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THE PRC MEDIUM AND LONG-TERM NATIONAL SCIENCE AND
TECHNOLOGY DEVELOPMENT PLAN: A MANIFESTO TO STEAL

by

Joseph R. Fraley Jr., GS-14, DoD Civilian

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Advisor: Kevin Madden

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Biography

Mr. Joseph R. Fraley Jr. is a Defense Intelligence Agency (DIA) civilian currently assigned as a student at the Air War College, Air University, Maxwell AFB, Alabama. Mr. Fraley has over 30 years of experience in Asian affairs, specializing in Southeast Asia, and has extensive experience traveling and working in Asia. Mr. Fraley also possesses extensive expertise in illegal technology transfer issues as the DIA Representative on a Joint Law Enforcement (LE)/Intelligence Community (IC) task force focused on mitigating the illegal transfer of sensitive U.S. technology overseas.

Mr. Fraley served over 20 years on active duty with the United States Air Force in intelligence-related assignments in Japan, and throughout Southeast Asia. As a Defense Intelligence Agency civilian Mr. Fraley has served in operational and management assignments in Cambodia and East Africa, and staff positions as a program manager, Asian regional branch chief and IC liaison positions at the Defense Intelligence Agency Headquarters, Joint Base Anacostia-Bolling and at Wright-Patterson AFB, OH. Mr. Fraley holds a Bachelor of Science Degree in Computer Studies and a Master of Science Degree in Administration.

Abstract

The modern rise of China as a world economic power directly supported by a cultural ideology that looks to outside sources for technological innovation and periodic focused efforts to modernize outdated areas of Chinese society. This has not always been the case, as long before the 19th century the Chinese were known for their innovation and inventiveness. As China turned inward during the 19th and 20th centuries, its capability to innovate and to maintain a technological standing in the World diminished, leading to technological stagnation. As a response People's Republic of China (PRC) in recent decades has used its access to the world and relationship with the United States and other Western countries to feed its latest endeavor to modernize, to great effect. The Communist Party of China (CCP) has driven economic development through a directed economy as well as market forces. One means to drive their acquisition of foreign technology is through the CCP's Medium- and Long-Term National Science and Technology Development Plan (2006-2020). This single document is a manifesto to acquire new technology and innovations from outside the PRC, and has directed the acquisition of technology by any means necessary to the detriment of U.S. and western research and development organizations. This effort poses one of the greatest counter intelligence threats to the United States today. This directive has encouraged the rise in illegal and forced transfer of dual use and sensitive technology through joint ventures, academic exchanges, and traditional and non-traditional intelligence collection, while shipping technology through third countries to cover the ultimate destination. With the explosive growth of Chinese students attending U.S. schools and the rise in Chinese espionage cases, lax export laws in Hong Kong and recent changes to U.S. visa laws U.S. lawmakers must increase the focus on the protection of U.S. intellectual property and sensitive technology.

"When our thousands of Chinese students abroad return home, you will see how China will transform itself."¹

Deng Xiaoping, 1970s

Introduction

Historically, the people of China have been great inventors. As identified by the published research of scientist and scholar Joseph Needham in the 1950s, the Chinese conceived and created innumerable inventions, many critical to the development of modern weapons, including cast iron, the stirrup, gunpowder, printing, the magnetic compass and clockwork escapements, most of which were thought prior to his research to be western inventions.² For centuries before Christ and well into the 18th century, it can be argued that China was a technical juggernaut, leading the world's development across a wide range of disciplines.

By the 19th century, however, China's Ching Dynasty (1644-1912) was in serious decline. A host of factors paralyzed modern development. Ensconced in centuries of imperial privilege, China's leaders were also crippled by a cultural mindset singularly focused on continuity of the regime rather than embracing emerging opportunities for change as the modern world evolved. The fall of the imperial regime was followed by a period of turmoil culminating in the creation of a China governed by the Chinese Communist Party (CCP). The near chaos that reigned during this political revolution and social transformation also marked a shift from indigenous invention of technology to absorption of foreign intellectual property as the primary means to pursue modern development.

For most of its early existence, the People's Republic of China (PRC) focused on internal organization punctuated by the infamous "Cultural Revolution" and "Great Leap Forward" where not only 20-40 million citizens died but also the nation's domestic technical expertise was

decimated. As the PRC emerged from this imposed malady, its national focus shifted from domestic stability to international competition most often perceived as a direct challenge to America's military and economic primacy in the Pacific. To prosecute this challenge in an age where technology offered the most powerful offset, it was clear that the PRC required rapid acquisition of technology.

From the outset of this effort the PRC initiated the development of domestic research and development, seeking to exploit the massive potential of its human capital. To be sure, the PRC eventually developed what is now the largest technical research and development enterprise in the world, easily surpassing any other states in terms of technology-oriented universities and research institutions. Nevertheless, also from the outset, like other late-developing economies, PRC realized it needed to go outside its borders to acquire both core and integrated technologies, particularly those that related directly to military and industrial development.

To formalize these efforts, the Chinese Communist Party (CCP) published a series of plans culminating in the currently operative "Medium- and Long-Term National Science and Technology Development Plan (2006-2020)." While this plan repeatedly speaks to the development of indigenous capability, a discussion with respect to the protection of foreign intellectual property is completely absent. The inference is that the world's technology is available to China for the taking, an inference that has been borne out by behavior. The reality is that, even while it engages in massive indigenous technological advancement, the PRC is engaged in active state-sponsored theft of foreign intellectual property with the US a frequent target. This illicit activity not only raises questions about China's role as a responsible member of the law-abiding international community, but also poses a direct threat to US national security.

National Science and Technology Development Plan

Since its formation in 1953, the Communist Party of China (CCP) has issued a Five-Year Plan to direct national development, a system modeled after the Soviet Union's economic and development structure. Each of these plans outlined specific goals for economic, infrastructure, social, and military development over that period. In support of these plans, the CCP also occasionally issues focused planning documents covering longer periods. The 1995 CCP "Decision on Accelerating S&T Development" which outlined a plan to increase R&D spending to 1.5 percent of Gross Domestic Product (GDP) by 2000, urged scientific academies and institutes of higher education to create commercial high tech companies, and to reform the Chinese science and technology structure to support a socialist market economy.

In 2006, the CCP issued the "Medium- and Long-Term National Science and Technology Development Plan (2006-2020)," henceforth referred to as the MLP. The MLP served as a follow-on to the 1995 CCP "Decision on Accelerating S&T Development" which outlined a plan to increase R&D spending to 1.5 percent of Gross Domestic Product (GDP) by 2000, urges scientific academies and institutes of higher education to create commercial high tech companies, and to reform the Chinese science and technology structure to support a socialist market economy. The U.S. Embassy in Beijing commented that the plan was an effort to wean the bloated Chinese scientific research establishment off of government subsidization and get the private sector involved in research, while emphasizing indigenous innovation. The Embassy cautioned that one element missing from the plan was the protection of intellectual property.³

The 2006 MLP was issued at the same time as the Eleventh Five-Year Plan (2006-2011), but it focused specifically on science and technology goals, calling again for China to "become an 'innovation-oriented society' by the year 2020, and a world leader in science and technology

(S&T) by 2050." Most importantly, the MLP states that China is to develop capabilities for "indigenous innovation" and to leapfrog into leading positions in new science-based industries by the end of the plan period. In the Guiding Principles section of the MLP, the authors state "The guiding principles for our S&T undertakings over the next 15 years are: 'indigenous innovation, leapfrogging in priority fields, enabling development, and leading the future,'" all language drawn from Chinese history of self strengthening. "Indigenous innovation" is mentioned eight times in the Guiding Principles and 27 times throughout the document. The MLP defines indigenous innovation as "enhancing original innovation, integrated innovation, and re-innovation based on assimilation and absorption of imported technology." An outline of the MLP includes eleven "Main Areas and Priority Topics," to include "Defense," "Major Special Topics (not further described in the outline)," eight "Frontier Technologies," four "Basic Research" areas, "Reform of the S&T System and the Construction of a National Innovation System," "Major Policies and Measures," which includes a section on "Strengthening Assimilation and Absorption of Imported Technologies and Re-innovation," "S&T Input and S&T Infrastructure Platforms," and "Talented Workforce Buildup." As would be expected, the areas of "National Defense," "Major Special Projects," "Laser Technology," and "Aerospace Technology," are vague and provide no detailed information.⁴

An analysis by the American Institute of Physics described this plan as "remarkable," building on important S&T policy initiatives over the past 25 years.⁵ However, the National Bureau of Asian Research observes that the MLP is not a radical departure from previous strategies and "New targets to strengthen "independent" or "indigenous" innovation raise concerns abroad over the emergence of "techno-nationalism" and implications for China's future economic openness."⁶ This assessment does not address intellectual property rights and is

primarily concerned the Chinese may become technologically protectionist. The U.S. Chamber of Commerce, in their publication "China's Drive for Indigenous Innovation," goes even further to sound the alarm that the plan "is considered by many international technology companies to be a blueprint for technology theft on a scale the world has never seen before."⁷ As with the 1995 "Decision," the MLP lacks any protection for intellectual property and even more strongly encourages use of foreign technology for "re-innovation." The Guiding Principles of the plan espouse "indigenous innovation, leapfrogging in priority fields, enabling development, and leading the future" and defines indigenous innovation as "enhancing original innovation, integrated innovation, and re-innovation based on assimilation and absorption of imported technology." Nowhere in the Guiding Principles does it discuss actual indigenous research and development unique to China, but states and then re-states that technology will be acquired external to China and be "re-innovated." A 2011 U.S.-China Economic and Security Review Commission report noted " "Indigenous innovation" does not call for technological autarky, but for China's foreign interactions to have a laser focus on extracting technology for China's benefit" so that the PLA is enhanced by Chinese advancement in their technology base.⁸ Critical in attaining these goals is the effort to "re-innovate" as well as to educate the workforce overseas so that they can bring back their acquired knowhow to the drive. The plan addresses these efforts under the subsections entitled "Strengthening Assimilation and Absorption of Imported Technologies and Re-innovation" and Talented Workforce Buildup." Both of these sections provide guidance that directly threatens the security of U.S. intellectual property.

The section on "Strengthening Assimilation and Absorption of Imported Technologies and Re-innovation" appears from the outset to contradict "indigenous innovation" (*zizhu chuangxin*) as apparently anyone outside the PRC would define the term, and PRC actions in fact

indicate that their definition of indigenous innovation differs from what one would normally consider to be an effort to innovate from within. As noted by the U.S. Chamber of Commerce, the MLP is for the creation of PRC intellectual property and PRC proprietary product lines through the use of foreign technology, and defines indigenous innovation as "enhancing original innovation to co-innovation and re-innovation based on the assimilation of imported technologies."⁹ The MLP goes on to "encourage indigenous innovation and restrict blind and duplicative technology importation." In other words, the MLP provided thinly-defined guidance to not waste time developing technologies that can be acquired (by theft or otherwise) from overseas. This wording caused such an uproar in the international community that in May 2010, the Vice-Minister of the Ministry of Science and Technology (MOST) announced that MOST had been working on a draft of procurement policy and future revisions would address concerns over Intellectual Property Rights (IPR).¹⁰ The PRC leadership also announced that it intended to join the World Trade Organization's Agreement on Government Procurement, a treaty that ensures nondiscriminatory access to government purchases for foreign companies, "as soon as possible," but as of February 2015 the PRC had yet to join the agreement.

The guidance on "Talented Workshop Buildup" directs the building of a cadre of world caliber experts by attracting S&T talent, which appears to be something PRC college students have taken to heart. The primary means for the PRC to build this cadre is in fact to send students overseas. As shown by history, sending students overseas to gain foreign technological expertise has been the bulwark of China's development since the 19th century when students from China traveled to Europe and the United States to study. During the post-Mao period in the midst of normalization talks with the U.S., a group of 480 Chinese students were dispatched to 28 countries to study. Of these 480, 433 studied in the United States (see Table 1). This humble re-

introduction continued to grow through the mid-1990s when the growth exploded to over a quarter of a million students today. In fact, this reality is perhaps the clearest and most public indicator of the MLP's success.

Table 1: Number of Students from PRC Studying in the U.S.¹¹

Year	# of Students From China	%Change from Previous Year
2013/14	274,439	16.5%
2012/13	235,597	21.4%
2011/12	194,029	23.1%
2010/11	157,558	23.5%
2009/10	127,628	29.9%
2008/09	98,235	21.1%
2007/08	81,127	19.8%
2006/07	67,723	8.2%
2005/06	62,582	0.1%
2004/05	62,523	1.2%
2003/04	61,765	-4.6%
2002/03	64,757	2.4%
2001/02	63,211	5.5%
2000/01	59,939	10.0%
1999/00	54,466	6.8%
1998/99	51,001	8.6%
1997/98	46,958	10.5%
1996/97	42,503	7.3%
1995/96	39,613	-

Since the 1995/1996 school year, the number of PRC students who attended U.S. universities grew almost seven-fold. The growing presence of PRC students is not limited to the United States. By the 2011/2012 school year there were over 83,000 PRC students in the United Kingdom, more than a 50 percent growth in five years.¹² Another example is in Canada, where the number of PRC students attending Canadian universities grew over four time between 2001 through 2011 to over 80,000.¹³ Some in the academic community laud the growth of the number of Chinese students at U.S. universities, placing great value on the monetary benefit to the university, opportunity to work with gifted students, and perceived positive influence on person-

to-person international relations. While many of the students from China end up staying in the US to pursue a career (and continued access to technical information), a large number also are likely upon return to the PRC to work for the government or start their own business.

Addressing the value of China's students at U.S. universities "helping" US-China relations, Anthony Chang in "Is Overseas Study Helping U.S.-China Relations" noted that only about one third of the students return to their homeland. Of significance of those earning doctorates in hard sciences, 92 percent are still in the U.S. five years after earning their doctorates, while still holding PRC citizenship.¹⁴

The combination of direction to obtain technology of overseas and the transplantation of students from China in key foreign centers of R&D creates a ready-made avenue to exploit foreign development – an avenue that the PRC is clearly willing to pursue.

By Hook or Crook: Cooperation, Collection and Theft

In contrast to traditional intelligence collections methods such as Human Intelligence (HUMINT) or more passive Signals Intelligence (SIGINT), the PRC's intelligence services prefer to use sources and methods that fall into the "non-traditional" realm to acquire technology. These include exploiting overseas students and embedded overseas Chinese scholars, importation of foreign technology through Hong Kong, joint ventures and export relationships with foreign companies and the widely-reported Chinese scouring of the Internet and offensive Information Operations against U.S. companies and government computer systems. The commonality with all these methods is that they are all low-cost operations, are in most cases conducted on or from home turf in the PRC, and – at present – with little to no threat of discovery.

After nearly a decade of the MLP's specific direction to gain self-sufficiency, one would assume that PRC companies and government research entities would be more self-sufficient and innovative. However, acquisition from overseas sources of technology – legal or otherwise remains a key source of technology. Potentially the most productive conduit for foreign information is the overseas Chinese community as can be seen in the expansion of not only the number of overseas students but also extraordinary efforts to form joint ventures across the entire spectrum of science and technology – ventures that flow sensitive technology back to the PRC for re-innovation. Ominously, since 2009 the FBI's case load for trade secret cases increased by 60 percent.¹⁵

Students from the PRC attending U.S. and other Western universities, overseas Chinese employees in Western countries, and Chinese scholars embedded in education and research institutions are a vast and readily available source of information on basic and applied research. Two high profile cases in 2014 amplify the threat. On July 23, 2014 it was revealed that a PRC national had enlisted a PRC college student in Iowa to acquire sensors designed for military purposes for export to the PRC without a license. A month later on August 25, 2014, a former Chinese national employee at Sandia Labs pleaded guilty to conducting research for PRC businesses and universities and for illegally transporting U.S. Government property overseas.

These cases notwithstanding, it is difficult to prove that an illegal export of sensitive or proprietary information has occurred, and it is hard to track. A September 2014 assessment of U.S.-China S&T cooperation for the U.S.-China Economic and Security Review Commission observed that "Measured by co-authored scientific research papers, U.S. collaboration with China now exceeds collaboration with traditional partners such as the United Kingdom, Germany, and Japan. China and the United States have become each other's main partner in

scientific collaboration."¹⁶ The study welcomes the PRC's willingness to fund a larger proportion of this research, but it also acknowledges that with the background and interconnected nature that has grown through the 35-year U.S.-China cooperative program, "one cannot help but wonder whether the United States, by its own actions and inactions, is ceding its long-held leadership position in S&T to a rising China and, in doing so, is thus surrendering the very tools needed to maintain advantage from engagement with China." In *Chinese Industrial Espionage* the authors agree that "Since the mid-nineteenth century - some 150 years or more - China's worldwide role in science and technology has been that of a taker, not a giver. This fact is unquestioned even inside China."¹⁷

Another key conduit for the movement of U.S. technology – particularly hardware - to the PRC is through Hong Kong front companies. As example, just last year on 10 November 2014 a PRC national from Hong Kong pleaded guilty to attempting to acquire and export to the PRC accelerometers designed for low and zero gravity inertial navigation systems that can be used in satellites and launch vehicle applications.

U.S. export regulations regarding Hong Kong and the PRC differ because the United States has attempted to enforce strict controls of dual-use and International Trafficking of Armaments Regulations (ITAR) technologies to the PRC, but has retained the more relaxed export controls afforded to Hong Kong as the laws were enforced prior to the turnover of Hong Kong to the PRC in 1997. According to the Commerce Department, The Hong Kong Special Administrative Region (HKSAR) and the People's Republic of China (the PRC or Mainland China) are treated as two separate destinations under U.S. law for export control purposes."¹⁸ This distinction allows PRC commercial and government enterprises to easily sidestep U.S. export controls and acquire U.S. technology through front companies in Hong Kong. Even after

the turnover of Hong Kong to the PRC in 1997, export laws to Hong Kong have not changed, allowing for an explosion in the export of controlled U.S. technology to not only China, but to Iran, North Korea and a host of other denied entities. The U.S. House of Representatives' 1999 Cox Report concluded that "Some controlled dual-use technologies can be exported from the United States to Hong Kong license-free, even though they have military applications that the PRC would find attractive for its military modernization efforts."¹⁹

Large PRC companies in recent years have pursued ventures with foreign companies either in a Chinese domestic manufacturing and development arrangement or have attempted to acquire U.S. companies to gain access to the U.S. domestic market. In what could be seen as a prophetic statement, the 1999 United States Senate Cox Report provided an overview of the Chinese theft of U.S. nuclear technology, warned that "joint ventures with foreign partners involving technology sharing and next generation development, and foreign investments in U.S. industry create technology transfer opportunities that may raise either economic or national security concerns." In both these strategies the Chinese have since used these relationships to great success in acquiring extensive amounts of new technology and knowhow, much of which has been migrated to military programs.

China-based joint ventures and co-production agreements increase the opportunity for Chinese government entities to acquire technology and knowhow through the presence of foreign company representatives and the training of Chinese employees at U.S. companies. In such arrangements, the Chinese government also requires the transfer of technology to China. The Chinese government views this transfer of technology requirement as a cost of doing business in China and is certainly a simple method to acquire technology for military use. A prime example of a China-based joint venture arrangement is the extensive collaboration between several U.S.

and Western aviation companies and Aviation Industry of China (AVIC)/Commercial Aircraft Corporation of China (COMAC) to develop the C919 regional passenger jet, as well as joint co-production ventures for the manufacturing of Boeing, Airbus and other Western commercial aircraft components in China. Foreign suppliers for components of the C919 are required to set up joint venture manufacturing facilities in China with Chinese companies, with the Chinese partner owning 51 percent of the venture. This increase in access to foreign aviation technology, manufacturing processes, use of carbon fiber, and advanced avionics has resulted in spin-off dual-use technologies that has benefitted Chinese fifth-generation fighter aircraft development. It is probably no coincidence that China's J-20 stealth fighter bears a striking resemblance to the F-22.

The PRC has not been shy in attempting to exploit this access to US industry, as indicated by recent legal action attempting to stem the flow. On March 5, 2014, a federal jury in the Northern District of California found two PRC nationals and one company guilty of economic espionage, theft of trade secrets, bankruptcy fraud, tax evasion, and obstruction of justice for their roles in a long-running effort to obtain U.S. trade secrets for the benefit of companies controlled by the government of the PRC. The PRC nationals conspired to steal trade secrets regarding chloride-route titanium dioxide production technology, a technology with military and aerospace uses. In April of 2014 two PRC nationals were indicted by a federal grand jury in Virginia on charges that they attempted to acquire radiation-hardened microchips for export to China. On July 2, 2014 a PRC national and a naturalized U.S. citizen in Maryland plead guilty to fraudulently obtaining infrared technology from U.S. companies for export to the PRC. Then, on November 7, 2014, a PRC national and former employee at a U.S. defense contractor was arrested and charged with attempting to travel to the PRC with sensitive

proprietary documents that set forth detailed equations and test results used in the development of technologically advanced titanium for U.S. military aircraft.

Chinese companies have also pursued the acquisition of U.S. firms as a means to gain access to the U.S. market as well as to acquire sensitive technology. The best example are several attempts to acquire U.S. companies by Chinese telecom giant Huawei Technologies Company, the second largest telecommunication company in the world. Huawei's attempts to acquire U.S. firms have been directed towards acquiring specific software and hardware technologies or in the case of Sprint, gaining access to the U.S. network through the supply of Huawei telecommunications equipment. Ownership of Huawei is very unclear and the company is thought to be a front for the PLA. Compounding this belief is that Huawei CEO Ren Zhengfei is a former PLA officer. Due to U.S. Government scrutiny of Huawei activities in the United States, Huawei claimed in December 2013 it was to leave the U.S. market, but as recently as June 2014 Huawei officials backtracked and stated they were still attempting to grow their business in the U.S. Coincidentally, in September 2014, T-Mobile filed a lawsuit against Huawei for espionage in the theft of a robotic arm by a Huawei employee visiting a T-Mobile facility. This and previously mentioned cases are not aberrations, but likely represent just a tip of the iceberg of the PRC's organized thievery of U.S. technology.

Perhaps the PRC's most ubiquitous efforts are in the field of cyber intrusion. In May 2014 the U.S. Justice Department indictment of five Chinese PLA members of Unit 61398 for cyber attacks and intrusions on several U.S. corporations provided a glaring example of the extensive and persistent effort by the PRC to scour the internet for information to support "indigenous innovation," and shows how Chinese cyber operations are directed by the PLA and the Chinese government. Unit 61398 is subordinate to the PLA General Staff Department (GSD)

3rd Department (aka 3PLA), the primary PLA signals intelligence organization. According to the Project 2049 Institute, Unit 61398 is 3PLA's "premier entity targeting the United States and Canada, most likely focusing on political, economic, and military-related intelligence."²⁰

Chinese cyber efforts are not just focused on sensitive defense technologies, but as was evidenced in the U.S. Department of Justice indictment of members of Unit 61398, Chinese cyber operations against U.S. government and private sector companies focus on every sector of the economy. Chinese actors use a myriad of methods to gain access, ranging from a direct attack on a computer system, use of trusted third party systems to gain access to the targeted system, or direct email approaches using a fictitious front company. The common factor is that the operations and targets are driven by Chinese government requirements for information.

Chinese surreptitious cyber intrusions of computer systems is the most targeted form of cyber attack, with a pre-identified target organization to steal specific information or technology. These intrusions are usually operations based in China, as in the case of the May 2014 indictment or through the assistance of a third party. A recent example of the use of a third party to gain access to a computer system is the 15 August 2014 Federal grand jury indictment of a Chinese national in Canada who worked with two unindicted co-conspirators based in China to infiltrate computer systems and obtain confidential information about military programs, including the C-17 transport aircraft, the F-22 and the F-35 fighter jets. At the other end of the spectrum where a direct approach was used is a May 2013 case of a Chinese national who attempted to procure five tons of military-grade carbon fiber through email contact. In this case, the individual openly contacted what turned out to be an FBI cover company to purchase export-controlled Toray T-800 carbon fiber and then attempted to circumvent U.S. export laws to move the carbon fiber to China. Given the wealth of information that is vulnerable and available,

undoubtedly the PRC attempts at cyber theft will expand, not diminish, regardless of its developing domestic R&D capabilities, posing a major threat to US industry and security.

Consequences to the United States

Intellectual property associated industries contribute over \$5 trillion in U.S. economic output.²¹ Several academic organizations and government commissions studying U.S.-China relations have observed that issues of intellectual property theft and illegal technology acquisition by the Chinese effects the relationship between the two countries and have dramatically effected the U.S. economy. The Commission on the Theft of U.S. Intellectual Property by the National Bureau of Asian Research views the effect in terms of cost, jobs, drag on the U.S. GDP and innovation, and observes that the cost to the U.S. economy of theft of U.S. intellectual property is equal to the level of U.S. exports to Asia - over \$300 billion dollars annually, and that 60 to 80 percent of that theft is by China, it costs millions of U.S. jobs, and better protection of intellectual property would encourage more R&D investment and would drive productivity growth.

Since its ascension to the World Trade Organization the PRC has done very little to adhere to Intellectual Property rights and, while claiming to their intent to join the WTO Intellectual Property Rights protocol, they have yet to do so. The PRC must be pressed to ensure foreign intellectual property rights are protected and that PRC "indigenous innovation" does not continue to be a euphemism for the theft of foreign technology and ideas.

The growth of the number of PRC students in the U.S. is an ever-increasing threat to U.S. university and private company proprietary information. The U.S. Government has just made this issue exponentially more difficult by agreeing to extend business, student and tourist multi-

entry visas from one year to five years. This will diminish the capability of U.S. law enforcement to track the entry into the U.S. of PRC nationals with the potential to steal U.S. technology. The PRC government has yet to reciprocate on an agreement for one-year multi-entry visas, and is very unlikely to approve five-year visas for U.S. travelers. The daily crush of PRC visa applications through U.S. embassies and consulates worldwide is overwhelming, questions of national security and the security of U.S. business and government sensitive technologies must be taken into account.

Export laws governing the free movement of sensitive and dual-use technology through Hong Kong as compared to the PRC must change. The ability of PRC, Iranian and other actors to acquire technology through Hong Kong with little to no effort or concealment is an affront to U.S. export control laws, and complicates U.S. business' ability to know the ultimate destination of their shipments.

Likewise, the rampant internet hacking and intrusion of nearly every scientific and economic area of the U.S. economy poses another threat with the potential to substantially damage U.S.-PRC relations as well as threaten U.S. national security. Efforts by the FBI and other U.S. federal agencies to at least slow incessant PRC technology theft through the internet, as witnessed by the May 2014 U.S. Department of Justice indictment have recently highlighted the problem yet again. However, unless U.S. efforts are expanded, U.S. companies and educational institutions pay more attention to PRC attacks on their systems, and the PRC is made to suffer punitive actions, their operations will continue unabated.

Under the guise of a plan for the development indigenous S&T programs, the CCP's MLP is actually a license to acquire – by any means possible – sensitive foreign technology not only to improve its industrial progress but also to strengthen its military. That this direction is

undertaken with gusto is evidenced by the thousands of cases of intellectual property theft by PRC students studying overseas, joint ventures with dubious intentions, and constant cyber intrusion – all events sponsored by the CCP in Beijing. Formalized in CCP directives, emboldened by poor U.S. public policy, and managed through PLA intelligence organizations, the PRC technology acquisition machine scours every sector of the U.S. economy, purloining intellectual property at a rate no U.S. federal agency can quantify. This PRC attack on intellectual property poses a direct threat to U.S. national security, is one of the greatest counter intelligence threats faced by the U.S. today, and left unchecked will increasingly threaten the core existence of American society. It is a threat that cannot be ignored.



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