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China's J-10 Military Fighter

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For comments or questions about *China Brief*, please contact us at pubs@jamestown.org

1111 16th St. NW, Suite #320
Washington, DC 20036
Tel: (202) 483-8888
Fax: (202) 483-8337

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In a Fortnight

By L.C. Russell Hsiao

COMPETING FORECASTS CLOUD CHINA'S ECONOMIC CONFERENCE

The annual Central Economic Work Conference organized by the Central Committee of the Chinese Communist Party (CCP) will convene on December 8-10 in Beijing. Senior economic planners were in Beijing last week to attend a preliminary meeting that laid out an agenda for the discussion (Xinhua News Agency, December 3). According to members of the CCP politburo that attended the meeting, the central government has set next year's economic growth target at above 8 percent (Xinhua News Agency, December 3). Chinese President Hu Jintao will chair the conference. It comes at the end of Hu's world economic tour, which started with the G-20 Summit in Washington and continued with the 16th APEC Leaders Summit in Lima. Both conventions brought together economic leaders across the Atlantic and Pacific to address the global financial crisis. On Monday, November 30th, a report released by the National Bureau of Economic Research in Washington confirmed the United States has been in a recession since December 2007. A similarly pessimistic outlook by the World Bank predicted China's economic growth rate to be 7.5 percent in 2009. Meanwhile, the Chinese Academy of Social Sciences (CASS), China's premier government think-tank, released its own growth forecast for China in its "Economic Blue Paper" on December 2. Contrary to the assessment of the World Bank, the Blue Paper stated that China will sustain a 9.3 percent growth rate in 2009 based largely on "concerted world effort to counter the financial crisis" (Xinhua News Agency, December 3). Wang Tongshan, the Blue Paper's lead coordinator and director of the Institute of Quantitative Economics at CASS, stated that the probability that China will have a growth rate at around 9 percent is above 70 percent. Wang also believes that the consumer price index, which measures the average price for goods and services, will decrease from 4 percent in 2008 to 3 percent in 2009, while risk of deflation will be low (*Ming Pao*, December 3).

According to multiple-Chinese media sources, the purpose of the conference will be to determine the future direction of China's economic growth and the allocation of its proposed \$586 billion domestic stimulus package. Furthermore, the meeting may produce other important decisions concerning capital, tax and financial reforms (*Ming Pao*, December 1). Other analysts contend that rather than announce new policies, the meeting will focus on evaluating existing policies and instruments (Xinhua News Agency, December 3).

There are a number of remarkable differences between this conference and the ones before it. First, most government policy recommendations have already been made public (i.e. \$586 billion stimulus package, massive interest rate cuts, cutting gas tax, etc.) prior to the conference. Moreover, the National State Council has widened consultations in deliberating policy when examining the conditions of Chinese enterprises along the economically integrated coastal regions struck hard by the global financial tsunami. Premier Wen Jiabao hosted many seminars inviting industry representatives and scholars to solicit their advice (*Ming Pao*, November 24). This method of encouraging an open competition of ideas is seldom seen in Chinese decision making (*Ming Pao*, December 1). Some attribute the change in the government's attitude to the recognition of the limits in solely relying on official government assessments. The case in point being the People's Bank of China's decision to raise bank deposit rates in June. Many Chinese economists who were aware of the global slow down cautioned against the plan, but were ignored by officials (*Ming Pao*, December 1).

China's economic terrain changed rapidly in 2008. The inflation scare early in the year coupled with an overheating economy led regulators to strengthen macro-management under the banner of "two defends" (Xinhua News Agency, December 3, 2007). By mid year, the motto became "one preserve, one defend" (preserve growth, defend against inflation) and by November it changed to the singular objective of stimulating and sustaining domestic demand. These changes reflect the extent to which the Chinese economy is being pushed and pulled in different directions by both internal and external variables. If Beijing's economic planners fall back to making decisions behind closed doors, they will undoubtedly be unable to keep up with the rapid changes in the global economy.

Mr. L.C. Russell Hsiao is Associate Editor of The Jamestown Foundation's China Brief.

China's Growth Dilemma: Growing Old before Becoming Rich?

By Wang Meiyang

Current trends in China's demographic transition suggest that the Chinese will likely grow old before they grow rich, which poses many challenges to the current regime. The first challenge is labor shortage. Throughout the period of reform and opening up to the outside world, China has been constantly expanding the base of her economically active population and working population in urban and rural areas. In the era of globalization, capital and goods can flow freely across borders, whereas the flow of labor remains problematic for the regime. China's comparative advantage, however, lies precisely in its abundance of labor resources. Therefore, China will continue to rely upon its huge labor force to bolster her economic growth for a considerable period to come. The service and manufacturing industries have long been the two key engines for China's growth. Possessing tremendous growth potential, they will continue to generate considerable labor demand. Moreover, other industries and sectors also need a large amount of labor for their future development.

The PRC's family planning policy of "raising population quality and controlling population size" was initiated in the late 1970s by the Chinese government. China had—in less than 30 years—imposed a remarkable transition that moved it toward the modern population growth pattern that had taken many developed countries almost a century to achieve. If we measured China's fertility rate by Total Fertility Rate (TFR), which is a common tool used by demographers, the TFR stood at 5.4 in 1971. Since then, the TFR has plunged to 2, a level below the replacement rate (the replacement rate is usually at 2.1) [1]. China's population growth rate has been consistently maintained below 10 per thousand since 1998, with a further decline from slightly above 6 per thousand in 2003 to 5.28 per thousand in 2006 [2].

Along with the transition, however, comes a shift in the population age structure: primarily a rapid increase in the proportion of elderly people in relation to the overall population. By UN definition, a country with over 7 percent of its population aged 65 or older is considered an aging society. According to the five most recent Chinese Censuses, the proportion of population aged 65 or older had risen to 7 percent in 2000 from 4.4 percent in 1953, 3.6 percent in 1964, 4.9 percent in 1982, and 5.6 percent in 1990. Thus, based on UN criteria, China had already become an "aging society" in 2000. Moreover, based on estimates from findings featured in the *1% Population Sample Survey* conducted in 2005, the proportion of China's population

aged 65 or older has increased to 7.69 percent. To date, China's population age structure has shifted from a typical pyramid-shaped model dominated by a young population at the base, to an olive-shaped model featuring an increase in the elderly population and dominance of the middle-aged population.

The effect of an increase in the proportion of the elderly population, coupled with a decline in the proportion of the youth population, is a rise followed by a fall in the proportion of the working-age population. The UN predicts that China's ratio of working-age population to total population will continue to increase until peaking at one billion in 2015 and then begin to shrink afterward. Wang Guangzhou, Professor at the Institute of Population and Labor Economics of the Chinese Academy of Social Sciences (CASS), predicts a similar pattern in structural changes to the Chinese population: The size of the working-age population will peak at 72.1 percent of the total population in 2013, and the total working-age population will climax at 997 million in 2016.

Using three possible growth rates (high growth of 10 percent, medium growth of 9 percent and low growth of 8 percent) and two employment elasticities, we can present six possible scenarios of labor demand, against labor supply (using total working-age population as the labor supply base). The high elasticity scenario equates one percentage point in growth with a 0.297 percent rise in employment (the average level during 1991 to 2003), and the low elasticity scenario equates one percentage point in growth with a 0.230 percent rise in employment (a half standard deviation lower than the former).

Using these scenarios to track growth since 2004, we discover that the net increase of new entrants to the labor market has tended to lag behind the various scenarios of increase in labor demand, and the gap will widen over time.

Although the rise in labor productivity in the agricultural sector continues to release surplus labor into other sectors of the economy, structural labor shortages in terms of region, sector and specific skills are likely to occur from time to time. Though the exodus of rural labor into cities can help bridge the gap for a considerable period of time, this trend indicates that China is increasingly likely to face labor shortages.

The second challenge is an unsustainable pension system. China's pension system reform has experienced two phases divided by pilot experiment in Liaoning province in the period of 2001 to 2003, which aimed to solve the problems of empty individual account. In the first phase, individual

account was only nominal since it was not accumulated for the future use of contributors, instead, it was used to fill up the gap between accumulated and provided pooling pension. After the Liaoning experiment individual account is supposed by the policy to be separated from the pooling fund. However, since the contribution rate is very low, it is not expected to be significant for future use. Therefore, the current pension system in China is by default a pay-as-you-go (PAYG) type.

According to international experiences, a sustainable PAYG system is conditioned on three factors. The first factor is a relatively young demographic structure, that is, a working-age population large enough to support the existing retirees. The second factor is an effective taxation system that enables the state to collect the contributions needed for the pension fund. The third factor is good governance of the fund to ensure that pension funds are correctly invested and provided. The second and third conditions do not yet exist in China, and the first condition—a working population large enough to support those who are already retired—is becoming increasingly problematic.

Therefore, it's inevitable for this system to produce a huge deficit in order to support China's elderly. For example, an article by McKinsey Consulting forecasts a \$110 billion deficit by 2010 [3]. As this deficit is accumulated the current PAYG system becomes all the more unsustainable. In fact, if there were no government subsidies and no chance to misappropriate the money from individual accounts by the government, the annual revenue of social pooling fund would not be enough to pay for the present pension system.

The third challenge is brought by changes to the traditional Chinese family structure. Compared to most other countries, the nominal substitution rate of social pension (the percentage of benefit as wage at the time of retirement) is unusually high in China. However, there are several factors that prevent this substitution rate from being sustainable—in the future social pension alone will be not enough to support the number of retirees. First of all, as the overall population ages, the support ratio also increases rapidly and it becomes impossible to retain the rate as high as it is today. Second, as wage rates increase, there needs to be a parallel increase in funds toward pensions in order to keep its real level unchanged. This means that in many years after people are retired, the amount of benefit received by pensioners will still be pressured to increase. Lastly, even when the transition from PAYG system to fully funded system is accomplished, given the relatively low wage rate, the accumulated pension fund from individual account will not be sufficient. Therefore, in addition to a social pension fund, a diversification of resources for senior

citizen support is necessary however, as a consequence of the overall increase of income and the changes in family structure, societal values are also changing. The 2005 Population Sampling Survey conducted by the National Bureau of Statistics (NBS) shows a decline in the Chinese family size—the average number of family member was 3.13, compared to 3.44 in 2000, 3.96 in 1990 and 4.41 in 1982. Among families having one person aged at 65 and above, 16 percent were single elderly families, and among families having two persons aged 65 and above, 42 percent were families in which an old couple lives alone. Comparatively speaking, this “only-child generation” is more likely to be spoiled and self-centered—only children are sometimes referred to as “little emperor” or “little princess.” As adults, children of this generation lack inclination to support their parents.

On the other hand, by bringing up an only child, parents have also changed their expectations of being supported by their children. In a survey conducted by the Institute of Population and Labor Economics at the CASS in 2001, different age groups gave different answers to the question “are you willing to be supported by your children financially when you become old?” Of the older age groups, 70 percent replied positively, while only 63 percent of the age groups of 35-54 years old, as only-child parents, gave positive answer. This survey illustrated the trend that the younger the parents are, the less likely they expect to be supported by their child upon reaching old age.

The fourth challenge is brought by employment informalization. Since 1997, the increase in urban employment has been mainly attributed to the expansion in non-public sectors, especially the informal employment sector. While these newly emerged sectors play vital roles in absorbing native and migrant workers in urban areas, they lack incentives to participate in the social pension scheme. This disinclination results in a scarcity of pensions stemming from the private sector and thus creates even more trouble for the future.

For example, there is a difference between the proportion of the retired covered by the current social pension scheme and the proportion of working employees who have participated in the scheme, indicating that the system is unsustainable. In 1990, the coverage rate of pension system was 40.6 percent for the retired and 30.5 percent for the employed. In 1997, when the State Council set forth the unified urban pension scheme (combining social pool and individual account), the participation rates in social pension schemes was 75.6 percent for the retired and 41.7 percent for the employed. This proposal achieved only half of its intended coverage. In 2005, the participation rate in social pension of the retired increased by more than 10 percent

to 85.8 percent, however, the change for the employed was a meager 6.3 percent increase to 48.0 percent. It should be noted, however, that in 2006, the pension participation rate for the employed increased up to 49.9 percent [4].

The last challenge is related to the relatively low retirement age. The low legal retirement age regulation and premature retirement greatly enhance the burden of society and families in supporting the elderly. Generally speaking, individuals can decide at what age to retire, a decision that depends on their preferences between work and leisure and between their own consumption and their children’s inheritance. Given the increasing support ratio and pension fund shortage in China, universal early retirement can further aggravate the situation.

According to a survey conducted in 2002, the average retirement age in urban labor market is 57 years old for male workers and 50 years old for female workers [5]. Meanwhile, in 2002, the life expectancy at birth is 70 years for males and 75 years for females. We can therefore estimate that men can expect to live for 13 years after retirement and women for 24 years. Assuming that the number of males and females are approximately equal, the average life expectancy at age of retirement is over 18.4 years, which is close to the average of for Economic Co-operation and Development (OECD) countries. However, by 2020, life expectancy in China will increase to 73 years for men and 79 for women, suppose the actual retirement ages remain as their present levels, life expectancies at age of retirement will be 16 years for men and 28 years for women, averaging 22.3 years and surpassing the present levels in OECD countries. By then, older dependency will be too high to bear.

The aging population is a critical factor in China’s economic development, and there are a variety of ways to achieve sustained economic growth that depends on whether or not sound choices can be made by the leaders in Beijing. First, as the demographic dividend diminishes, it is vital for the Chinese economy to sort out an alternative source of sustainable growth, which requires a transition from inputs-based growth pattern to productivity-based one. Secondly, as the demographic precondition for a PAYG pension scheme is gradually replaced by income precondition supportive of a fully-funded scheme, a transformation of PAYG to fully-funded pension scheme is urgent. Third, since the Chinese elderly still need diversified sources of support, a renaissance of Chinese family values is necessary in order to help families take advantage of intra-family transfers and provide living arrangements in order to support their elderly. Lastly, the author believes that raising the retirement age is not a sufficient condition for solving the increasing old age dependency because the trend of early

retirement depends on employment opportunities. Instead, creating more jobs for all age groups through developing labor markets is a fundamental solution that has potential to alleviate China's growth dilemma.

Wang Meiyuan is an associate professor at the Institute of Population and Labor Economics of the Chinese Academy of Social Sciences.

NOTES

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4. Calculated by the data from National Bureau of Statistics (NBS), *China Statistical Yearbook* (various years), China Statistics Press.
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The Russo-Chinese Energy Follies

By Stephen Blank

Chinese and Russian officials habitually proclaim that their bilateral relations have never been better and thereby invoke a great congruence in their agenda for the international regime. Thus Viktor Kremenjuk, deputy director of the U.S. and Canada Institute in the Russian Academy of Sciences, writes that Russia, "Is successfully crowding out the United States from its position as China's No. 1 partner, and over time could become that country's quasi-ally" [1]. Yet the fact of the matter is discernibly different. The recent fiasco surrounding Russian energy firms' endeavors to obtain a loan from China's National Petroleum Corporation (CNPC) for their operations reveals the numerous strains on the Russo-Chinese relationship.

In October both sides announced a new deal to ensure the supply of Russian oil to China through the East Siberian Pacific Ocean Pipeline (ESPO) that would branch off to China at Skovorodino to China's largest terminal in Daqing, a city in the northeast province of Heilongjiang (*New York Times*, October 29; Agence France Presse, October 28). As that agreement was being signed, Rosneft

and Russian energy firms were appealing to China for loans to bail them out (*New York Times*, October 29; Agence France Presse, October 28). China agreed to lend Rosneft \$15 Billion and Transneft \$10 billion on the condition that Moscow guarantees completion of the pipeline and a shipment of 15 million tons of oil (300,000 barrels/day) to China through ESPO to Skovorodino and Daqing by 2011. These conditions reflect China's earlier irritation at Russia's stalling and failure to deliver on energy projects, but also represent that China is no longer averse to using its economic leverage to compel other states to conclude deals that are to China's advantage.

Russian Prime Minister Vladimir Putin even had to say that Russia now welcomed Chinese investments. This is directly contradictory to his past actions such as the case in 2002 when the Russian government rejected Chinese investment in Slavneft (The Associated Press, October 28). In a similar vein, Deputy Prime Minister Aleksandr Zhukov told the Russo-Chinese bilateral commission that Russia favored both countries making mutual investments in each other's economies. Oleg Safonov, the presidential plenipotentiary in the Russian Far East (RFE), also promoted the idea of mutual reciprocal investments, specifying Chinese investment in not only basic product as timber processing, but also in the high-tech sectors of aircraft construction, nanotechnology and energy (*Vladivostok Times*, November 9; *Northeast Asian Peace and Security Network*, NAPSNET, November 10).

Yet such rosy scenarios are unlikely to materialize. As of January 2008, direct Russian investments in China totaled \$14.2 million and direct Chinese investments in Russia stood at \$415 Million (*Interfax*, October 27). This disparity is only likely to grow as the global economic crisis and falling energy prices force Russia to retract its economic ambitions. Meanwhile, Chinese investment in Russia is likely to increase because Russia cannot sustain its position in the Far East without large-scale foreign investment. Thus, a consortium of Chinese engineering firms led by Harbin Turbine will be building coal-fired turbines in the RFE to generate 41,000 megawatts of new generating capacity by 2011. Stanislav Nevynitsyn, executive director of the Russian power producer OGK, admitted that, "It is simply a necessity for us to work with the Chinese—we will not have the capacity to build otherwise" (*International Herald Tribune*, May 5). Therefore Russia is becoming increasingly dependent upon Chinese capital investments in developing its regional infrastructure.

Even so, the scheme for Chinese loans failed almost at once. China apparently had first agreed on 7 percent interest and then changed its mind to request that the interest be pegged to the higher Libor rate (London International Bank for

Settlements). Russian sources denounced China's demands as imposing "absurd lending conditions" and the talks collapsed on November 12. The talks, however, resumed six days later; but optimism that the loan and other accompanying issues would be satisfactorily and quickly resolved may both be premature (*Reuters*, November 12; *The Associated Press*, November 18).

What was signed is not a conclusive deal to build the ESPO link from Skovorodino or a bailout of Russian firms (*Agence France Presse*, October 28). Much hard bargaining lies ahead and, based on the previous experience, there lies a lengthy shadow between the agreement and the execution of the deal (*Agence France Presse*, October 28). Even if talks over the loan are resumed, there is still no agreement on the price of the energy shipments involved or certainty as to when the pipeline will be finished. For example, Russian officialdom remains divided over ESPO's prospects. Transneft's vice-president, Mikhail Barkov, said it would be commissioned at the end of 2009 and reach full capacity in 2011 (*Interfax*, April 3). Yet Energy Minister Sergei Shmatko recently told the sub-commission on energy cooperation of the Russo-Chinese commission that there is no way that ESPO could be launched in 2009 (*Interfax*, April 3). The current economic crisis makes it much harder for Russia to raise the capital it desperately needs to develop its Siberian energy sites and invest in infrastructure to hold up its end of the ESPO bargain [2]. Given the inveterate rent-seeking, graft, and suboptimal economics of Russia's energy sector, cautions about projecting a completion date for ESPO, especially in the absence of an agreement on energy prices, is amply warranted.

This flop typifies Russo-Chinese bilateral energy relations. Russian oil deliveries to China, which now go by rail, evidently failed to meet their targets in 2007 and in fact fell ten percent from January-November 2007 (*Interfax*, December 25, 2007). Revelations of delays in ESPO and of further declines in Russian oil shipments to China in January 2008 have further compounded these problems [3]. For the first 8 months of 2008, Gazprom could not provide CNPC with any oil due to a dispute with Kazakhstan. By September, when Moscow was finally prepared to resume shipments, China had already begun looking into alternative arrangements with other suppliers to buy oil fields elsewhere (*Zhongguo Jingying Bao Online*, October 8).

Similarly, Gazprom is now trying to get out of its plans to sell gas to China (BBC News, June 19). Russia has deleted costs associated with designing a gas pipeline from the Sakhalin-1's project 2008 gas budget because Russia cannot produce enough gas to satisfy its Asian, domestic and European markets. Under a downward pressure on its net supply, Gazprom sacrificed the Chinese market for its domestic needs, confirming rising suspicions that Russia,

under its current and foreseeable production levels, cannot satisfy the rising demand of its Asian, European and domestic customers for energy (*Interfax*, December 21; *Far Eastern Economic Review*, January-February 2008). As a result, China must try to induce Gazprom to supply it with gas even though it previously sought to avoid dealing with Gazprom at Sakhalin-1 in 2006 by signing a Memorandum of Understanding (MoU) with Exxon-Mobil. Furthermore, it is unlikely that Gazprom will refrain from driving Exxon-Mobil into a minority status as it has done on Sakhalin-2 with Mitsubishi, Mitsui and Shell. Thus China, if it wants gas from Sakhalin, will have no choice but to deal with Gazprom, which is trying to prevent it from getting gas so that it can give priority to the Russian domestic market (*Interfax*, December 21, 2007; *Far Eastern Economic Review*, January-February 2008). Moreover, China is insulted by the fact that Sakhalin-2 will start selling gas to Japan in 2009 and plans to build a pipeline to the Sea of Japan, thereby bypassing China and rewarding Japan (*Nikkei Telecom21 Internet Version*, December 22, 2007). Perhaps this is one of the factors driving Beijing to demand more Russian supply of nuclear energy through participation in tenders for reactors to be built in China (*Nezavisimaya Gazeta*, December 21, 2007).

Similarly, Russia now must delay construction of its projected gas pipeline to China due to competition for other gas sources in China. These competitors arose mainly due to Russia's own dilatoriness in negotiating and then building this pipeline (*Forbes*, October 8). The Altai pipeline, designed to ship 30 billion cubic meters (BCM) of natural gas to China annually from Western Siberia, was excluded from Russia's new blueprint for the gas industry because of a variety of issues, including the price that China would pay for the gas. The Altai pipeline proposal was hamstrung by the fact that it would be less competitive than gas coming to China from Turkmenistan (*Forbes*, October 8; *RIA Novosti*, October 6).

This brief list hardly exhausts the entirety of Russia's failed promises that have led to China upgrading its energy quest in Central Asia and becoming a direct competitor of Russia. Despite an undoubted congruence on certain key political issues between them, a genuine alliance is still premature. Meanwhile, China has used the global economic crisis as an opportunity to launch a massive domestic investment program whereas the Russian government has been busy bailing out inefficient state-run firms and companies belonging to favored oligarchs. Furthermore, Russia's actions have not been intended to improve the competitiveness of these enterprises, but to keep them from falling into the hand of foreign investors. Moreover, Russia, as the foregoing narrative suggests, still

has no viable program for developing its Far East which is already coming under pressure to integrate with China. Therefore, against the backdrop of the current global economic crisis, a widening gap between the “strategic partners,” rather than greater congruence, is likely to develop in the near future.

Stephen Blank, Ph.D., is a professor at the Strategic Studies Institute of the U.S. Army War College at Carlisle Barracks, PA. The views expressed here do not represent those of the U.S. Army, Defense Department, or the U.S. Government.

NOTES

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3. Stephen Blank, “Asia and Russian Energy Under Dmitri Medvedev: What Can Be Expected,?” *Northeast Asia Energy Forum*, Summer, 2008, V, NO. 2, pp. 31-41

Fusing Chinese Commercial and Military Aviation Industries

By Eugene Kogan

The year 2008 will be remembered as a turning point in the history of China’s aviation industry from its slow to accelerated pace of restructuring. The restructuring process began in June 2007 with the separation of the commercial aircraft industry from its military sector. The industry’s development accelerated in 2008 through the allocation of funds and the decision on which enterprises will be allowed to join the commercial sector; and it is likely to reach its peak in 2009 through a fusion of the two components of its aviation industry. The Zhuhai Airshow and exhibition of a broad range of indigenous tactical guided weaponry, including the J-10 military fighter and unmanned aerial vehicles (UAV), highlighted the increasing maturity of the industry and its achievements over the last twenty years. Although officials of the Chinese aviation industry play down the importance of its new project, namely the 150-seat indigenous large commercial aircraft, they are aware of its significance as a milestone in China’s civilian aviation industry.

The AVIC I and AVIC II are expected to take leading roles in building the 150-seat commercial aircraft with

their financial involvement probably coming from the provision of manufacturing assets, rather than as cash (Flight International, February 5-11). Discussions between the manufacturing groups party to the possible merger were successfully concluded on May 11 and China finally established a potential competitor to Airbus and Boeing under the name Commercial Aircraft Corporation of China (CACC, also known as Comac), which is based in Shanghai. Officials of the Chinese aviation industry tend to play down the potential rivalry and clearly state the route to becoming a real rival is long and hard. The key asset and probable core of the new business will be AVIC I’s commercial aircraft company, known as AVIC I Commercial Aircraft Corporation (ACAC).

According to Chinese state media, the central government, which is the largest shareholder of the corporation, will contribute 6 billion yuan (about \$900 million equivalent) of the 19 billion yuan (\$2.7 billion) in capital. Next will be the Shanghai municipal government, whose 5 billion yuan (about \$800 million equivalent) support reflects its plan to keep the major facilities in that city. Finally, assembly will be at one of three of Shanghai’s sites that are currently under consideration. AVIC I is providing 4 billion yuan (\$540 million equivalent), most of it probably in the form of ACAC (Aviation Week and Space Technology, May 19; April 7). AVIC II is only chipping in 1 billion yuan (\$115 million equivalent), as are the state firms Baosteel, Chinalco and Sinochem (Idem; April 7). One pioneering approach CACC is considering is to make it publicly traded on the Hong Kong Stock Exchange in order to raise capital to fund its development costs (Jane’s Defence Weekly, July 30). It is already apparent that some senior staff at ACAC who are now involved in the ARJ21, 90 to 105-seat regional aircraft project, also share responsibility for the development of the 150-seat commercial aircraft. However, having resources within Comac split between two different aircraft programmes could pose challenges, particularly when the ARJ21 programme is experiencing delays (Flight International, October 28; November 3).

WIDER RESTRUCTURING

It should be remembered, however, that the formation of CACC is only part of a wider restructuring of China’s aviation industry. In addition, restructuring entails the continuing separation of civil and military plants, a process that began in June 2007, and the promotion of commercial practices in a drive for higher efficiency, beginning with civil facilities. It is likely that reforms will continue until the whole civil aviation industry is operating on a fully commercial basis and is subject to private shareholder demands. Plans for the military plants are less clear, but the Chinese government has said it wants them to remain

under state control (Aviation Week and Space Technology, May 19). The merged company, which was created (but not yet inaugurated) after the merger of the AVIC I and AVIC II and is known as China Aviation Industry Group Corporation (AVIC) will own nearly all of China's non-CACC aviation plants. According to one foreign industry executive, the reasoning behind the merger is "simplification and rationalization of the industry, particularly concerning military business." According to the same executive, there was no significant economic benefit from the 1999 split because it did not open the sector to foreign competition. Only opening up to domestic competition, while excluding foreign competition, causes more problems than it creates. Chinese executives are saying that they expect further reorganization because the sector still has a long way to go until companies look and operate like western companies, which is evidently the government's long-term aim for this industry (Aviation Week and Space Technology, June 2).

Yet experts also see a veiled strategy to the merger. China's defence interests are expanding and plans include the development of advanced fighters and bombers, along with a stealthy unmanned combat aerial vehicle, the *Anjian* (Dark Sword). Access to advanced Western commercial aviation technology can rapidly transform to assist in military goals. Thomas Kane, author of *Chinese Grand Strategy and Maritime Power*, notes that "One official purpose of the merger is to facilitate production of new commercial passenger aircraft. I seem to recall that the Luftwaffe (German Air Force) used a similar programme to develop bombers" (Defence News, August 4). Kane also added, that "China, like Great Britain, has an established tradition of adapting civilian hardware to military purposes. So, if the AVIC merger works as planned (*that is the crucial point*, author's italics), it has the potential to build up China's force projection capabilities. If the merger and joint ventures with foreign corporations make the new AVIC more profitable, that will ultimately feed back into military capacity as well." According to Larry Wortzel, chairman of the U.S.-China Economic and Security Review Commission, improvements in China's commercial aerospace industry will quickly equate to better military aircraft. He added that the greatest improvements are coming from the exposure of AVIC personnel to US quality control techniques, improved systems engineering and advanced research-and-development skills. This will no doubt give the People's Liberation Army Air Force (PLAAF) a much-needed boost (Defence News, August 4).

THE FINAL TOUCHES

In the proposed model, CACC intends to become the Chinese equivalent of Airbus and Boeing. In the recent

issue of Aviation Week and Space Technology (November 10), the final touches to the emerging Chinese companies were highlighted under the auspice of AVIC. They are:

The Transport Aircraft Company, responsible for the production of civilian aircraft structures and building commercial turboprops. The company needs to compete for the work from Airbus, Boeing and other foreign aircraft-makers. It is also likely to be a supplier of military transports. 'Transport Aircraft' is only a preliminary, working tag for the company. Officials say that, like most of the other new business units, it will be rebranded later.

The Defense Division will be home to the J-10 fighter aircraft and guided-weapons business. The most striking aspect of plans for the Defense Division is the proposed sale of shares in the military venture. China evidently wants to develop a defense company that is structured more like BAE Systems or Lockheed Martin than a government munitions department. While the commercialization of the Defense Division will naturally take longer than that of civil units, officials expect a stock market listing within five years (Aviation Week and Space Technology, November 10). However, it is usual for a stock market listing to take a little longer than initially expected. These companies include:

- Avicopter, which brings together the country's helicopter plants, will build all Chinese helicopters, including those for the armed forces.
- Aviation Engine Industry Corporation Limited combines propulsion plants and research centres. Aviation Engine Industry wants to build its own commercial turbofan.
- General Aviation Corporation is attempting to construct a business jet of about the same size as a Challenger 850.
- Aviation Systems Corporation, China's answer to Rockwell Collins, Thales, Honeywell and Goodrich, is the most complicated of the new businesses, reflecting the multifarious nature of aircraft equipment. The crossover between civil and military technology in radar, for example, suggests that the business will also be a military supplier (Aviation Week and Space Technology, November 10).

Undoubtedly, there are many critics who cite the problems of time and money for building a potential challenger to Airbus and Boeing, adding that there are no signs that the Chinese government plans to transition CACC to

the private sector any time soon (Flight International, May 20-26). However, they tend to forget that—in general—Chinese leaders are very persistent and tenacious in achieving their goals, in particular when one of their goals is in commercial aviation. Chinese political leaders together with managers of the commercial aviation industry have realized the importance of the industry in order for China to accomplish technological breakthrough and to augment this breakthrough into the military aviation sector. As a result, it can be said, that the same rules of tenacity, persistency and consistency that applies to the government's desire to develop a civilian sector, also applies to the military aviation sector.

MILITARY AVIATION INDUSTRY

Russian specialists who have worked in China remain impressed by the scale of their resources and the funding that has been poured into China's military aviation programmes. One of them told *Jane's* that "The advance in facilities at Chengdu Aircraft Corporation (CAC) has been astonishing over the last twenty years. They now have a huge site with completely new test and development facilities, laboratories and an entirely new production line—quite apart from what was there to begin with" (*Jane's Defence Weekly*, May 21). The Commission of Science, Technology and Industry for National Defence (COSTIND) has revealed that the earthquake that struck Sichuan province on May 12 brought "heavy loss" to the region's aerospace and defence industrial base. Speaking on May 19, Chen Quifa, COSTIND deputy minister, confirmed the anxieties raised in the local media. While the financial impact on the aerospace and defence industries is not yet known, the economic loss is expected to be a high proportion of the 67 billion yuan figure (\$9.6 billion) (*Jane's Defence Weekly*, May 28). Despite the heavy losses, the author expects the Chinese government to continue financially backing the crucial enterprises for aviation and defence that are located in earthquake-prone places such as Sichuan province.

Defence industrial enterprises also hope that leveraging the commercial technologies and business practices of civilian firms can lead to major productivity and efficiency gains, as well as improvements in the products. For instance, the development of the Chengdu Aircraft Corporation FC-1/JF-17 fighter shows the benefits that have been reaped by employing commercially available technology and know-how. CAC was able to reduce the time frame for the research and design of the aircraft by as much as 50 percent through the use of computer-aided design and manufacturing software (*Jane's Defence Weekly*, July 30).

DUAL-USE TECHNOLOGY

Finally, with regard to dual-use technology items, a good example is the JF-17/FC-1 flight simulator displayed by the Beijing-based China National Aero-Technology Import and Export Corporation (CATIC) at the Singapore Airshow in mid-February 2008. The simulator provides basic fighting training, emergency procedure training and combat mission training (*Training and Simulation Journal*, April/May 2008). Chinese officials said that a freighter version of the commercial aircraft, possibly for military use, may come first. Such a strategy would allow the military operation would help sort out the bugs and thus reassure airline customers. A military project might also serve as a cover for subsidies. Moreover, a small wide body aircraft, serving as a freighter and, potentially a tanker, has obvious military value—just like the 767 and A330 tanker-transport (Aviation Week and Space Technology, May 19). According to Guo Xin, president of the company's Gas Turbine Establishment, which is a part of the Aviation Engine Industry Corporation Limited, "China will certainly build an engine for an aircraft with 150-180 seats." Xin added that the civil engine will play the same role in launching the Chinese commercial engine integration as the ARJ21 regional craft is playing in the establishment of a national commercial airframe industry. Cruise-missile engines may also be derived from the family, although power plant tolerances and components would be revised (Aviation Week and Space Technology, November 10).

The duality of the aviation industry's output will remain on the agenda. The spill-over from commercial aviation into the military sector will continue and, as a result, will strengthen the already robust military aviation infrastructure. Despite Western disbelief and constant criticism of advancement in the Chinese commercial and military aviation, the latter has made steady progress and shown repeatedly that it is capable of regenerating itself. The financial investment made into the training of aviation engineers, technicians and managerial staffs has finally been repaid after twenty years.

Eugene Kogan, Ph.D., is currently a guest researcher at the International Institute for Liberal Policy in Vienna. He is a defense industry analyst with expertise on Russia, Eastern Europe, Israel and China.

Military Diplomacy: The Future of Sino-Indian Military Relations?

By Bhartendu Kumar Singh

Military relations between rising powers are often caught in a conflictual cycle. Yet Sino-Indian military relations is an exception in spite of wariness on both sides of the others strategic intentions. While the two states have been at odds for much of the Cold War following the Sino-Indian border war in 1962, the two sides have fashioned their bilateral relations in a commendable manner during Indian Prime Minister Manmohan Singh's government. Part of the credit should go to on-going military diplomacy, engineered in stages between the two countries, which have allowed the People's Liberation Army (PLA) and Indian Armed Forces to manage disputes and maintain peace along the disputed borders. The simultaneous visit by the Indian Air Force Chief, Air Chief Marshal Fali H. Major, to Beijing with the Commander of the People's Liberation Army Navy (PLAN), General Wu Shengli, to New Delhi in the first fortnight of November 2008 reinforced the strength of this initiative in promoting Sino-Indian relations. While many more such initiatives are in the offing, it is open to question if such steps 'alone' will help in the settlement of the border dispute, remove the perception of China as a long-term threat among Indian defense planners and engender permanent peace between China and India.

EXPANDING MILITARY DIPLOMACY

During the Cold War, barring the clashes in 1967 at Nathu La and in 1987 at Sumdurong Chu, the two militaries largely maintained a non-confrontational posture along the Line of Actual Control (LAC). Former Indian Prime Minister Rajiv Gandhi's visit to China in December 1988 has been credited as unleashing a period of rapprochement. While there were some military interactions as a follow up, the first major step in military diplomacy was the path-breaking Agreement in Maintenance of Peace and Tranquility along the LAC in September 1993, followed by the 1996 Agreement on Confidence-Building Measures (CBMs) in the Military Field along the LAC. During Chinese Premier Wen Jiabao's visit to New Delhi in April 2005, additional CBMs were added to the 1996 agreement. These included, among others, border meeting points at Kibithu-Damai in the eastern sector and Lipulekh Pass in the Middle Sector; exchanges between the relevant military regions of China and army commands of India; and exchanges between institutions of training, sports and culture of the two armed forces [1].

These agreements laid down the foundations for bilateral engagement between the militaries of the two countries. For

the first time, the navies of the two countries participated in joint exercises off the Shanghai coast in China in 2003. They met again in 2005 in the Arabian Sea off the Malabar Coast and in 2007 off the cost of Qingdao [2]. The Chinese were also invited as observers during the Indian Army's war game exercises in the western sector in 2005. India sent observers to the China- Russia joint exercises in August 2005 at the invitation of the Chinese [3].

A comprehensive push on promoting bilateral military diplomacy was on track after the visit by the former Indian defense minister, Pranab Mukherjee, to China in May 2006. This was the first time New Delhi demonstrated the political will to distance itself from its earlier isolation and inward orientation and reach out to China [4]. The visit led to the signing of a Memorandum of Understanding (MoU) that called for the institutionalization of frequent exchanges between the officials of the Ministries and the armed forces through an annual defense dialogue, in addition to developing an annual calendar for joint exercises and training programs [5]. As a follow up exercise, former Indian Army Chief General J. J. Singh visited China in May 2007. The first meeting of India-China Defense Dialogue was held in Beijing from November 12-13, 2007 [6]. Also, China and India held their first mil-to-mil exercise 'Hand-in-Hand 2007' near the Kunming Military Academy in China's Yunnan Province in December 2007. The two armies will be meeting again for a follow up joint exercise in December 2008, this time at Belgaum in India's Karnataka Province. This could be followed up by a joint exercise between the air forces of the two countries [7].

GAINS FROM MILITARY DIPLOMACY

It is worthwhile to discuss a few of the visible gains from Sino-Indian engagement through military diplomacy are worth mentioning. First, military diplomacy has led to the graduated reciprocation in tension reduction (GRIT) between China and India. Political relations have become less hostile and the LAC between the two countries has become relatively stable compared to the Line of Control (LoC) between India and Pakistan. Vary rarely are there reports in Indian newspapers about cross-fire between Chinese and Indian forces. The relative peace on the Chinese front has allowed India to redesign its force mobilization and redeploy them in Jammu and Kashmir and northeast for counter-insurgency operations. Second, clandestine activities by the PLA near LAC are reportedly far less than by the Pakistan Army near the LoC. While there are cases of Chinese troops making regular incursions into Indian territories, they desist from supporting secessionist elements in crossing the border or in the supply of arms. Third, in the last few years at least, Chinese and Indian forces have engaged each other near the LAC in a series of interactive

activities such as mountaineering expeditions, celebration of national days, cultural and sporting activities. Such activities are yet to be inaugurated near the LoC (Rediff, December 31, 2007).

In the long term, India can benefit from military diplomacy on several fronts. First, not much is known about the PLA's modernization plans, its funding and budgetary process and its overall strategic objectives. India still relies heavily upon western intelligence and academic sources to develop its perspective on China's military preparedness [8]. As stakeholders in India's national security, the Indian defense forces are entrusted with the duty to acquire new knowledge about the PLA's functionalities, its combat preparedness and operational reach in the Asia-Pacific region. Military diplomacy will facilitate such 'knowledge development'. Second, Sino-Indian military diplomacy may relieve India from the specter of having to face a 'two-front' war with China and Pakistan, at least in the near future. During the 1999 Kargil War, it may have been due to India's improved relations with China through some confidence building measures on the LAC that kept Beijing from siding with Pakistan [9]. Third, it has given India some breathing space and confidence for a negotiated settlement of the vexed issue of the border. The protracted talks with no conclusion have often challenged the patience of policy makers as well as the public at large, but the relative peace on the borders has enabled diplomats on both sides to discuss the issue without any external constraint. Fourth, military diplomacy has enabled the two countries to move away from the position of bilateral confrontation to explore the potential of being stakeholders in the emerging Asian security architecture. Both the countries have identified terrorism, maritime piracy, drug trafficking, illegal arms trade, security of sea lanes and humanitarian response as issues that require sharing of resources and expertise. In discussing these issues, China and India are willing partners in multilateral military-diplomatic platforms like the Shangri La Dialogue and the Conference on Interaction and Confidence Building Measures in Asia (CICA).

LIMITS OF MILITARY DIPLOMACY

While military diplomacy has certainly yielded dividends as 'immediate relief', too much should not be read into these exchanges. First, military diplomacy is just one of the tools in conflict resolution that provides a congenial atmosphere for other tools such as political and diplomatic corps to carry forward. Second, barring a recent spate of engagements with the United States and other Asian countries, achievements by India's military diplomacy pale in comparison to those of China, where the PLA has established military contacts with almost every country of any significance [10]. Part of the reason could be that,

unlike China, the civilian control of India's foreign policy decision-making process is complete, with hardly any role available for the military establishment. Third, the extent and the scope of military diplomacy between China and India is limited and has not moved beyond symbolism. Even though the two countries are nuclear powers, there are no institutional arrangements to prevent a nuclear crisis through mutual contact at the top level. Further, China scoffs at India's diplomatic engagements with the militaries of other countries such as the United States, Japan and even Singapore. Fourth, the Sino-Indian border problem is too vast and complex and military diplomacy may have a limited role. The joint group of military experts that was entrusted to exchange a mutually agreed map of the LAC has not moved beyond the middle sector. The more contentious eastern and western sectors have not been addressed. Fifth, China continues to indulge in regular incursions across the LAC. At times it could be deliberate and other times it is because of differing perceptions of LAC and at times due to confusion among troops on the ground, especially when units change and new units get posted there.

CHALLENGES FROM CHINA'S MILITARY MODERNIZATION

While the two militaries engage one another, China's military modernization has crossed many milestones, which has caused fresh concerns about China's strategic ambitions. The functional and geopolitical expansions of the PLA's army, navy and space modernization are well documented [11]. Yet while New Delhi is keenly aware of the likely implications of Chinese military modernization on India's national security, it is ill equipped to face another Chinese onslaught on the border. While China's major force concentration is on the Eastern seaboard facing Japan and Taiwan, its capability to mobilize troops on the LAC is far more effective than India, which has only woken up to the need of developing infrastructure along the border [12]. Despite a bitter history of war, New Delhi's war doctrine, until recently, was not even geared on the realist lines and was too confident about handling China [13]. Border apart, China's growing presence in the oceanic waters aimed at treating India as a secondary player and consolidating China's dominance in the Asia-Pacific poses discreet competition for power and influence between the two rising great powers in the region.

Therefore, the 'current package' of military diplomacy, while bringing relative peace between China and India, does not address India's security dilemma vis-à-vis China. The unresolved border dispute coupled with China's enhanced military prowess might lure it to seek a military solution for vexing political issues. Border apart, internal problems in China could also force it on a war path with

India. China can choose the vulnerable Chicken's Neck (the narrow Siliguri Corridor connecting Chumbi valley to Bangladesh), the central plains of Bihar and UP or could decide to choke India in the Malacca Straits. Even without a full fledged war, China can constrain India's power and influence and render it helpless as witnessed through its maritime activities off the Myanmar (Burma) coast.

As China rises militarily, India needs to avoid an open confrontation with China. Hence, the focus should be on expanding the CBMs so that more interactive platforms and communication channels are available with China. In the next 20-25 years, as India enters a crucial phase of economic growth, the defense forces will have a critical role to play in maintaining a peaceful strategic environment in its neighborhood and ensuring unhindered economic growth. Higher level exchanges provide an opportunity to learn from global developments in military technology, weaponry and emerging military doctrines.

Military diplomacy, in the final analysis, cannot be a substitute for India's military modernization. With so many ambiguities surrounding PLA's strategic objectives, expenditure and role in foreign-policy decision making, India needs to supplement military diplomacy with concurrent military modernization to retain the option of an 'alternative future' with China. Only that will enable India to live in peace with China and compete in the emerging power and influence game in the Asia-Pacific region.

Bhartendu Kumar Singh, Ph.D., is in the Indian Defence Accounts Service (IDAS) and serving on deputation with the UN Mission in Sudan (UNMIS). The views expressed here are his own.

NOTES

1. See the text, "Protocol between the Government of the Republic of India and the Government of the People's Republic of China on Modalities for the Implementation of Confidence Building Measures in the Military Field Along the Line of Actual Control in the India-China Border Areas," April 11, 2005, www.meaindia.nic.in.
2. Bhartendu Kumar Singh, "Military Diplomacy and Sino-Indian Relations," Art. No. 2309, June 5, 2007, www.ipcs.org.
3. "Militaries of India, China to Interact More on Border Areas," http://www.outlookindia.com/pti_news.asp?id=357182/, February 22, 2006.
4. C. Raja Mohan, "India's Changing Strategic Profile in East and Southeast Asia," presented at the Regional Outlook Forum 2008, organized by Institute for Southeast Asian Studies, January 8, 2008, Singapore.

5. See the text of "Memorandum of Understanding between the Ministry of Defense of the Republic of India and the Ministry of National Defense of the People's Republic of China for Exchanges and Cooperation in the field of Defense," May 29, 2006, www.mea.nic.in

6. The Indian delegation was led by Mr. Bimal Julka, Joint Secretary, Ministry of Defense while the Chinese side was led by Maj Gen Qian Lihua, Director General, Foreign Affairs Office, Ministry of National Defense.

7. "India, China to Hold Joint Army Exercise in December," November 7, 2008, <http://www.india-defence.com/reports-4071>

8. Bhartendu Kumar Singh, "Whither China's Military Modernization," Review Essay, *Strategic Analysis*, Vol. 32, No. 4, July 2008, pp. 677-684.

9. Bhartendu Kumar Singh and Satyajit Mohanty, "Contextualizing Kargil Within China's Security Paradigm" in Maj. Gen. Ashok Krishna (Retired) and P.R. Chari, *Kargil: The Tables Turned* (New Delhi: Manohar, 2001), pp. 221-232.

10. The only exception is India's participation in UN peacekeeping operations since 1953. Presently, India has 9000 soldiers in five missions.

11. See, U.S. Department of Defence, "Annual Report to Congress: Military power of the People's Republic of China 2008," http://www.defenselink.mil/pubs/pdfs/China_Military_Report_08.pdf; M. Taylor Fravel, "China's search for military power," *The Washington Quarterly*, Vol. 31, No. 3, Summer 2008, pp. 125-141; Ashley J. Tellis, "China's military space strategy," *Survival*, Vol. 49, No. 3, Autumn 2007, pp. 41-72; Andrew S. Erickson, "The Growth of China's Navy: Implications for Indian Ocean Security," *Strategic Analysis*, Vol. 32, No 4, July 2008, pp. 655-676.

12. "Annual Report: 2005-2006," Ministry of Defense, India, <http://mod.nic.in/reports/welcome.html>

13. Saikat Datta, "China doctrine-II," December 31, 2007, www.outlookindia.com/defence.
