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China's Newly-Deployed WZ-10 Attack Helicopter

In a Fortnight

By Peter Mattis

INFORMATIZATION DRIVES EXPANDED SCOPE OF PUBLIC SECURITY

In a recent interview with the Ministry of Public Security's (MPS) principle newspaper, a municipal police chief stated more than half of the solved cases were resolved because of the integration of technical surveillance data into his public security bureau's operations (*China Police Daily*, March 28). The process of building up these capabilities—known as "public security informatization construction" (*gong'an xinxihua jianshe*)—has been a pillar of MPS modernization since at least 2008, when then-MPS chief and current Politburo member Meng Jianzhu declared it one of the three main objectives (www.mps.gov.cn, September 25, 2008). This interview is one of a growing number of signs that informatization is improving MPS capabilities and boosting the ministry's status just as it has done for the Chinese military.

Informatization of the police force has been a continual theme for the last five years as the MPS faces a number of daunting prospects for maintaining stability. Nationwide trends in urbanization, industrialization, informatization, agricultural modernization, internationalization and rural-urban integration—the so-called "five changes and one integration" (*wuhua yiti*)—present a broad set of challenges for public security and social management (www.cdzfw.gov.cn, March 20). China's

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number of police per unit of population is still relatively low (less than half) compared to developed Western countries, and information technology offers a force multiplier to compensate for the numbers shortfall. Consequently, the MPS across all its echelons has invested in integrated databases that can auto-generate leads and networked video surveillance with software improvements for feature recognition as well as other systems to improve the ministry's exploitation of information. These systems underpin the MPS's guidance to its operational elements to focus on "early subduing" (*yufu*), "manage [unrest] by striking early" (*zao daji chuli*) and "persist in putting detection and warning first; defend and control early" ("China's Adaptive Approach to the Information Counter-Revolution," *China Brief*, June 3, 2011).

In addition to helping police officer do more with less, the tenor of the success stories has started to change along with the inputs to MPS databases that increasingly hold financial, personal and travel data. A municipal police chief in Sichuan noted informatized police operations have moved from investigations toward preemptive warning and providing specific location data for arresting officers. One such example was the use of an economic intelligence tracking system, which tracked financial data, that alerted to the MPS to the possibility of a counterfeiting operation. Due to the automatically-generated lead, the police cracked a crime ring that produced $1.77 million in counterfeit Chinese currency (*China Policy Daily*, March 28).

The informatization program also has been used to meet one of the other three pillars of MPS modernization: improving the relationship between the ministry and the Chinese citizenry (www.mps.gov.cn, September 25, 2008). After a period of experimentation leading to a national police conference in September 2011, the minister of public security endorsed a national microblogging policy as a part of open e-government and developing better communication with the local populace (*China Police Daily*, September 27, 2011; *People's Daily*, September 27, 2011). Although it is easy to be skeptical, the police weibo feeds now are some of the more popular government public outreach efforts to the surprise of many observers.

The few numbers available on the intelligence-related information technology spending suggests this may be one of the explanations for the steady increases in the internal security budget—now 769.1 billion yuan ($124.12 billion)—which has outpaced defense spending since 2010 (*Ming Pao* [Hong Kong], March 11; Xinhua, March 5). According to the police chief of the five million-person Weinan City in Shaanxi Province, the local public security bureau (PSB) has spent 2 hundred million yuan ($32.25 million) since 2003 on technical systems for informatization work. Weinan PSB also has sought cooperation from a local telecommunications company to help manage the city's networked video surveillance system, involving another 60 million yuan ($9.68 million). Elsewhere, Shandong Province's Yantai municipal police spent 2.4 hundred million yuan ($38.7 million) to establish its integrated intelligence center (*China Police Daily*, March 28). Under Bo Xilai from 2007 to 2010, Chongqing reportedly spent $300 million on its intelligence center and contributions to China's "Great Intelligence System" (*daqingbao xitong*), according Chinese newspapers cited by Ho Pin and Huang Wenguang [1].

The boost in capabilities and budget appears to be expanding the MPS's institutional scope and influence, possibly at the expense of the Ministry of State Security (MSS). Prior to last year, references to "public security informatization construction" in official publications, such as the *People's Daily* and the *China Police Daily*, described the objective of this process as "protect[ing] public security and social stability." Last year, however, official newspapers at the national level and owned by the political-legal system started referring to the MPS's informatization process as designed to "protect national security" (*weihu guojia anquan*) (*Legal Daily*, January 21; *People's Daily*, August 29, 2012; *China Police Daily*, July 29, 2012). This seemingly minor rhetorical change masks the distinction in the People's Republic that gives the MPS back a mission against external threats in a domestic context. Many of those functions were given to the MSS when it was created in 1983. Up through the 1990s, especially during the tenure of Jia Chunwang (1984–1998), the MSS seemed to be organization in ascendancy ("Assessing the Foreign Policy Influence of the Ministry of State Security," *China Brief*, January 14, 2011). The MPS's importance for national security seems to complete the power shift that began with Zhou Yongkang as an MPS chief with Politburo standing

There may be an alternative explanation related to the international role played by the MPS in protecting Chinese interests. Whether in pursuit of the drug lord responsible for the murder of Chinese sailors on the Mekong River in October 2011 or assisting law enforcement in Angola and the Congo, the MPS is more overtly active internationally than ever before (*Wen Wei Po*, August 25, 2012; *Beijing News*, May 11, 2012; *Guangming Daily*, October 10, 2011; *South China Morning Post*, January 1, 2011). Given the MSS presence already abroad as well as the People's Liberation Army support for UN peacekeeping operations and the Gulf Aden deployments, the MPS's international work so far seems unremarkable if still novel. The data fusion now available to the MPS nationwide and its ownership of networked surveillance equipment, however, gives it a set of resources that are valuable to counterespionage and other national security operations. The MPS and its local elements may not outstrip MSS capabilities if they are not required to share the fruits of public security informatization.

Overall, the MPS's informatization efforts seem to have had three major consequences: better targeting of police operations to compensate for low numbers, increased budget and expanded organizational scope. Comparing China's police modernization to its military modernization, however, suggests some missing elements, such as the human factor. Two years ago, the MPS vice minister responsible for informatization spoke of a need to develop intelligence specialists and police officers educated sufficiently to exploit the ministry's new technologies (Shangrao Xinwen, April 29). It is not clear that the MPS has made the necessary adjustments to education and training, which have proven critical to the People's Liberation Army's harnessing of the Information Age.

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Notes:

1. Pin Ho and Wenguang Huang, *A Death in the Lucky Holiday Hotel: Murder, Money, and an Epic Power Struggle in China*, New York: Public Affairs Books, 2013, p. 60.

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Xi Jinping the Moralist: Assessing Continuity versus Innovation in Reform

By Kerry Brown

Since assuming leadership of the Chinese Communist Party (CCP), Xi Jinping has spoken most about two themes. The first of these is the issue of corruption and rejuvenating the party's moral mandate to rule. The second is to promote the "China Dream," a vision of the country's internal development and international role. In both cases, Xi has faced challenges about ensuring that neither message be interpreted as criticism of the previous decade of leadership under CCP General Secretary Hu Jintao and Premier Wen Jiabao. In both cases, however, there also have been clear expectations of seeing something fresh in the new leadership. In the last few months, observers have witnessed rhetorical and presentational positioning, but only a few modest concrete signs of practical policy change—e.g. more austerity for Party officials and some government restructuring at the National People's Congress. The question is how to interpret these presentational changes and what real meaning they might have.

Although Xi's anti-corruption rhetoric might seem to be a veiled criticism of Hu and Wen and the ways in which malfeasance by officials increased during their period in power, he is protected by having historic form. It is an issue that, in retrospect, almost figures like a campaign slogan in material he sponsored or wrote before 2007. Writing for the party theoretical magazine *Seeking Truth* while he was in charge of Zhejiang Province, Xi stated "To be an official, you have to serve the people with your heart, not aim to get rich" (*Qiushi*, October 4, 2004). Morality, he had declared in this article, was the basis of politics. Deploying a range of lofty terms like "interest," "good will," "moral benefit" and "trust." He wrote "The basis of development and progress has at its heart moral purpose." That, at least, sets out the philosophical basis.

This abstract language has, since Xi came to power, been translated into something more concrete. Xi seems to be practicing continuity by adopting some of the customs brought in by Hu and the "consensus-led leadership" from the early 2000s. So during a study group meeting

of the Politburo on January 2—a custom started early in the era of Hu Jintao to go with the idea of a "learning Marxist Party"—Xi was reported as saying that "the party should improve reform policies by learning from people's practices and demand that achievements benefit more people in a fairer way" (Xinhua, January, 2; People's Net, December 26, 2002). Adopting another of former-President Hu's innovations, addressing a plenary session of the Central Discipline and Inspection Commission at the start of each year, on January 22, Xi stated "[The party] must have the resolution to fight every corrupt phenomenon, punish every corrupt official and constantly eradicate the soil which breeds corruption" (Xinhua, January 22). At the same meeting, he added "power should be reined in within the cages of regulations."

This language has been backed up by some mapping of symbolic space. Again, however, there are continuities with the Hu period. On the final day of 2012, Xi visited Luotuowan, a village in Fuping County, Hebei. Copying Hu Jintao's visit to Xibaipo in the same province on December 5, 2002, Xi declared the central government would "help the poor." The only difference to his predecessor who had also lambasted corruption and moral failure in the CCP was the more personal register Xi was reported as using: "I am deeply unhappy and sometimes indignant over the cases [in which] funds earmarked for poverty alleviation are intercepted, embezzled or diverted for other purposes." Standing in a province where he had spent formative years of his career in the early 1980s, Xi stated "The reason why I have come here is to see for myself the reality of poverty stricken areas in the country and think about what the Party and government could do next" (*South China Morning Post*, December 31). This differs from Hu's rhetoric, which largely resisted use of the personal pronoun and never referred to any personal experiences or personal position. Instead, in his main set-piece declarations—including the speeches commemorating the 30th anniversary of special economic zones in December 2008 and marking the 60th anniversary of the People's Republic of China—then-President Hu strove to achieve a highly impersonal, "scientific" abstract discourse.

The second theme Xi has used heavily in the last few months boils down to appeals to a national mission for China to reacquire its lost greatness, returning it to its rightful place at the center of the world. Talking to the military in March, Xi had entreated officer of the People's Liberation Army to maintain their total loyalty to the CCP and to contribute to the construction of the "China Dream" (Xinhua, March 12). A day later, he said in more detail what this "dream" might be: "To make the country affluent and strong, the nation prosperous and the people happy…To actualize the Chinese dream we must take the China path." Hu never used the term "China dream" so here the discontinuity is more striking. He did, however, use the term "historic mission," stating to an army meeting in 2005 that "all comrades of the military should correctly understand the situation and resolutely perform the military's historic mission in the new century" (*People's Daily*, March 14, 2005). The "China Dream" as a phrase seems to go a little beyond "historic mission" and, in this sense, the suggestion Xi is more willing to play a nationalist card might have some truth in it.

Symbolism always has been highly important in Chinese politics. The leadership transition over the last few months in China, however, has revealed the fact that the symbolic resources are limited. They either visit Shenzhen to reinforce commitment to Dengist reforms or visit the countryside to show the leadership is at one with the farmers. Either a leader speaks of dreams or of a Chinese renaissance. Xi also has hit upon the quandary of how to connect the Maoist past—about which there is still so much soul searching—and the post-1979 era as well as both eras' clear contrasts with statements that "without Mao there would be no new China" (Xinhua, March 17). In some ways, the process by which the leadership transition has happened shows that continuity trumps other considerations and that the sort of space to mobilize and introduce new policies within this consensus-driven machine is highly limited.

The only ways in which one can detect a Xi-ist manifesto for public mobilization and policy innovation are in three challenges set out in March. These challenges were to turn the people's aspirations for a wonderful life into concrete measures and administer the country properly; to continue to promote reform; to help the CCP supervise itself and guard against corruption (Xinhua, March 17). All of these were geared toward creating "a moderately prosperous country in all respects"—another objective carried over from Hu and Wen. All of these objectives have their roots in measures already

supported in the previous decade. They can be found in the administrative reform agenda set out by Hu Jintao in his 17th Party Congress speech in 2007, the support for continuing reform in his speech in Shenzhen in 2008, and the intra-party democracy measures from 2005. So far, the only specific measures, however, have been gestural. For example, Xi has cut down on official entertainment; although this measure only continues the cut down on official international travel that was brought in after 2008. The National People's Congress also saw some reforms of government ministries, with the rail ministry finally subsumed into a transportation super-ministry. Again, however, slimming down the central bureaucracy has been standard practice since Zhu Rongji's premiership in the 1990s.

Xi also declared "We must start with specific things and ensure their implementation," talking of the need to reject extravagance, formalism and bureaucratism (Xinhua, March 17). On the core reform issues set out in the World Bank and Development Reform Commission *China 2030* report released last year, however, there has been no sense of where this leadership stands. The leadership remains silent on the issues of support for private business, tax reform, ideas about liberalizing the renminbi and China's capital account, and a sense of how to achieve greater popular participation in decision making by strengthening the role of the national and local congresses. One could argue that, so far, at best, they have created the atmosphere for thinking about another set of reforms. The language about attacking corruption, for instance, implies that some of the vested interest and inequality around state-owned enterprises might be in the offing. Beyond this, however, there has been nothing dramatic.

This cautiousness and reticence from the CCP elite is something to which observers should have become accustomed. The crisis at the end of the Cultural Revolution—both in the legitimacy of the party and of the ruling elite after their wholesale humiliation under Mao—meant in many ways that change was forced and became the guiding impetus behind Deng Xiaoping's reforms from 1978, even though these were linked to statements and ideas articulated earlier in CCP history. That life-and-death moment was duplicated in 1989, though the uprising only reinforced for the ruling elite that they needed to continue with the market reforms rather than end them. No major crisis exists now, but rather a sense of complacency and hesitancy. Discussions of different kinds of reforms have been ongoing over the last decade, but the Hu and Wen period was bereft of anything bold like the Zhu Rongji- and Jiang Zemin-led attack on state-owned enterprises in the late 1990s or expulsion of the military from commercial operations. Hu and Wen's historic legacy probably will be more about their preventing any major disasters rather than embarking on a major positive reform. Xi and his premier, Li Keqiang, sound like they want to be more ambitious than this.

The dislike of mass mobilization and charismatic-led politics was articulated well by Wen Jiabao in 2012 at the National People's Congress when he talked disdainfully of the Cultural Revolution. It was also something that lurked behind the political attack on Bo Xilai ("Beijing Post-Bo Xilai Loyalty Drive Could Blunt Calls for Reform," *China Brief*, March 30, 2012). Even so, more effort on public communication and reaching out to the people has been a theme of Xi's since he stepped out from behind the red curtain at the 18th Party Congress as general secretary in November last year. The most one can say about his performance is that he cautiously has set out the rhetorical space for more mobilization over the last few months. On the final day of 2012, propaganda overlord Liu Yunshan stated the key challenge was "whether a party can maintain its flesh and blood ties with the people directly" (Xinhua, December 31, 2012). Xi has picked themes in a sort of retrospective election campaign to get the support of broad constituencies in China—corruption and fulfilling national greatness. In a sort of eerie reflection of democratic electoral politics, having campaigned in poetry, Xi now has to govern in prose. The objectives set out in last year's *China 2030* report—which after all was approved right up to the level of the new Premier Li Keqiang—clearly and unambiguously articulate the sort of issues that Xi's prose now needs to address. Xi has shown in the last few months that, in a political culture so constrained and hedged in with different constituencies, power blocs, networks and factions, the one card he might have in his hand is mobilization through better public communication. To really capture an increasingly cynical public's imagination, there will have to be bold moves that have real policy impact and go beyond the language of inspiration. Xi, however, seems unlikely to reach this point for a number of years, and the evidence of his

relatively shallow links with intellectual communities or policy innovators with real experience only reinforces this sense ("All the General Secretary's Men," *China Brief*, February 15).

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Beijing Builds its Eurasian Transportation Network

By Richard Weitz

China continues to make progress in building its Eurasian transportation networks with the aim of deepening its economic ties in Central and South Asia as well as providing a foundation for its regional security interests. Gwadar, a port town in western Pakistan close to Iran , looks to be a focal point for Chinese investment. On February 18, 2013, the previous operator, the Port of Singapore Authority (PSA), sold its shares to the state-run China Overseas Port Holding Company (COPHC), citing regional violence as making the port commercially unviable (*South China Morning Post*, August 8, 2012). Nonetheless, the Chinese government plans to connect its western provinces with Gwadar by rail, road and pipeline, which could also enable China to import energy products from Iran by land. The port transfer is however causing alarm. Chinese and Pakistani officials have downplayed the significance of the commercial transfer, but India and other regional actors suspect China will eventually use the facility in part to support its power projection activities in the Indian Ocean.

Meanwhile, China continues to expand the Karakoram Highway that links Pakistan to China's westernmost province, Xinjiang. In addition, China and Iran are building a connecting railway and are helping Pakistan construct an energy pipeline that will link all three countries. This massive transportation infrastructure network of railway, highway and maritime shipping routes—which extends through Central Asia, the Indian Ocean, and other regions—will enhance economic ties between China and its western neighbors and provide the foundation for future Chinese strategic options in Eurasia and South Asia.

Gwadar Port

Pakistan always has been an important partner in China's efforts to construct a "New Silk Road" through Eurasia. Chinese enterprises have contributed investment capital, technology, and labor to support Pakistan's transportation infrastructure, including the construction of Gwadar. A warm-water, deep sea port, Gwadar could serve as a major trading hub. Strategically, it could serve as a means of allowing energy supplies from the Persian Gulf to go overland through Pakistan rather than by sea through the Straits of Malacca, circumventing any naval blockade or other interruption in maritime traffic between the Persian Gulf and China. A direct transportation corridor between Gwadar and Xinjiang also could boost the economy of that troubled province, which has a large population of Muslim minorities like the Uighurs.

Chinese media stresses that a greater Chinese role in Gwadar is a "win-win" outcome for Islamabad as well as Beijing (Xinhua, February 28). Pakistan could benefit significantly from the new Chinese management. Currently, Gwadar is underused due to its undeveloped supporting roads and infrastructure (*Dawn* [Pakistan], February 19). With the improved management and more investment expected from China, which already has financed a coastal highway between Gwadar and other Pakistani ports, Chinese analysts note Gwadar could more easily become a major regional commercial center. Importantly, this would generate revenue for Islamabad and jobs and commerce for Pakistan's alienated Baluch minority, which has spawned insurgent movements (*China Daily*, February 1).

The port could be the beginning of a southern route for a new "Silk Road" through which China can more easily exchange goods with Central Asia and the Middle East. During a recent visit to China, Pakistan's Railways Minister Haji Ghulam Ahmed Bilour agreed with his then-counterpart Liu Zhijun to establish a consortium to build a 750-kilometer railway linking the two countries, from Havellian to the 4,730-meter-high Khunjerab Pass in Gilgit-Baltistan. The two countries are cooperating in modernizing existing Pakistan railway tracks to meet international standards (Asia Times, September 11, 2009). Next steps would entail extending the rail network

to connect Iran, Central Asia, and Afghanistan, where Chinese companies have begun developing the country's mineral resources.

Beyond Gwadar

Chinese assistance also has helped construct, maintain and modernize the Karakoram Highway—the main road between Pakistan and China. In addition, Chinese firms have made substantial investments in Pakistan's defense industry, energy, engineering, information technology, mining, telecommunications as well as banking, transportation and other infrastructure sectors (*Observer* [Pakistan], May 15, 2011). Thousands of Chinese nationals—engineers, advisors, laborers and others—work in Pakistan. China particularly favors high-profile mega projects that boost China's popularity in Pakistan. In addition to Karakorum Highway and Gwadar Port, these projects include the Taxila Heavy Mechanical Complex, Chashma Nuclear Power Plant (including another reactor deal just announced last month), Jinnah Sports Stadium and the Pakistan-China Friendship Centre. China's focus on road construction, electric power generation, telecommunications and other infrastructure development reflects Beijing's goal of using Pakistan as a key conduit linking China with Central Asia and the Middle East ("Thunder in Sino-Pakistani Relations," *China Brief*, March 2, 2006).

Pakistan is potentially a natural energy corridor since it is located between China and Iran's oil, depending on its stability. Iran and China are helping Pakistan construct a 785-kilometer pipeline to transport 21.5 million cubic meters of high-pressured gas a day from Iran to an area near Gwadar. Iran has already promised to provide Pakistan with all the financial and technical assistance, including equipment and compressors, needed for the pipeline The estimated cost of the project on the Pakistani side is comes to $1.2 billion (Press TV, June 10, 2012). Once railways, roads, or other pipelines are built to connect Gwadar to China directly, China can import Iranian oil more cheaply and safely than through the Persian Gulf and the Strait of Malacca, through which more than 80 percent of China's imported oil passes (*Global Times*, February 19). These supplies must reach China by passing through the Indian Ocean and the Strait of Hormuz, leaving them vulnerable in a crisis.

Strategic Options

Thus far, Chinese representatives have insisted they are motivated by commercial considerations in their investments in Pakistan. Foreign Ministry spokesman Hong Lei said many Chinese enterprises have long been active in Pakistan's economy and that the increased Sino-Pakistani economic cooperation would help bolster regional stability and development (Xinhua, February 19). Chinese and Pakistani officials have insisted that other countries have no reason to worry about the ownership transfer and that China does not plan to establish a military facility at the port (*China Daily*, February 19; *Dawn*, February 19). For example, they deny they will construct a major military base at the Port. They also criticize "'oversensitive' India and the West, arguing that China neither wants to nor needs to 'detour' to the Indian Ocean to curb India" (*People's Daily Online*, February 20). At the same time, however, Chinese writers complicate perceptions of China's intentions by citing energy security considerations for wanting to strengthen China's maritime presence in the Indian Ocean. The Chinese media note that more than two-thirds of the world's petroleum trade traverses the Indian Ocean, on its way from the Middle East to the Pacific Ocean passing through the Gulfs of Aden, Oman, Bab el Mandeb as well as the Straits of Hormuz and Malacca (*Global Times*, February 19).

Indian Defense Minister A. K. Antony said that China's assuming control of the port's management was "a matter of concern" (*South China Morning Post*, February 19). The port's location would allow a Chinese People's Liberation Army (PLA) presence to monitor Indian naval activities and have the potential to enhance China's military power projection capabilities in the region. Indian analysts believe that the PLA Navy (PLAN) eventually might use Gwadar as a logistics and support base, and perhaps even for home porting submarines and other ships, to support a PLAN presence in the Indian Ocean (*South China Morning Post*, June 3, 2011). Indian officials also have considered the continuing enhancement of the Karakoram Highway as another security problem since means China could use the conduit to transport heavy military equipment more easily to Pakistan in a crisis (*Der Spiegel*, July 17, 2012). More generally, some foreign analysts see China as constructing a "String of Pearls" or Chinese-funded ports spanning China's sea lanes of communication from the Middle East. The perceived

aim is to build a network of commercial transportation facilities and economic-political ties in the region that encircle India. The PLA also might be able to use these facilities to support operations in the Indian Ocean, the Middle East, eastern Africa and perhaps elsewhere (Energy Tribune, March 5; IDSA, June 8, 2010).

Commenting on such speculation, Chinese Ministry of National Defense spokesman Senior Colonel Geng Yansheng said "The so-called 'string of pearls strategy' is totally groundless" (China Military Online, March 4). Yet, even Chinese scholars note that Gwadar will bolster China's naval presence in the region. Zhao Gancheng, researcher with Shanghai Institute of International Studies, said Gwadar could help Chinese fleets in the Indian Ocean make international waterways more secure, while Pei Yuanying, China's former ambassador to India, said that the port could become a logistics support base for the Chinese fleet when it sails to the Suez Canal, the Mediterranean and the Gulf of Aden (People's Daily Online, February 20). Furthermore, China's transportation development program in Pakistan clearly helps Beijing gain strategic leverage over New Delhi by increasing China's economic presence in peacetime and by the enhancing Beijing's ability to project power in wartime (*Observer India*, March 4, 2010). Pakistan's navy also intends eventually to use Gwadar port, which would hinders India's ability to sever Pakistan's maritime communications while alleviating the traffic congestion currently affecting Pakistan's other two large ports (*China Daily*, April 26, 2012). Gwadar is less vulnerable to Indian interdiction than the Karachi and Bin Qasim ports, due to its being more than 450 kilometers away from Indian territory.

China did refuse an earlier, explicit request from Pakistan to construct to establish a naval base at Gwadar. After Prime Minister Syed Yusuf Raza Gilani's returned from a four-day official visit to China in May 2011, Defense Minister Chaudhary Ahmed Mukhtar told the press that during the visit, "We have asked our Chinese brothers to please build a naval base at Gwadar" (Asia Times, October 26, 2011). Chinese representatives prudently declined at the time to establish a permanent naval facility, which would have been its first overseas military base and only would alarm India, the United States and other countries further. Hu Shisheng of the China Institutes of Contemporary International Relations explained China had to "strike a balance between [its] needs and what other countries in the region think. A rash decision is only going to backfire and negate the benefits a permanent base might bring" (*South China Morning Post*, June 3, 2011). Hu's comments and others like them as well as the recent moves suggest that Beijing may be rethinking sixty-odd years of official policy claiming China would never establish overseas bases.

Iranian Connections

Western concerns about a Chinese coastal presence are accentuated by Iranian media reports that Iran will construct a naval base on its territory near Gwadar to provide security for the eastern portion of its coast. China is now the largest single buyer of Iranian oil (*Indian Express*, February 18; Bloomberg, February 18). Furthermore, China has been trying to integrate Iran better into its own transportation networks through Pakistan to speed the delivery of oil and other goods to China, ideally on inland ground routes less susceptible to maritime interdiction that also would be faster and cheaper than shipping cargo by sea. To this end, in February 2013, China's State Council approved helping Iran construct a high-speed railway, estimated to cost at least $1 billion, and other reports suggest a possible extension that would add a direct rail line to Xinjiang (Bloomberg, February 18; Registan.net, July 26, 2012).

China and Iran previously have signed several railway deals. In February 2011, China agreed to help Iran's state-run Construction and Development of Transportation Infrastructure Company with financing and technology transfers. The contract, estimated at 80.5 billion yuan ($13 billion), aimed to construct eight railway lines within Iran itself spanning over 5300 kilometers (*Sydney Morning Herald*, February 9, 2011). In September 2010, China's then-Minister of Railways Liu Zhijun signed an agreement to build 580 kilometers of railway tracks running from Tehran through Hamadan, Malayer and Kermanshah to the Iraqi border town of Khosravi with an additional link from Arak to Malayer. This particular network eventually might offer onward connections via Iraq to the Syrian port of Latakia, giving China overland access to Europe and the Mediterranean (*Railway Gazette*, September 21, 2010). Events in Syria, however, may put into question any plans to develop this extension.

Conclusion

The same obstacles that hamper this nascent trans-Asian network have confounded other efforts to establish a trans-Eurasian rail network: the different rail gauges used by the countries; the need for transit permits and efficient customs procedures; and the unstable politics in Central Asia and Iran. A continuing lack of security means there would likely be lengthy delays at border crossings and customs posts the countries feared terrorist infiltration or the smuggling of narcotics and other contraband. The entire region is presently fraught with conflicts. Trains, pipelines, and other transportation networks would be exposed to danger in Afghanistan, Baluchistan, Kashmir, Xinjiang and other places. With a Chinese enterprise taking over the port, more Chinese citizens will likely be killed or kept hostage, especially if the locals see the Chinese presence as a form of foreign occupation in collusion with Islamabad. China increasingly has encountered these security viabilities as its global presence has grown, especially in the world's hotspots. Nonetheless, the Chinese government has shown a willingness to accept short-term commercial risks in Iraq, Venezuela and elsewhere in return for potentially greater long-term economic and geopolitical gains ("Equity Oil and Political Risk," *China Brief*, February 1; "Assessing China's Response Options to Kidnappings Abroad," *China Brief*, May 11, 2012).

Finally, pending resolution of the Iranian nuclear issue, the United States and other Western countries would try to block any international financing of projects that benefit Iran. Yet, the Western sanctions against Tehran, while essential and justifiable in themselves, have strengthened China-Iran commercial relations by denying Iranians alternative economic partner. Not only do the sanctions help Chinese companies by depriving them of competitors, but Chinese negotiators have exploited Iran's position to demand better terms such as lower oil prices. The sanctions also promote the development of rail and other routes between the two countries as well as other joint infrastructure projects. Instead of running afoul of international banking sanctions, China can pay for its oil and other Iranian imports by financing major transportation and other infrastructure projects, helping both countries evade the economic sanctions against Iran while also advancing Beijing's regional economic goals.

Over time, China's infrastructure investments in South Asia and Iran will consolidate Beijing's dominant economic position in Eurasia and lay the groundwork for a greater PLAN presence in the Persian Gulf and Indian Ocean. The port in Gwadar, the Karakoram Highway, and the proposed rail and pipeline links simultaneously advance both these interests. Among other benefits, these projects will help align Iran and Pakistan together to Beijing's benefit.

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Counting Z's: The Gradual Expansion of China's Helicopter Force

By Peter Wood and Cristina Garafola

While much attention has been given to Chinese development of fixed-wing aircraft like the J-20 and J-31, relatively little has been devoted to China's helicopter development. On March 16, 2013, a CCTV television news segment featured a squadron of Z-10 helicopters in Jinan Military Region (MR), marking the fifth squadron of China's primary attack helicopter observed in public and the fourth squadron to appear since October of last year [1]. The other four squadrons are based out of Nanjing, Beijing, Guangdong and Shenyang MRs (*Jane's Sentinel Security Assessment*, April 10, 2012). The Z-10 has been flying since at least 2003 and was revealed to the public in 2004 (*International Defense Review*, September 13, 2007). Now being deployed to units, the Z-10 is an indicator that China is making more significant progress in terms of aerospace development than it is generally given credit for.

The arrival of the Z-10 and the smaller Z-19 scout helicopter are important because they represent the culmination of a much longer process of technical and doctrinal development. With a large acquisition project that gained China aircraft from all over the world, including not only Soviet and French designs but also

U.S. Blackhawk helicopters, China clearly recognized the benefit of helicopters. This is not surprising given the employment of helicopters in combat was pioneered in both the Korean and Vietnam Wars, two wars in which China participated. The astounding performance of the Apache attack helicopter during the Persian Gulf War—a conflict intensely studied by China's military—provided further impetus for China's development programs [2]. In fact, helicopters have been compared favorably to tanks in terms of overall speed, mobility over terrain and firepower, strengthening the argument for more investment over tanks, armored vehicles and ground troops (*PLA Daily*, July 9, 2003). For the ground forces, the next logical step beyond acquiring modern main battle tanks and mechanized infantry forces is a large contingent of helicopters for transport, scouting and attack.

Though China's helicopters cannot compare to the thousands used by the U.S. military, the PLA now has a not-insignificant force. The 2013 issue of *The Military Balance* gives a total of 914, even though only non-authoritative estimates currently are available for the total numbers of Z-10 and Z-19 attack helicopters. Still, this suggests, despite the lack of an authoritative number, a significant increase from the 500 helicopters listed during rescue operations in the wake of the 2008 Wenchuan earthquake (*China Daily*, July 5, 2008). According to data from the Stockholm International Peace Institute, between 1977 and 2012, Chinese imports from the USSR (and later Russia), France and the United States comprised 477 helicopters of various makes. Although China's official media maintains that all of the Z class helicopters are produced indigenously, it has continued to purchase Russian transport helicopters and manufacture Z-8 and Z-9 aircraft based on French designs (*Global Times*, July 25, 2012). At the same time, China's civilian helicopter market also is growing, which, given the dual use capability of several platforms such as the Z-9 and Z-11, would improve China's overall ability t

While helicopters were integrated into PLA Air Force (PLAAF) units by the late 1950s, the turmoil of the 1960s and 1970s pushed back China's military development. Even in 1973 during the Cultural Revolution, however, China made deals to begin acquiring Western transport helicopters [3]. Beginning in the mid-1980s, the Chinese military was quick to prioritize helicopters as an area of investment and purchased French Dauphin IIs, Super Frelons and U.S. Blackhawk helicopters. In 1986, a decision was made to shift most non-transport helicopters from the PLAAF to the ground forces to form a distinct branch (*bing zhong*), Army Aviation (PLAA). By 1999, China had acquired several types of Western-designed helicopters and set up the Army Aviation Academy to train pilots. Especially given that Chinese strategy focuses on deploying internally ("along internal lines") or to border regions, rather than projecting power far afield, helicopters provide key advantages. China's mountainous terrain, sprawling urban areas and undeveloped borderlands are all more easily accessed by helicopters than other platforms. Close Air Support (CAS) is another important area where helicopters could make up for a serious deficiency. China's military lacks platforms analogous to the A-10 Thunderbolt or AC-130 Specter gunships that have significant loiter capability and can provide timely air support. Attack helicopters are an effective fix for this issue without the need for expensive platforms that would not easily fit into other roles. The Z-10, unlike the civilian-based Z-9, is purpose built for such missions. The Z-19, a scout helicopter, also will serve an important function, moving ahead of mechanized units to provide intelligence about enemy movements.

In the short term while these more specialized roles are tested, transport helicopters provide a tremendous advantage for the rapid deployment of troops to areas far from airfields or which would be dangerous for China's fledgling paratroop force to drop into. As the response to the Sichuan earthquake demonstrated, the Chinese military face challenges deploying large transport aircraft in areas close to large population centers, such as Chengdu, the center of the Chengdu Military Region. The PLAA played a crucial role in transporting relief workers to destroyed areas as helicopter units were brought in from far afield. For example, the elite Fourth Aviation Regiment based in Tongzhou, Beijing, was deployed to Sichuan to aid in rescue operations (*PLA Daily*, July 25, 2012). The same regiment has participated in a wide variety of military exercises and helped provide security for the Olympics.

Though a majority of China's helicopters are concentrated within the PLAA, the PLA Navy (PLAN) has been expanding their use as well. Beyond China's borders and out at sea, helicopters fill a major gap not only in search and rescue (SAR) missions, but also in the area of anti-

submarine warfare (ASW) and resupply. Unsurprisingly, China has outfitted several ships with helipads for this purpose, though an increasing number of deployments both abroad in the Gulf of Aden and closer to home are placing strains on current capabilities ("Problems and Prospects for China's Ship-Based Aviation Program," *China Brief*, January 6, 2012; "Beijing Confronts Long-Standing Weakness in Anti-Submarine Warfare," *China Brief*, July 29, 2011). Helicopters provide significant advantages to bolstering China's troop transport capabilities in terms of rapid deployment not only within the mainland, but also for deployment to China's contested border areas and maritime zones. A recent amphibious assault exercise on a small islet in the South China Sea with China's marines was conspicuous for the use of helicopter transport and firepower. Z-8 transport helicopters augmented assault craft and were accompanied by Z-9s providing support fire (*People's Daily Online*, March 26). While the PLAN has made use of these Z variants, the Z-8 is too large for most PLAN vessels and the Z-9 too light to be effective for many naval missions, such as ASW. Given the limitations of China's helicopter-capable ships and the Z-8 and Z-9s themselves, observers reasonably can expect new indigenously-produced helicopter variants that better fit the PLAN's needs.

Helicopter Roles and Missions

Official documents show a rapid expansion in the set of roles designated for helicopters. First mentioned in the Chinese Defense White Paper series in 2002, helicopters were noted in conjunction with an explanation of the Army Aviation Corps, with a passing reference to support for ground operations. In 2006, about the time that the Z-9 was coming to the end of its development in a light attack role, helicopters were described in having a much more expanded role: "Equipped mainly with armed helicopters, transport helicopters and service helicopters, [the Army aviation arm] carries out air strike, air landing, airlifting and battlefield service support operations. The Army aviation arm works to strengthen its capabilities of rapid power projection, precision strike, long-range assault and support" (*China's National Defense in 2006*). In the same paper, the PLA Navy for the first time emphasized integrated maritime support. The two most recent papers denote significant changes in tone. The white paper in 2008 marked a decisive shift from a transportation focus to close air support and air mobility:

> "In recent years it has been working to shift from being a support force focusing on transportation missions to being an integrated combat force focusing on air assault missions; it has stepped up training in fire assault, aircraft-borne operations, air mobility and air service support; and actively participated in counter-terrorism, stability maintenance, border closure and control, emergency rescue, disaster relief and joint exercises" (*China's National Defense in 2008*).

By 2010, with the development of the Z-10 well known and a degree of operational capability already reached, the defense paper of that year took a much more assertive tone in describing the role of the Army's Aviation branch:

> "The PLA aviation wing has worked to move from being a support force to being a main-battle assault force, further optimized its combat force structure, and conducted modularized grouping according to different tasks. It has upgraded armed helicopters, transport and service helicopters, and significantly improved its capabilities in air strike, force projection, and support" (*China's National Defense in 2010*).

The Science of Campaigns, an important expression of China's attitude toward a number of strategic and tactical situations, emphasizes the utility of helicopters in providing accurate fire and high-speed mobility (p. 174). In several ways, helicopters represent the next step in the development process already begun in the 1990s, with official emphasis on mechanization (*jixiehua*) and informatization (*xinxihua*). Networked helicopters acting as scouts are an area in which helicopters are able to help Army units achieve their goal of informatization. The Z-10 in particular has advanced capabilities and sensors that required the development of an entire new set of controls and helmets (*PLA Daily*, January 17). While still lagging behind the United States in terms of targeting-information sharing and networking, the PLA has made important advances in systems integration and has developed the necessary framework for additional advancement. It has and continues to expand its logistical

Major Helicopter Types			
Type	*Role*	*Date of Acquisition*	*Approximate Number Active*
Mi-17/171	Transport, light attack, SAR	1990	250+
Ka-28	ASW/SAR Electronic Warfare	1997, 1999, 2010	PLAN: 28
Z-8	Transport	1977	PLAA: 17 (7 SA321 Super Frelon; 10 Z-8) PLANAF: 1 Regiment (~40) Z-8 and Z-8/JH/S PLAAF: 18+ SA321
Z-9	Transport/Light Attack/ ASW	1980	PLAA: 306 (80 Z-9/9B; 200 Z-9 WA; 26 Z-9W)
Z-10	Attack	2006	PLAA: 30 (est.)
Z-11	Light Attack/Transport	1992	75+
Z-15	Transport/Light Attack/ ASW	2006	Not Known
Z-16	Attack	Under Development	--
Z-19	Attack/Escort	Prior to 2010	PLAA: 12 (est.)
Sources: IHS Jane's; *The IISS Military Balance 2013*; SIPRI Arms Transfer Database; and SinoDefence.com.			

Major Chinese Helicopter Units and Bases

Unit	*Location*	*Military Region (MR)*	*Notes*
4th PLAA Regiment	Tongzhou, Beijing	Beijing MR	Elite unit that has participated in earthquake rescue operations, anti-terror exercises and the 2009 Beijing Military Parade (*PLA Daily*, July 25, 2012)
8th PLAA Group	Baoding, Hebei	Beijing MR	
9th PLAA Regiment	Shenyang, Liaoning	Shenyang MR	
5th PLAA Regiment	Nanjing, Jiangsu	Nanjing MR	First Z-10 unit (*PLA Daily*, January 17, 2013)
10th PLAA Regiment	Xiamen, Fujian	Nanjing MR	
2nd Aviation Regiment	Chengdu, Sichuan	Chengdu MR	
Training Unit	Yibin, Sichuan	Chengdu MR	
6th PLAA Regiment	Foshan, Guangdong	Guangzhou MR	
Training Unit	Xi'an, Shaanxi	Lanzhou MR	
3rd PLAA Regiment	Urumqi, Xinjiang	Lanzhou MR	
7th Army Aviation	Liaocheng, Shandong	Jinan MR	
1st Army Aviation	Xingxiang, Henan	Jinan MR	

Sources: IHS Jane's; *The IISS Military Balance 2013*; *PLA Daily*; and Dennis Blasko, *The Chinese Army Today: Tradition and Transformation for the 21st Century*, 2nd ed., New York: Routledge, 2012.

capability with more transport helicopters. Attack, ASW, scout and other specialized units represent the next step in capabilities building.

Acquisition and Development

In a country that has largely relied on Soviet/Russian technology for its weapons systems, the development of China's helicopters raises the question of why China bought predominantly French designs and moved towards a more Western-style employment of transport, scout and attack aircrafts rather than the previous Soviet doctrine of relying on one or two designs such as the Mi-24 Hind. The Mi-24 Hind was a heavily-armored and -armed helicopter that also could hold up to eight soldiers in addition to a crew of two pilots and an engineer. Mi-24 airframes can be found scattered all over China, so the issue is preference rather than access. China, however, has not given up on Russian designs entirely. Demand for transport helicopters has outstripped supply and since the 1990s China has purchased over 240 Russian Mi-171 series transport helicopters. In the mid-2000s, it bought several Russian specialty helicopters, like the Ka-27 export variants for electronic warfare and ASW, where domestically-produced helicopters proved inadequate.

Beginning in the late 1970s and early 1980s, China chose to purchase helicopters directly from France, later licensing the Z-8 and Z-9 for production in China. From there, China has developed a whole constellation of new airframes, including the Z-10 attack helicopter and Z-19 light escort attack helicopter. Certain design features of the Z-10 and Z-19, such as a tandem cockpit configuration, have led some analysts to conclude that China is copying an Apache AH-64A/D attack helicopter. Certainly, the AH-64 has captured the imagination of the PLA and is mentioned in almost every article relating to helicopters in Chinese media. While the Z-10 (and, if true, presumably the Z-19) reportedly received design assistance from Russia, the PLA's efforts to developing a wide range of helicopters via indigenous designs and expertise have produced significant results so far (*Aviation Week*, March 7, 2013). The Z-10 and Z-19 show a clear progression from the Z-9, a repurposed civilian craft, to purpose-built helicopters for military use.

This points to a Chinese helicopter doctrine that promotes a more specialized approach, where several types of airframes each have a specific task and work in conjunction with other airframes. Choosing this development path also indicates that helicopters are an area that has been singled out for expansion and thus do not have to cut corners by only concentrating on one or two airframes. Importantly, this shows a willingness to take on the added risk of more complicated logistical chains associated with adopting a variety of equipment that does not share parts.

Specialization also follows a general trend within the PLA. The Chinese military prefers to delineate employment of military equipment on the basis of service. With few exceptions, rockets belong to the 2nd Artillery, aircraft to the PLA Air Force and tanks to the land forces. Helicopters cut across this segregation by provided needed transport, scouting and attack capabilities to the navy, army and air force. Reflecting their specialized roles, it seems clear that the Z-10 and Z-19 will be the sole province of the ground force's aviation arm.

Conclusion

China continues to progress through a systematic development strategy for its helicopter force. Practical demands have dictated that transport helicopters remain a focus of acquisition and building programs involving foreign sources. Concurrently, however, these platforms are used to experiment with light support and non-traditional roles such as ASW, in turn paving the way for more specialized attack and scout helicopters produced almost entirely themselves. Reflecting this seemingly turgid pace of development, U.S. official documents have thus far mostly focused on China's helicopters as a sub-component of China's carrier operations rather than viewing them as a potentially independent threat or force multiplier. The PLA's four decades of investment in building its transport and attack forces as well as its consistent and assertive procurement strategy have resulted in a broader, stronger and more nuanced range of capabilities. While not attracting as much attention as programs like China's aircraft carrier or stealth fighters, in terms of firepower and capabilities, China's helicopters already are augmenting the PLA's warfighting capabilities.

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Notes:

1. WZ stands for "wuzhuang" or armed, while Z stands for "zhi" or "zhishengji," helicopter. In Chinese usage both appear, but the Z designation is more common as some airframes are not armed and will be used here.
2. Roger Cliff, John F. Fei, Jeff Hagen, Elizabeth Hague, Eric Heginbotham and John Stillion, "Shaking the Heavens and Splitting the Earth: Chinese Air Force Employment Concepts in the 21st Century," Santa Monica, CA: RAND Corporation, 2011, p. 40, available online <http://www.rand.org/pubs/monographs/MG915.html>.
3. Stockholm International Peace Research Institute Arms Transfer Database, available online <http://www.sipri.org/databases/armstransfers>.

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System of System Operational Capability: Impact on PLA Transformation

By Kevin N. McCauley

Several recent People's Liberation Army (PLA) publications discuss requirements for implementing system of systems operations, which is considered the key enabler for integrated joint operations (IJO). The requirements are both broad and deep, indicating that these two theoretical developments are driving many of the changes that are part of the PLA's transformational efforts. While both of these areas—system of systems and IJO—remain largely aspirational, they are critical to generating greater combat effectiveness and operational capabilities in the future. This article examines reform to training, exercises and education; modernization and integration of information systems; and streamlining and modernization of the force structure to support development of system of systems operations and modernization of key operational elements ("System of Systems Operational Capability: Operational Units and Elements," *China Brief*, March 15; "System of Systems Operational Capability: Key Supporting Concepts For Future Joint Operations," *China Brief*, October 5, 2012). Many of the modernization and restructuring efforts already are evident, such as reorganizations within the General Staff Department (GSD) to create lead agencies for joint training and information technology modernization, while some are not.

A National Defense University (NDU) publication notes that equipment modernization is not the main impediment to the PLA's transformational efforts. The main constraints are the needs to cultivate quality personnel, eliminate parochial interests of the services and institutional conflicts. While the PLA is working to increase personnel with joint operations and high-tech capabilities, proposed solutions to institutional problems appear limited [1].

Exercises, Training and Education

System of systems and joint operations theories are changing operational patterns and methods, which in turn are leading to new educational and training requirements to address the lack of personnel with high-tech and joint operations experience; to train units on integrated information systems to promote the establishment of operational system of systems; and to move toward greater testing and demonstrations in exercises to advance theoretical concepts. Cultivating skilled personnel—especially joint commanders and staff—is viewed as critical to this effort, as highlighted by the PLA in the recent National People's Congress (NPC) (*PLA Daily*, March 12; China Military Online, March 1; March 8). Interestingly, the PLA also cites the problem of limited funding for training, leading to the search for more effective and efficient training methods to save money, material, manpower and time (*SOSOC 100 Questions*, p. 226).

The creation of the Military Training Department of the GSD in December 2011—which was formed from the Military Training and Arms Department—appears to have been in response to a recommendation to establish an authoritative lead training agency for management, decision making, and greater standardization across the PLA. This lead agency also is tasked to oversee and direct joint training in a more scientific and rational manner, focusing on the strategic and operational levels; and establish a standardized training system and regime to improve training coordination, support and evaluation system (*ISBSOSOS* pp. 344–347; *SOSOC 100 Questions*, pp. 225–226, 232; *PLA Daily*, December 22, 2011).

Recent press reporting has highlighted the need to conduct realistic combat training and strengthen the psychological and physical toughness of troops to meet the demands of future combat operations. The PLA is concerned with the lengthy process to convert from peacetime to wartime status in response to a sudden crisis. Training based on realistic combat conditions will better prepare troops psychologically, maintain a higher level of combat preparation, and shorten the time for units to convert to wartime readiness levels. A recommendation to establish theater joint commands in peacetime is part of this requirement to prepare for a sudden conflict (*SOSOC 100 Questions* pp. 218, 230).

Integrated Joint Training

The PLA views integrated joint training as an advanced training method to achieve an integrated joint operations capability. This type of training will assist in forming system of systems capabilities through the vertical and lateral integration of operational elements, units and systems between branches and services in order to generate greater combat effectiveness and win an informationized war. Integrated joint training requirements include the following:

- Command information system linking informationized equipment training to further the integration of weapons, equipment, and units;
- Training focused on theater combat missions such as joint fire strikes, large-scale amphibious landing operations, or isolating near-shore islands;
- Integration of key operational elements, particularly intelligence, command and control, joint strike, full-dimensional protection and comprehensive support that are viewed by the PLA as critical to the implementation of IJO;
- High-level direction to prioritize training objectives, system demonstrations and pilot projects for experimentation;
- Modular group training (*SOSOC 100 Questions* pp. 241–253).

Training Bases

The PLA believes that integrated training bases are also a key component to implementing its warfighting concepts, promote continued theoretical research, develop new tactics and enhance combat capabilities. Its large training bases have been upgraded in the past decade, but further modernization is required. The PLA hopes to create multi-functional training bases that are teamed with military educational institutes to promote greater interaction and rigor in evaluating training exercises. Some of the suggested facility upgrades include simulation and network training; multi-media classrooms; equipment simulators; and officer educational centers. On a larger scale, authoritative PLA writings recommend expanding training facilities to create high-tech combat, confrontational, complex electromagnetic and non-combat contingency training environments as well as sufficient capacity to enable large-scale unit rotations.

Additional recommendations to improve training management in order to coordinate, monitor and evaluate training include the following:

- Greater standardization of exercise programs for uniformity in training quality;
- Real or near real-time monitoring and tracking of training events;
- Objective and accurate joint and combined arms training examination and evaluation standards for units focused on combat effectiveness;
  Improved digital evaluation system embedded into weapon systems with rapid recording, processing, feedback and assessment capabilities (*ISBSOSOS* pp. 344–347; *SOSOC 100 Questions* pp. 220–241).

A recent PLA press release reported that the Jinan MR was assigned the first pilot project on joint campaign training evaluation on March 29, 2013. In coordination with military educational institutes, the Jinan MR is tasked with promoting standardization of a joint evaluation system, which solves problems with content, quality index, and evaluation means and methods (China Military Online, April 1).

Simulation and Network Training

The PLA plans to improve and expand use of simulation and network training as part of its informationized training effort. The PLA views this type of training as an efficient and cost-effective method that can flexibly increase the complexity of training scenarios; provide repetition of scenarios; simulate future operational environments for experimentation; and validate campaign and tactical combat theories while reducing equipment wear and material consumption. In parallel with other recommendations for high-level management and direction, the PLA proposes the establishment of a national-level simulation institution, perhaps within the Military Training Department of the GSD. Such an institute would be used to establish and manage uniform training technology and standards, promote computer simulation training, cultivate combat simulation system research and development specialists as well as develop simulation software and equipment, including a high-tech simulation platform for training multiple command levels (*ISBSOSOS*, pp. 344–347; *SOSOC 100 Questions*, pp. 218–236).

Cultivating Quality Personnel

The PLA realizes that military personnel are a critical resource to support modernization and meet the needs of future warfare. The PLA also notes that compared to highly advanced armed forces, the PLA's current information literacy is low and its lack of specialized and technical personnel is constraining modernization (*SOSOC 100 Questions*, pp. 208, 224). Personnel training recommendations to cultivate high quality personnel include: reform academic training program content, particularly high-tech and joint command knowledge; increase job rotation and cross-training efforts; expand opportunities for joint command personnel to study abroad; integrate academic institutes with exercises; and increase use of on-line courses (*ISBSOSOS*, pp. 347–351; *SOSOC 100 Questions*, p. 236).

The PLA reform of the noncommissioned officer corps to create a foundation for technical expertise to master weapons and equipment is part of this effort ("Reforming the People's Liberation Army's Noncommissioned Officer Corps and Conscripts," *China Brief*, October 28, 2011). Other plans include an improved examination and evaluation mechanism to recruit, select and promote information technology talent and better students for military education institutes; and a greater training focus on use of digital maps, satellite navigation and positioning, intelligence and communications systems (*SOSOC 100 Questions*, pp. 210–224).

Modernization and Integration of Information Systems

Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) development represents the foundation for system of systems operations, and the PLA has been fielding components of the regional integrated electronic information system (*quyu zonghe dianzi xinxi xitong*)—a key program in C4ISR modernization efforts (China Military Online, April 24, 2010) [2]. Various PLA publications have described problems with the information systems, including lack of integration, fragmentation and outdated software. Integration, particularly between the services, has appeared as an *ad hoc* effort left to the individual military regions (MR). A major recommendation to correct identified problems is to establish a high-level management institution for research and development issues, such as instituting comprehensive information system construction norms and standards (China Military Online, December 14, 2011; March 10, 2011; *ISBSOSOS* pp. 243–244) [3].

The GSD Communication Department was restructured into the Informationization Department in June 2011 to serve as a lead agency for greater centralization over information technology modernization, including development of integrated information systems and information security. Recent press reports describe improved integration of the command information

system, and Jinan MR's debut in October 2011 of an integrated joint command system was touted as an example of progress. This effort was probably part of a pilot project launched in 2010 in Beijing, Jinan and Nanjing MRs experimenting with the employment of information systems. This pilot project included the Academy of Military Sciences, Shijiazhuang Army Command College, Nanjing Army Command College and the Communication Command College. The inclusion of these high-level organizations in the process indicates the project's importance (China Military Online, November 21, 2012; December 14, 2011) [4].

At least some within the PLA recognize the need to create theater joint operational commands. The current MR headquarters are dominated by the Army and do not represent a joint command. This reportedly leads to friction between the services affecting timeliness and precision command at this level (*ISBSOSOS*, pp. 244–246). One recommendation—based on the Russian military's creation of operational commands based on main strategic directions—is to transform the MR headquarters into joint operational commands. The suggestion that they be based on main strategic directions implies a possible reduction in MRs or having some joint commands covering more than one MR. Several joint command structures have been proposed, including the following:

- An organizational-based joint command system with subordinate service, Second Artillery Force (SAF), logistics, equipment and national defense mobilization command elements;
- A functional-based system with subordinate command elements, such as strike operations, counterattack, air defense, information operations and rear operations;
- Several subordinate area commands organized functionally (*ISBSOSOS*, pp. 244–254; China Military Online, November 25, 2011; July 1, 2011).

Force Restructuring and Modernization

Efforts to improve efficiency, particularly operational command efficiency, across the services include reduction of staffs and redundant organizations to eliminate overlapping functions and mandates as well as flattening command levels. According to PLA publications, failure to resolve these issues will limit the military's efficiency and execution of orders, resulting in passive, reactive combat operations (*ISBSOSOS*, pp. 241–243).

Recent force reductions and restructuring occurred in the late 1990s and again in 2003–2005, but the PLA believes further efforts are needed. Recommendations for all the services include streamlining the force structure, optimizing the force composition and combined arms capabilities, and compression of non-combat units. A further ground force reduction is probable, perhaps after more extensive modernization. Some areas will continue to expand, including Army Aviation, special operations, PLA Air Force (PLAAF) offensive forces, psychological warfare, cyber operations and space operations forces (*ISBSOSOS*, pp. 341; *SOSOC 100 Questions*, pp. 177–183)

General equipment modernization trends are focused on developing key operational elements across the services including the following capabilities: long-range precision strike, maneuver and force projection, reconnaissance, air defense as well as information and electronic warfare. Robotic and stealth technologies also are highlighted. Interestingly, Second Artillery modernization is not discussed, and space operations are discussed within the context of foreign developments (*SOSOC 100 Questions*, pp. 165–189).

Conclusion

Successful implementation of system of systems and integrated joint operations can enhance PLA future combat capabilities greatly. Operationalizing these concepts is having a wide-ranging impact on transformational efforts, including reform to training, exercises, and education; organizational restructuring; and equipment modernization to support the development of operational elements. Many of the efforts detailed in this article are underway, although continued and improved efforts are required. Other changes—such as the establishment of theater joint commands—appear to remain recommendations for now.

Proposed solutions to the identified problem of parochial service interests and institutional impediments are limited.

Education reform to cultivate a new generation of joint officers will take time. It is not clear that proposals to establish theater joint commands, or the reorganization of key GSD departments will provide the centralized and authoritative leadership required to remove these road blocks to reform.

Professional military education, training and exercise reform can have significant effects on the success or failure of transformation efforts. The PLA appears to be acting on a number of recommendations coming out of its studies of system of systems operations, such as upgrading training bases and restructuring of military educational institutes. Analysis of integrated joint exercises can provide insights into the development of IJO; however, the recommendation to rely to a greater extent on simulations and network wargaming for joint training, perhaps combined with dispersed field training, could make this analysis difficult. This approach to joint training and experimentation would make it difficult if not impossible to collect information on the PLA's progress. The focus on realistic training and increasing combat capabilities is in part an effort to reduce the time for units to transition to wartime readiness and prepare personnel psychologically for combat in the event of a sudden crisis. High combat readiness combined with training based on theater combat missions would allow PLA units to rapidly mobilize and depart their garrisons and require less pre-battle training preparation, which could lead to reduced warning time and indicators during a crisis, particularly when denial and deception measures are employed.

Equipment modernization is important to the PLA's informationization effort with C4ISR being the critical component. Other modernization efforts across the services are focused on supporting the key operational elements such as joint firepower strikes, maneuver and mobility, reconnaissance and information confrontation.

Again, system of systems and IJO are in an early stage of development, and the broad range of modernization and reform efforts required will likely make their implementation a long, difficult process. Success in operationalizing these theories, however, can lead to a PLA that is an advanced military force capable of meeting diverse contingencies.

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Notes:

1. *Information System-Based System of Systems Operations Study*, Beijing: National Defense University Press, 2012, p. 244*; Information System-based System of Systems Operational Capability Building in 100 Questions*, Beijing: National Defense University Press, 2011, pp. 196–197. The former is cited hereafter in text as ISBSOSOS and the latter as SOSOC 100 Questions.
2. *Study on Information System-Based System of Systems Operational Capability,* Vol. 5, Beijing: Military Yiwen Press, 2010, p. 3. This will be cited hereafter in text as SoSBSOSOC.
3. *Study on Information System-Based System of Systems Operational Capability,* Vol. 2, Beijing: Military Yiwen Press, 2010, p 3. This will be cited hereafter in text as SoSBSOSOC.
4. Nanjing Army Command College, *Operational Use of Information Systems*, Beijing: Military Science Publishing House, 2011, p. 1.

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