunteer military. Volunteer military personnel, with their longer service terms (4 years versus 1 year for conscripts), should improve professionalism and proficiency, yielding a more effective force. Military pay and benefits would be substantially increased, to help attract and retain quality personnel for voluntary service (*United Daily News* [Taiwan], August 1, 2008).

As part of this plan, the overall force size would need to be significantly reduced and organizationally restructured, in order to make the volunteer force affordable. Nominally, total strength will be reduced from 275,000 to 215,000 (of which combat forces would only constitute 147,000), but actual head count reduction will be much closer to 20,000, since many of the personnel billets to be eliminated are often unfilled—which have caused numerous units to be chronically under-strength (*China Times*, April 5, 2010). The objective of this initiative is a smaller but better-trained, more experienced, more fully-manned and equipped force with increased overall fighting power as well as expanded capacity to take on other mission roles, including humanitarian assistance/disaster relief (HADR) operations.

The Ministry of National Defense (MND) has begun the process of force rationalization by freezing a number of general officer billets, which has helped to accelerate retirement of flag and field-grade officers. The target is to cut number of general officers by 101 by 2014, to 292. Yet, the pace of force cuts will ultimately be limited by the budgetary cashflow available to pay for retirement/severance of personnel. The current level of Personnel expenditures may not be sufficient to fully fund the planned aggressive personnel redundancies whilst also funding new volunteer recruitments.

A key campaign promise of President Ma is to move to a voluntary military service system slated for 2014. Yet, the cost associated with such transformation has made it impossible for MND to adhere to the original plan of phasing in recruitment of volunteer personnel over the next three years. With government unlikely to allocate more fiscal resources to defense in the near term, MND has had to scale back recruitment goals through FY2013. Even then, there will not be enough funding to fully support these more modest quotas.

The 2011 Personnel budget, for example, can only support 5,000 additional volunteer personnel, less than half of the target of 11,000 (already reduced from 15,000) (*Liberty Times* [Taiwan], October 23, 2010). Yet, MND is still \$131 million short of what is needed to fund this relatively modest goal.

The budget projected for FY2014 (10.4 billion) will only provide a \$155 million increase over FY2011 level. Since each volunteer personnel has a cost on average of an additional \$17,331, this relatively small increase would only support 9,000 more volunteer soldiers, equal to merely 20 percent of the FY2014 recruitment objective (Apple Daily, September 29, 2010).

There can be little doubt that the volunteer force initiative is in serious trouble. In late-March, even Premier Wu Den-Yih cautious regarding the government's ability to provide the necessary budget resources to ensure transition to an all-volunteer force by 2015 (*China Times*, March 29). Given the political imperative to make good on this popular campaign promise, the only available alternative, it appears, would be to increase the share of Personnel expenses as a percentage of total defense spending, at the expense of available funding for Operations and Maintenance and/or Military Investment. Yet, even that may no longer be a viable option.

OPERATIONAL READINESS & TRAINING

President Ma's political priorities have also helped catalyze important changes in the training and operational readiness of Taiwan's armed forces. Foremost of these was the official incorporation of disaster relief and prevention missions into the military's core missions. This decision was made in the immediate aftermath of the politically as well as physically devastating Typhoon Morakot disaster in August 2009. The public backlash against the government's response to Morakot prompted the Ma administration to fast-track the legislative process through parliament and amend the Disaster Prevention and Rescue Act in July 2010 (Military News Agency, July 13, 2010). This initiative empowers the armed services to proactively engage in disaster prevention and relief operations and to mobilize reserve forces as needed, essentially mandating HADR operations as the new mission priority for Taiwan's military.

The most immediate effect has been a subtle but noticeable change in the military's planning and operational focus away from more traditional combat-oriented missions, toward increasing emphasis on HADR-related objectives. Not to an insignificant extent, this shift in priorities has been driven by the perception amongst Taiwan military officers that the present political leadership attaches much greater importance to disaster prevention and rescue work than maintaining proficiency and readiness for combat operations.

Taiwan's military has performed rather well over the past 18 months (Youth Daily News, October 29, 2010). This has helped the Ma administration's public standing, in addition to improving the image of Taiwan's armed forces and partially easing the latter's long-

strained relations with the civilian political leadership under Ma Ying-Jeou. In the last two years, Taiwan's military deployed more than 600,000 personnel and thousands of vehicle/ship/aircraft sorties for natural disaster prevention and rescue/relief/recovery missions [2]. Fuel, equipment, spare parts, consumables, and reserve funds are being expended at an aggressive rate, which over time could only adversely impact operational readiness of Taiwan's combat forces. This is compounded by the fact that, as HADR operations become an ever more important part of its core mission, Taiwan's Operations and Maintenance budget has declined sharply since FY2009 [3]:

	Operations & Maintenance Budget	percent Change YoY
2009	\$3.4 billion	N/A
2010	\$2.6 billion	-24.8 percent
2011	\$2.4 billion	-6.74 percent

Despite initial attempts to reduce the frequency of large-scale, live-fire exercises from annual to bi-annual basis (presumably as goodwill gesture amidst atmosphere of rapidly warming cross-Strait ties), Taiwan has decided to revert back to conducting field training exercises (FTX) yearly, starting in 2011 (Military News Agency, March 15). No explanation has been given, although it is generally understood that senior military leaders are concerned about the effect that a reduced training tempo could have on proficiency and readiness.

The step was also taken as part of the decision in Fall 2010 to move up the start of the annual troop training cycle by 3-4 months (from February/March to October/November). This is so that the services could better focus resources and energy on disaster preparedness and relief during the peak tropical storm season of summer and early-autumn months. Under the new schedule, unit-level training would begin in late fall each year, followed by combined arms and multi-unit training early the following year. This would allow combined-arms field exercises and joint operations training to be completed by late-June, before the typhoon season commences. For example, the field training exercise portion of this year's *Ha Kuang-27* exercise was held in mid-April, before the computer-simulated command post exercise in July (Youth Daily News, March 16).

RESOURCES AND DEFENSE MODERNIZATION

In March 2009, Taiwan's Ministry of National Defense (MND) published its first Quadrennial Defense Review (QDR), the first such document intended to provide a roadmap for the force modernization plans over the following decade [4]. Taiwan also completed—with U.S. assistance—a classified evaluation of its mid-to long-term defense requirements, known as the Joint Defense Capability Assessment (JDCA). Yet, Taiwan's defense capability is unlikely to receive the scope of modernization prescribed in these documents, given the very tight budget resources.

According to figures released by a senior parliamentary Foreign

Affairs & National Defense Committee (FANDC) member in late-October 2010, there could be a substantial shortfall in Military Investment (procurement) budget projected for the FY2011 to FY2014 period [5]:

FMS (Already Approved): \$6.9 billion
 FMS (Planned But Pending*): \$6.3 billion
 Total Budget Required: \$13.3 billion

**Includes: Newport-class LST (\$155 million); F-16C/D (\$5.4 billion); Submarine design (\$404 million); F-16A/B upgrade (\$370 million).*

The total amount of the budget earmarked for Military Investment per the current MND budget plan (as authorized by the Executive Yuan's budget projection for FY2011-2014) is \$11.4 billion. This means that, based on MND's current Military Investment plans, the Taiwan military could be \$1.8 billion short, if the requested FMS sales materialize. This budget crunch could soon impact major procurement programs already committed to by Taiwan. For example, MND is considering postponing the purchase of the final batch of Patriot Advanced Capabilities-3 (PAC-3) missile systems. Notified to Congress in late-January, 2010, this package included ground systems for three PAC-3 fire batteries and 114 PAC-3 missiles, valued at \$2.81 billion.

The principal reason for the possible procurement funding shortfall lies with the level of inadequate defense budget. Even though President Ma repeatedly reiterated his commitment to allocating not less than 3 percent of GDP to defense, Taiwan's direct defense spending has not reached that level since he came to office in 2008. Direct defense spending is defined as the three principal MND budget categories (Personnel, Operations and Maintenance, and Military Investment), plus the National Security Bureau (NSB) component.

On the contrary, Taiwan's defense spending as a percentage of GDP has actually been in decline since 2009; the inflation index provides additional context as to the change in purchasing power [6]:

	2009	2010	2011
Direct Defense Budget*	2.48 percent	2.40 percent	2.16 percent
Total Defense-Related**	3.05 percent	2.98 percent	2.73 percent
Inflation (CPI) (YTD)	+4.47 percent	+5.48 percent	+6.07 percent

**Personnel, Operations & Maintenance, Military Investment, and NSB only*

***Also includes dependent housing, base rehabilitation and manufacturing funds*

FY2011 direct defense spending is nearly 30 percent below the level President Ma promised as part of his national defense policy agenda. Even counting the non-direct military expenditures, total

defense-related spending for FY2011 is still about \$1.17 billion short of the commitment promised by President Ma.

Direct defense spending has also been declining in absolute terms over the three fiscal years (FY2009-2011) after the Ma administration assumed control of government budget allocations [7]:

	(A)	(B)	(C)	(D)
2008:	\$11.8 billion	+16.4 percent	4.4 percent	+0.73 percent
2009:	\$11.1 billion	-5.62 percent	+6.9 percent	-1.93 percent
2010:	\$10.3 billion	-7.08 percent	-4.1 percent	+10.82 percent
2011:	\$10.3 billion	-0.007 percent	+4.4 percent	+4.92 (forecast)

(A) Direct Defense Budget
 (B) Percent Change YoY (Direct Defense Budget)
 (C) Percent Change YoY (GDP Growth)
 (D) Total Gov. Budget

With shrinking resources, it has become extremely difficult for Taiwan's military to meet the simultaneous demands of defense transformation; increasingly active HADR operations; and servicing of payments for the \$13 billion in arms sales backlogged from the past decade but finally released by the United States starting in October 2008.

CONCLUSION

President Ma has made important breakthroughs in cross-Strait reconciliation, as well as in broadening and deepening the synergistic nexus between China and Taiwan. The next step for Beijing going forward is formal political dialogue, which Chinese authorities have been applying increasing pressure for the Ma administration to start. Taipei has been trying hard to stall as long as possible, because issues of sovereignty are politically sensitive in Taiwan. Moreover, perhaps Mr. Ma realizes that he has yet to assemble the bargaining chips he would need at the peace talks table. While President Ma has been urging the Obama Administration to support Taiwan with such follow-on defense sales as new F-16C/D fighters, diesel-electric submarines, and F-16A/B fighter upgrades, his government's track record on maintaining an adequate (or even stable) level of resources to defense has been dubious. Mr. Ma's inability to make good his commitment on defense spending, which would likely lead to significant delays or even failure of a key campaign promise (all-volunteer force) could also have more direct political implications, particularly as the KMT heads into the 2012 election cycle.

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NOTES:

1. Ma Ying-Jeou/Hsiao Wan-Chang 2008 presidential campaign platform: Defense Policy, <http://2008.ma19.net/policy4you/>

defence.

2. Various reports, Military News Agency, September 2009-December 2010.

3. *Defense and National Security Report, Annual Report 2008, 2009, 2010* (Rosslyn, VA: U.S.-Taiwan Business Council, January 2009; January 2010; January 2011).

4. *Quadrennial Defense Review 2009* (Taipei, Taiwan: Ministry of National Defense, March, 2009), http://www.mnd.gov.tw/qdr/en_menu.htm.

5. Press release by Legislator Lin Yu-Fang (Taipei, Taiwan: Legislative Yuan, 27 October, 2010).

6. *Central Government Budget FY2009, FY2010, FY2011* (Taipei, Taiwan: Director-General of Budget, Accounting and Statistics, Executive Yuan, January 2009; January 2010; January 2011).

7. U.S.-Taiwan Business Council, Op. cit.

China's 2010 National Defense White Paper: An Assessment

By Michael S. Chase

China released its latest national defense White Paper on March 31. The document, entitled *China's National Defense in 2010*, is the seventh that the Chinese government has released since 1998 when it began publishing the biannual defense White Papers [1]. Like all of China's defense White Papers, this is primarily an externally focused document. Since 1998, the defense White Papers have served as an element of China's strategic messaging. The White Papers are intended to respond to external concerns about transparency and to reduce mistrust based on China's growing defense spending and military modernization. On balance, China deserves some credit for its efforts even though they fall short of what many observers would like to see.

The latest White Paper offers an overview of Chinese assessments of the country's security situation, some discussion of China's national defense policy, a general overview of People's Liberation Army (PLA) modernization, and a recounting of the PLA's involvement in activities such as participating in U.N. Peacekeeping Operations, conducting escort operations in the Gulf of Aden and waters off Somalia, holding joint military exercises with other countries, and participation in international disaster relief operations. In addition, it includes sections on topics such as national defense mobilization, the military legal system, China's defense expenditure, military confidence building, and China's arms control and disarmament policy.

CHINA'S VIEW OF THE SECURITY SITUATION

The section that outlines China's assessment of its security situation is one of the most noteworthy parts of the latest White Paper

because it articulates China's views of the international strategic environment and outlines Beijing's strategic threat perceptions. The section reflects China's mixed perception of its external security environment, highlighting developments that are generally positive from Beijing's perspective but also underscoring growing unease about trends that Chinese analysts view as threatening. It summarizes China's view of the security situation as follows:

The international situation is currently undergoing profound and complex changes. The progress toward economic globalization and a multi-polar world is irreversible...the current trend toward peace, development and cooperation is irresistible. But, international strategic competition and contradictions are intensifying, global challenges are becoming more prominent, and security threats are becoming increasingly integrated, complex and volatile. (p. 3)

This section also reflects Beijing's assessment that its comprehensive power is growing relative to that of the United States and other major countries, especially in the wake of the global financial crisis. As the White Paper puts it, "the international balance of power is changing, most notably through the economic strength and growing international status and influence of emerging powers and developing countries." (p. 3)

The latest White Paper paints a relatively favorable picture of a security environment in which China's power is increasing and the world is becoming more multi-polar. China is still able to enjoy a period of opportunity for domestic development, one that has already enabled it to become a much more powerful country. The White Paper also highlights positive developments in cross-Strait relations over the past few years. At the same time, however, it notes that further progress in the cross-Strait relationship "is still confronted by some complicating factors." (p. 5) [2]. In addition, it points to some security trends that are deeply concerning from Beijing's perspective, such as threats posed by "separatist forces" in Xinjiang and Tibet.

The White Paper also portrays the broader international security situation as one that has become "more complex." According to the document, "International strategic competition centering on international order, comprehensive national strength and geopolitics has intensified. Contradictions continue to surface between developed and developing countries and between traditional and emerging powers, while local conflicts and regional flashpoints are a recurrent theme." (p. 4) Although this section does not call out any particular country by name, it is fairly clear whom the authors have in mind when they characterize international military competition as "ferce."

According to the White Paper: "Major powers are stepping up the

realignment of their security and military strategies, accelerating military reform, and vigorously developing new and more sophisticated military technologies. Some powers have worked out strategies for outer space, cyber space and the polar regions, developed means for prompt global strikes, accelerated development of missile defense systems, and enhanced cyber operations capabilities to occupy new strategic commanding heights.” (p. 4) Indeed, this is clearly a reference to U.S. activities of concern to China, such as the development of new military capabilities and emerging operational concepts like air sea battle and the establishment of the United States Cyber Command (USCYBERCOM) [3].

Turning to the situation in the Asia-Pacific, the White Paper proclaims that it is “generally stable,” but also warns that it is “becoming more intricate and volatile.” According to the White Paper: “Profound changes are taking shape in the Asia-Pacific strategic landscape. Relevant major powers are increasing their strategic investment. The United States is reinforcing its regional military alliances, and increasing its involvement in regional security affairs.” (p. 4) The document paints a picture of a United States that is taking a more active role in regional security issues as it becomes increasingly concerned about the potential implications of China’s rising economic, political, and military power. It also highlights China’s growing wariness about what it sees as U.S. efforts to check its emergence as a great power through containment. In the White Paper’s words, “Suspicion about China, interference and countering moves against China from the outside are on the increase.” (p. 5) In addition, it argues that China is facing greater pressure in preserving its “maritime rights and interests.” (p. 5)

REASSURING THE NEIGHBORS ABOUT CHINA’S DEFENSE POLICY AND MILITARY SPENDING

Following the discussion of the security situation, the White Paper turns to China’s defense policy. The section on national defense policy seems intended to assuage concerns about how China will use its growing military power by reiterating that China “pursues a national defense policy which is defensive in nature.” (p. 5) It also appears to be aimed at addressing concerns about what China will do as it becomes even stronger economically in the future. According to the latest White Paper, “China will never seek hegemony, nor will it adopt the approach of military expansion now or in the future, no matter how its economy develops,” (p. 6) a consistent theme that Beijing also emphasized in nearly identical language that appeared in its 2008 defense White Paper.

The national defense policy section of the White Paper also presents Beijing’s vision for the future of the cross-Strait relationship, which involves a process of resolving differences “through consultation on an equal footing,” discussing political relations “in a pragmatic manner,” holding exchanges on military issues and building mutual trust in the military field “at an appropriate time,” reaching a peace agreement, and ultimately achieving reunification. In addition, it outlines “the goals and tasks of China’s national defense in the

new era,” which include (1) safeguarding national sovereignty, security and interests of national development; (2) maintaining social harmony and stability; (3) accelerating the modernization of national defense and the armed forces; and (4) maintaining world peace and stability. (p. 6)

The White Paper’s coverage of Chinese defense expenditure seems intended to counter concerns in the United States and in the region about the growth of China’s defense budget, which has increased by double-digit percentages almost every year since the early 1990s. According to the White Paper, “China has increased its defense expenditure moderately as needed,” but has kept its defense spending “at a reasonable and appropriate level” in line with its economic development. The paper reports that the share of GDP devoted to defense “has remained relatively steady” in recent years, while the portion of the government’s total financial expenditure devoted to national defense “has been moderately decreased.” The White Paper also notes that as a result of “the residual impact of the global financial crisis and other uncertainties, the tension between revenue and expenditure in China’s finances persists.” Moreover, the paper suggests that this means defense spending has to compete with other priorities, such as agriculture, rural development, education, science and technology, health, and social welfare. As a result, “the growth rate of defense expenditure has decreased.” (p. 30)

MODEST TRANSPARENCY ON PLA MODERNIZATION

The White Paper also includes a section that covers the modernization of the PLA, providing an overview of army, navy, air force, and Second Artillery modernization, but it offers little that is genuinely new in the way of details about the PLA’s growing capabilities. Instead, it provides general discussions of the modernization of Chinese ground, air, naval, and nuclear and conventional missile forces. One interesting part of the section on PLA modernization, however, is a brief discussion of advances China has made in modernizing its command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) architecture. According to this part of the White Paper, the PLA has made major strides in its communications infrastructure and related capabilities:

The total length of the national defense optical fiber communication network has increased by a large margin, forming a new generation information transmission network with optical fiber communication as the mainstay and satellite and short-wave communications as assistance.

Significant progress has been made in building information systems for reconnaissance and intelligence, command and control, and battlefield environment awareness. Information systems have been widely applied in logistics and equipment support. A preliminary level has been

achieved in interoperability among command and control systems, combat forces, and support systems, making order transmission, intelligence distribution, command and guidance more efficient and rapid. (p. 11)

MORE ON MOOTW

Prominently featured in the latest White Paper following the discussions of defense policy and PLA modernization is a new section on the “deployment of the armed forces.” This new section covers PLA participation in military operations other than war (MOOTW) activities and it lists several accomplishments, such as Chinese participation in U.N. Peacekeeping Operations, PLA contributions to domestic and international disaster relief efforts, and the PLA Navy’s involvement in counter-piracy patrols in the Gulf of Aden and off of Somalia. This section seems intended to offer an overview of the PLA’s MOOTW accomplishments and highlight the growing international role of the PLA. For example, in the area of peacekeeping, the White Paper reports, “As of December 2010, the PLA had 1,955 officers and men serving in nine U.N. mission areas. China has dispatched more peacekeeping personnel than any other permanent member of the U.N. Security Council.” (p. 18).

China’s naval escort activities are also highlighted as a constructive contribution to international security. The ships China has deployed to conduct escort operations in the Gulf of Aden and waters off Somalia since December 2008 are responsible for “safeguarding the security of Chinese ships and personnel passing through the Gulf of Aden and Somali waters, and the security of ships delivering humanitarian supplies for the World Food Program and other international organizations, and shelter pass-by foreign vessels as much as possible.” As of December 2010, according to the White Paper, the PLA Navy “has provided protection for 3,139 ships sailing under Chinese and foreign flags, rescued 29 ships from pirate attacks, and recovered nine ships released from captivity.” (p. 18)

WHAT’S MISSING

Perhaps as interesting as what is included in the White Paper is the exclusion of several subjects that have figured prominently in recent international media coverage of Chinese military developments. Indeed, some rather high-profile issues—chief among them the test flight of the developmental J-20 stealth fighter that took place during Defense Secretary Robert Gates’ visit to Beijing in January and what seems to be a growing willingness to discuss China’s determination to deploy aircraft carriers—are conspicuous by their absence. China’s defense White Papers generally do not offer many details about specific capabilities, and the potential political and diplomatic sensitivity of topics like China’s aircraft carrier ambitions could be further reasons for avoiding detailed discussions in a document like the defense White Paper.

Perhaps less notable than the carrier but also omitted are any mention of China’s January 2007 anti-satellite (ASAT) test or its January 2010 missile defense test, even though the White Paper reiterates that China opposes the weaponization of outer space and implicitly criticizes U.S. missile defense policies [4]. Nor does the latest White Paper mention other capabilities that have generated a great deal of international media attention since the release of the last White Paper, such as the anti-ship ballistic missile (ASBM) intended to hold U.S. aircraft carriers at risk. In addition, the lack of discussion of China’s evacuation of citizens from Libya would also seem to be a notable omission, especially given the emphasis of the White Paper on China’s participation in activities like disaster relief, peacekeeping, and counter-piracy operations, but it was most likely left out because it happened too recently to be included in the document without delaying its release.

CONCLUSION

In spite of the White Paper’s lack of detail on specific capabilities, it would behoove Western analysts to study the perspectives offered in the biannual assessment. One reason is what the White Paper tells us about changes in Chinese threat perceptions. Beijing still sees a security situation that is favorable on the whole, but its suspicion of U.S. strategic intentions seems to be increasing and it perceives growing challenges related to China’s maritime interests. Another reason to study the latest White Paper is its emphasis on PLA participation in MOOTW, which it portrays as part of an adaptation to the requirements of a changing security environment in which China’s military must be prepared to deal with a variety of traditional and non-traditional security challenges.

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NOTES:

1. China released English and Chinese versions of the document. For the English version, see Information Office of the State Council, *China’s National Defense in 2010*, March 31, 2011, http://news.xinhuanet.com/english2010/china/2011-03/31/c_13806851.htm. For the Chinese version, see Information Office of the State Council, 2010 年中国的国防, March 31, 2011, http://news.xinhuanet.com/politics/2011-03/31/c_121252219.htm. Page numbers are from the PDF on the U.S. National Defense University’s website: http://merln.ndu.edu/whitepapers/China_English2010.pdf.
2. The White Paper charges that the “Taiwan independence” separatist force and its activities are still the biggest obstacle and threat to the peaceful development of cross-Strait relations.” It also criticizes the United States for continuing to sell weapons to Taiwan “in the defiance of the three Sino-US joint communiques,” which it

argues remains a serious impediment to the further development of U.S.-China relations and continues to impair the development of cross-Strait ties.

3. In addition to these more traditional security concerns, another set of problems described in the White Paper centers on non-traditional security challenges. According to the White Paper, the security threats associated with problems such as terrorism, global climate change, nuclear proliferation, information insecurity, natural disasters, public health threats, and transnational crime are growing, and the situation is becoming more complex as “Traditional security concerns blend with non-traditional ones and domestic concerns interact with international security ones, making it hard for traditional security approaches and mechanisms to respond effectively to the various security issues and challenges in the world.”

4. On missile defense, China’s 2010 National Defense White Paper states: “China maintains that the global missile defense program will be detrimental to international strategic balance and stability, will undermine international and regional security, and will have a negative impact on the process of nuclear disarmament. China holds that no state should deploy overseas missile defense systems that have strategic missile defense capabilities or potential, or engage in any such international collaboration.”
