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## A CHINESE PERSPECTIVE ON CHINA-UNITED STATES COOPERATION IN SPACE

Dingli Shen  
Dingli.Shen@edu.edu

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## A CHINESE PERSPECTIVE ON CHINA-UNITED STATES COOPERATION IN SPACE

DINGLI SHEN

This article describes the arrival of new space actors from Asia, with particular focus on China. It analyzes the lack of cooperation in civilian space programs between China and the United States (U.S.), and the possible negative consequence of this. The paper suggests that the principles of non-diversion and reciprocity in accession as the foundation for China-U.S. collaboration in the civilian sector of space collaboration. This paper addresses the ongoing defense program with space application by the two countries, suggesting an overall program for China and the U.S. to have dialogue,<sup>1</sup> as well as collaboration in space areas, promoting mutual trust and confidence.<sup>2</sup>

### China as an Asian Actor

Space programs are traditionally the realm of the two superpowers, the United States and the former Soviet Union, and Russia as its sole legal successor. These powers have dominated space exploration so far. Both of them have developed significant space programs and assets, and have endeavored great manned space exploration. The U.S. and Russian space programs have developed certain space stations, distinctive launch vehicles, and global position and navigation systems, to

name a few. Comparatively speaking, the American program is more advanced, for its success of the lunar landings, which Russians have not attained, and for its deep space exploration programs and advanced space telescope probing technologies. They are also two powers that have carried out military activities in space.

In comparison, Europe is the other established space power, with the European Space Agency (ESA) having developed a number of space launchers, probes, vehicles, and the Galileo position and navigation system (pending further progress). Though space research has been long dominated by the aforementioned three players, more countries have lately joined civilian space exploration.<sup>3</sup> Asian states have been recently intensely engaging in space competition.<sup>4</sup>

In particular, Japan, China, and India are the three key Asian states. Japan started its lunar journey by sending spacecraft *Hiten* in 1991, though without great success. However, after experiencing a series of setbacks in testing its rockets, *Japan successfully launched* its *Kaguya* lunar explorer on 14 September 2007, ahead of China and India in sending their own moon orbiters.

China started its civilian space program in 1956 and accelerated its pace since entering

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<sup>1</sup> The then NASA Administrator Michael Griffin visited China in September 2006 and the two sides agreed to launch their first meeting for China-U.S. space cooperation. It was postponed to July 2008 in Beijing for China's ASAT test, mainly to exchange information of respective space programs and to discuss future cooperation. The second meeting was scheduled to take place in Washington, DC, but China suspended all defense talks in November 2008 to protest U.S. weapons sale to Taiwan.

<sup>2</sup> Theresa Hitchens and David Chen have analyzed the same issue. See "Forging a Sino-U.S. 'grand bargain' in space," *Space Policy* 24: 3 (2008), pp. 128-131.

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<sup>3</sup> Marc Kaufman, "U.S. Finds It's Getting Crowded Out There; Dominance in Space Slips as Other Nations Step Up Efforts," *Washington Post* (8 July 2008).

<sup>4</sup> Shen Dingli, "One Small Step for China..." *ChinaStakes.com* (30 November 2008), [www.chinastakes.com/story.aspx?id=74](http://www.chinastakes.com/story.aspx?id=74) (accessed 2 February 2009); and Trefor Moss, "The Asian space race," *Jane's Defense Weekly* (24 October 2008), [http://www.janes.com/news/defence/systems/jdw/jdw081024\\_1\\_n.shtml](http://www.janes.com/news/defence/systems/jdw/jdw081024_1_n.shtml) (accessed 2 February 2009).

the 1990s. Since 1999, China has successfully launched seven *Shenzhou* spacecrafts, with manned space missions and China's taikonauts conducting extravehicular activities (EVA). On 24 February 2007, China launched its first lunar orbiter, *Chang'e-1* (phase one of *Chang'e* project). It is understood that China has planned to send its first space station—*Tiangong-1* (Sky Palace)—in 2010, and fulfill its own manned landing on the Moon, possibly by 2024, during the fourth stage of *Chang'e* project.

India has robust rocket industry and missile programs. Though India's space program started late, it is accelerating its pace. On 22 October 2008, India successfully shot its first lunar orbiter *Chandrayaan-1* into space. India has planned to execute its first manned Moon landing by 2020, four years ahead of reported Chinese plan.

Obviously there emerges a space race among the three Asian states. Among them, China seemed to have started the earliest, while Japan and India are following closely. So far, they have demonstrated different features in terms of their space programs and achievements. Roughly within a year, all of them launched their respective first lunar orbiter successfully, with each possessing quite advanced launch capability for space vehicles.

Comparing the three Asian space powers, China is the only country that has commanded human spaceflight through *Shenzhou* spacecrafts, demonstrating both EVAs and remarkable retrieval technology of spacecraft. China has the best record of successful launch of spacecrafts and possesses a young generation of engineers engaged in research and development (R&D) and commanding space program implementation. Japan is relatively advanced in its overall science and technology strength. Though Japan's launch

record is unimpressive as of yet, it has comparatively good technology of satellite and probing devices. As far as India is concerned, it has a strong national consensus in pushing lunar probes forward. India's space program is the most cost-effective compared to China and Japan.

The rapid advancement of civilian space programs of the aforementioned Asian states is enabled by some international cooperation. Japan's space program has received assistance from the U.S., while Russia helped China and India to some extent. More recently, the U.S. is interested in working with the Indians to promote their civil space program.<sup>5</sup> The Chinese have sought cooperation with America on civilian space exploration, but the National Aeronautics and Space Administration (NASA) has not responded positively so far.<sup>6</sup>

The U.S. unwillingness or indecision to cooperate with China in civil space enhances, rather than reduces, China's apprehensions of American distancing, if not isolating, China's civilian space program. It has also been observed by China that the Bush Administration pushed hard to cooperate with India on civilian nuclear cooperation, by

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<sup>5</sup>Dwayne A. Day, "The new path to space: India and China enter the game", *Space Review* (13 October 2008), <http://www.thespacereview.com/article/1231/1> (accessed 2 February 2009).

<sup>6</sup>It is understood that NASA has tried, but failed to obtain, Bush Administration approval of an overture to China for a cooperative U.S.-China space mission, according to NASA Administrator Michael Griffin. The White House believed that a higher level of cooperation is too great a reward to China for its human rights and arms export behavior. See Craig Covault, "Bush Administration Nixed NASA's U.S.-China Cooperation Idea," *Aviation Week and Space Technology* (21 December 2008), [http://www.nasa.gov/about/highlights/griffin\\_bio.html](http://www.nasa.gov/about/highlights/griffin_bio.html) (accessed 2 February 2009). Also, see Marc Kaufman, "NASA's Star Is Fading, Its Chief Says; In Leaked E-Mail, He Rails About Budgetary Tensions and Feared Rise of China," *Washington Post* (14 September 2008).

withdrawing a longstanding code of non-cooperation with any non-Nuclear Non-Proliferation Treaty (NPT) state— a principle to establish Nuclear Suppliers Group (NSG) in the aftermath of India's nuclear test in 1974. U.S. collaboration with India on nuclear and space programs is in sharp contrast to the “cool” U.S. stance with China.

The U.S. orientation to India is understood in China as a means to leverage U.S.-India cooperation to counterbalance China's rise as a space and military power. While U.S.-India space cooperation may render a certain edge to India in the trilateral space competition in Asia, China is not idle. In the race of unmanned lunar orbiters, China lost to Japan to be first. It is hard to imagine that China is willing to be behind India's human spaceflight ambitions. Further, it is foreseeable that the Asian space race could only be more intense in the next decade, and China would adjust its schedule to keep its overall lead in civil space, especially in relation to India.<sup>7</sup>

### **Consequence of Non-Cooperation**

The U.S. is unwilling to collaborate with China on civilian space exploration, most likely to protect its dual-use space technology and for fear of China's space development for military ends.<sup>8</sup> China's success of an anti-satellite (ASAT) test on 11 January 2007 exacerbates the U.S. Department of Defense

(DOD) concern of a Chinese space weapons program.<sup>9</sup>

China and the U.S. have had a complex relationship. Even in the least sensitive areas, such as economics and trade, the large amount of two-way trade volume has been developed to suit the needs of the two countries. China's economic opening has increased its dependence upon the world that promotes mutual stake-holding between China and the rest of the world. The U.S. has been cooperating at the strategic level, promoting mutual understanding to lessen the likelihood of confrontation across the Pacific, and at business level, promoting economic common goods for the benefit of the two sides plus the Asia-Pacific community.

American businesses have been investing in China for the last three decades, given Chinese governmental protection of foreign investment and inexpensive labor force and various investment incentives. This cuts the investment costs and brings more competitive strength to U.S. companies. While American investors benefit, U.S. laborers do lose jobs due to manufacturing outsourcing.

Therefore, cooperation and competition go in parallel. This applies to not only economy, but also to the security area, defense sector, and dual-use field where civilian and military application of the same technology could be intertwined given the nature of the technology— for instance, space technology is such an example.

To protect the U.S. civilian space technology from being diverted through cooperation, America could pay a cost of distancing China

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<sup>7</sup>See Peter Brown, *Asia Times Online* (12 November 2008) “China needs sharper eyes in space,” <http://www.atimes.com/atimes/China/JJ16Ad02.html> (accessed 2 February 2009), and “China fears India-Japan space alliance,” (12 November 2008), [http://www.atimes.com/atimes/South\\_Asia/JK12Df02.html](http://www.atimes.com/atimes/South_Asia/JK12Df02.html) (accessed 2 February 2009).

<sup>8</sup>So far, America has maintained a significant lead in space science and technology. It has sent twelve astronauts to the Moon.

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<sup>9</sup>Shen Dingli, “China's Defensive Military Strategy: the Space Question,” *Survival* 50: 1 (2008), pp. 170-176; and David Sands, “China, India Hasten arms race in space: U.S. dominance challenged,” *Washington Times* (25 July 2008).

and forcing China to develop some similar technology relatively independently, while sustaining mutual suspicion in respective intentions in space exploration. The U.S. runs the risk that there will be less of a possibility to negotiate an internationally acceptable norm of conduct to control the spread of military space technology in the world.

Even without American cooperation, China has sent seven *Shenzhou* spacecrafts already to the space, and it is aspiring to send Chinese taikonauts to the Moon. Although China has to experience a technically difficult path, it is still something independently doable for China. The outcome of lack of space cooperation could only lead to a slower pace of program progress, but not fundamentally an inability to move forward for a country like China that trains millions of new scientists and engineers a year.

For instance, during the Cold War, the U.S. never assisted China in China's civilian and military nuclear programs, but China independently attained both technologies. The Soviet Union used to assist China in acquiring nuclear weapons technology, but China has mastered it mainly through its own efforts. At one point, China did request technology of Permissive Action Links (PALs) from America in the 1990s, but the U.S. did not permit. Eventually, China could have received it from Russia.<sup>10</sup>

China is a resourceful country. With a base population at 1.3 billion in the mainland, the country generates over 6 million university graduates a year at present. Given proper policy guidance and resource allocation, the country could have unlimited talents to tap, which promises success in these high-

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<sup>10</sup>"China's Nuclear Imports and Assistance From Abroad," <http://www.nti.org/db/china/nimport.htm> (accessed 2 February 2009).

technology programs with or without international cooperation.

At the same time, even if America is unwilling to cooperate with China, this does not close China's opportunities to access to other channels for international cooperation.<sup>11</sup> In 1950s, the Soviet Union used to supply China with technologies of nuclear weapons and advanced conventional weapons, and train Chinese military scientists. Presently, Russia is supplying China with advanced weaponry, plus space aviation technology, and trains Chinese technical personnel as well.<sup>12</sup> This builds Sino-Russian strategic trust and helps release strategic resources that China would otherwise reserve to counter threats from the former Soviet Union.

While the non-cooperation of America on civilian space technology could potentially slow the pace of Chinese space exploration, American strategic interests in securing Chinese understanding and willingness to assist in global security and regional stability could also be met less readily. As long as the U.S. hedges against China on civilian high-technology cooperation, America is prompting China that the US is not China's close friend, and does not deserve China's assistance wholeheartedly.

Terrorism has constituted the paramount threat to America in the past decade, but this is apparently not the case for China. China is certainly threatened by terrorism, but this threat is far less comparing with the

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<sup>11</sup>China has maintained international cooperation programs in civil space programs. A recent conference in Vancouver, Canada discussed China's space strategy and the need and possibility of Canada's space cooperation with China. See, "Engaging China on Space: Implication for Canada" in this issue of *Space and Defense*.

<sup>12</sup>It is understood that Russia has supplied nine spacesuits to China, and provided full technical support to China's first space walk.

magnitude of the threat to America. In a similar vein, the level of perceived threat to China and America, due to nuclear development of North Korea and Iran, is quite different. North Korea and Iran are friendly to China and they do not intend to threaten China with their nuclear capacity. It is China that can harm its relationship with them through the argument and practice of nonproliferation. So, Chinese strategists could decide to which level China could render security to America in terms of nonproliferation, depending upon how the U.S. treats China's interests in promoting its civilian high technologies, including civilian space technology.

Under the Bush Administration, the U.S. government identified major threats to America in the following sequence: international terrorism; proliferation of weapons of mass destruction (WMDs) and delivery means; regional instability; and the emergence of new powers such as India, Russia, and China.<sup>13</sup> The Bush Administration did not view the rise of China as the arch threat to America, and in fact China and the U.S. share interests in defeating the first three categories of threat—terrorism, proliferation, and instability. However, in terms of magnitude of such threats to China and the U.S., their levels of intensity are quite different. It would be quite unnatural that the U.S. shall expect China's security cooperation, while China would not be satisfied with American cooperation in other areas, including the willingness that America has demonstrated in bringing civilian nuclear power to India.

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<sup>13</sup>White House, *The National Security Strategy of the United States of America*, September 2002; and White House, *The National Security Strategy of the United States of America*, March 2006.

## **Collaboration with Confidence**

The U.S. might not be totally unwilling to collaborate with China on civilian space cooperation, provided that dual-use space technology would not be diverted through cooperation, and that reciprocity of cooperation will be ensured so as to promote transparency of respective program.<sup>14</sup> This is directly related to the assumption that U.S.-China cooperation will not be harmful to America. While honesty is at stake when the collaborators may assure each other, it is even more crucial to have a system in place that would lead the least to be diverted in a harmful manner.

Therefore, to attain bilateral cooperation of civilian space program, the principles of non-diversion and reciprocity ought to be imposed. Accordingly, designing a regime of such cooperation will be highly desirable. Short of this, such cooperation will lead to nowhere and could only be viewed as a liability to each other. The Cox Report of 1999 issued by the U.S. Congress served such an example in the sense that: sensitive cooperation between the two countries in dual-use technology areas ought to be properly evaluated and approved; and there existed cases where Chinese side was alleged to have diverted dual-use technology imported from America for defense purpose other than what was initially applied for.<sup>15</sup>

The issue of concern herein in this paper is not to deliberate about the events described by the Cox Report, but rather discuss how to design a system in which the alleged diversion of dual-

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<sup>14</sup>Jürgen Scheffran, "Dual-Use in a New Security Environment: The Case of Missiles and Space," *INESAP Information Bulletin* 26 (June 2006), pp. 48-53.

<sup>15</sup>*U.S. National Security and Military/Commercial Concerns with the People's Republic of China*, Select Committee, United States House of Representative, Washington, D.C., 1999.

use technology could not take place physically. As far as dual-use items are transferred, it is not difficult to deter a diversion. This can be accomplished by post-transfer visiting, by posting personnel regularly or irregularly on site, and/or by long-distance monitoring through camera, or a combination of all these schemes.

For civilian space cooperation, what could then be the potential area of cooperation? Potential areas could include, among others, joint endeavors in design, training, flight and programs, and more general technology cooperation— information consulting and technology transfer.

### *Joint Design*

For the next 10 to 15 years, China's civilian space program will focus on both lunar exploration and space station development and systems, and China would welcome American cooperation in assisting China's design of these systems. In terms of manned Moon landings, that would entail advanced technology in soft landing and taking-off from the Moon. For space station, it will involve chamber design, life sustenance, space connecting, Earth-space shuttling. The U.S. has accumulated significant experiences in all these areas.

It is likely that the U.S. needs to protect its launch, energy, sensing, space communication technologies, and software for space programs. In this case, China has accumulated some experiences already in these critical technologies, and shall work on them more or less independently. For areas as energy thrust, remote sensing, and telecommunication, where duality of technologies is apparent, both sides shall make it clear that neither side might have chance to access to the details of each other's technologies or know-how. For technologies less sensitive, the U.S. may shed

some light to the Chinese on the principle of reciprocity of understanding the corresponding Chinese design.

### *Joint Training*

China has already built its training academy and facilities, so this may not be a highly sensitive area for cooperation. However, to have astronauts to participate in the training program of each other could help build mutual understanding of training systems and culture, hence increasing trust building and familiarity with each other's system. This shall be helpful in future development and maintenance of joint programs, such as a possible joint space station. Such cooperation might be conducted in mock space capsules as well, leading each other to understand some design philosophy, without harming much defense secrecy of military assets.

### *Joint Flight*

When reaching proper level of political trust between China and the U.S., the two countries may aspire to set up joint crew on-board each other's spacecraft, or invite the other to a multilateral flight setting. This would assure even wider understanding of space operation culture of each other, and build great team work of astronauts of the two countries. More importantly, such missions carry significant political message of more genuine Sino-U.S. political and scientific cooperation. Certainly critical technologies will be less able to be protected during the operation, but exact design is still likely not to be revealed.

### *Joint Programs*

Joint programs could involve a combined space station, or joint venture of such from the beginning. Even joint space exploration could be contemplated, given the availability of respective financial and technical resources.

Space scientists could develop many ideas of innovative experiments in the space, and execute various missions of different purposes. Given the rapid progress of space programs of Japan and India, these Asian countries could envisage Asian cooperation in joint space exploratory missions, and America could develop wider space cooperation with all these Asian players engaged.

### *Technology Cooperation*

An even longer list of potential cooperation could be developed. The U.S. needs not necessarily be afraid of seeing technology flowing to China. Given China's growth of domestic technology in the next decade, America can benefit from such cooperation with China that promises to emerge as a new major power generating indigenous advanced technology. After all, the build-up of political trust and scientific exchange will help build a new type of cooperative partnership between China and the U.S.

### **Defense Component: The Deterrence Context**

While China-U.S. cooperation on civilian space programs is desirable to generate peaceful common goods collaboratively, and to help nurture political trust, it is also an imperative that the two countries avoid a defensive, or offensive, race that will extend to outer space. China's ASAT test in January 2007 demonstrated the extent of distrust that exists presently between the two states.<sup>16</sup>

This entails careful scrutinizing in terms of its strategic context. While China has been under pressure for its ASAT test, it has its own logic in conducting this experiment. From a Chinese perspective, it is an important step to preserve

its critical strategic deterrence at a time of American quest for space monopoly.

In China's view, it is the U.S. drive of space weaponization that is troubling. On the surface of the Earth, the balance of international relations is presently preserved by a certain delicate balance of strategic deterrence amongst major powers. Such balance has been established among the U.S., Russia, and China. Even though China has a rather small nuclear deterrent comparing with that of the U.S., China's deterrence is effective— with China's dispersive basing mode— and without a version of America's national missile defense or space-based missile defense. This, in turn, reassures China its ultimate security in the context of U.S.-China relations.

In history, China used not to be advocates of pursuing nuclear weapons. Chinese leadership had termed nuclear bombs as “paper tigers,” despite the devastating power the American atomic bombs had demonstrated against Hiroshima and Nagasaki. However, when the U.S. openly challenged China's security in 1950s, China made its mind to go nuclear in January 1955. These events had prompted China to bid for nuclear weapons— the U.S. threatened to bomb China with American nuclear bombs during the Korean War, during artillery shell exchange between Amoy and Kinmon/Matsu islands, and during China's assistance to Vietcong's Battle of Dien Bien Phu.<sup>17</sup> In less than 10 years, China secured its initial atomic weapons; in October 1964, China tested its first bomb in Gobi Desert successfully.

Though America may not be interested in accepting Chinese nuclear weapons status, the fact that China has established a small strategic deterrent has helped stabilize China-

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<sup>16</sup>William J. Broad and David E. Sanger, “China Tests Anti-Satellite Weapon, Unnerving U.S.,” *New York Times* (18 January 2007).

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<sup>17</sup>McGeorge Bundy, *Danger & Survival: Choices About the Bomb in the First Fifty Years* (New York, New York: Random House, 1988).



U.S. relations. This has restrained American freedom of action vis-à-vis China. The U.S. has to ponder now the military and political consequences of waging a war with China, given the possibility that China developed an effective countervalue retaliatory capacity.

This is particularly relevant in the context of the Taiwan issue. China considers Taiwan a historical part of it and views that it has the sovereign right to handle it with whatever means. Presently, the U.S. is committed to the defense of Taiwan. Hence, there exists a vast difference in Chinese and American positions on Taiwan. After China obtained nuclear weapons in 1964, the U.S. has not publicly threatened China with nuclear bombs anymore to China's satisfaction.

China has purposefully chosen a minimum deterrence strategy, to attain the effect of deterrence, while least affecting the status quo. Initially, China opted for this path due to economic strain and moral concern. Over time, China has still adhered to it despite its improvement of economy.<sup>18</sup> It might be true that China is modernizing its strategic forces by introducing certain new launch platforms, and even experiencing its own version of science-based stewardship program of nuclear warhead modernization under the Comprehensive Test Ban Treaty (CTBT) regime, but it has officially refrained from pursuing a massive nuclear modernization.

China's self-restrain vindicates its belief in the limited political utility of nuclear weapons. China believes that it can handle international relations primarily with overall national strength, with nuclear weapons only serving to deter their first use by another party. Though

such nuclear first attack could never be excluded, its real chance of first use is highly improbable. As long as China does not aspire to pursue an aggressive global policy, it is unnecessary to build a full-scale counterforce capability and a limited deterrence strategy is sufficient.

### **Space: New Balance of Power**

There exists an unsymmetrical balance of nuclear deterrence between China and the U.S. over the past half a century. On the one hand, with the fast process of globalization as well as China-U.S. economic integration, the worst-case scenario of a nuclear confrontation between the two countries is very remote. On the other hand, in a realistic world where the nation-state is still the dominant unit to account for interstate relations, the nuclear power is far from being eliminated from international politics. It is against this backdrop, and given the push of the Clinton Administration for national missile defense and the Bush Administration effort of space weaponization, that China views the effectiveness of its nuclear deterrence eroding since the 1990s.

America's logic of building missile defense is the expanding threat of missile proliferation. Indeed, there is a phenomenon of missile proliferation around the world. America and other Western countries used to share missiles among their friends. Given the spread of missiles in the developing world, the West has spearheaded international control of missile transfer, making various codes of conducts, such as Missile Technology Control Regime (MTCR).

In this regard, China and the U.S. have developed a complex relationship. China used to export conventional missiles to states in Middle East and South Asia, including Saudi Arabia and Pakistan. Under U.S. pressures and

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<sup>18</sup>Information Office of the State Council of the People's Republic of China, "*China's National Defense in 2008*," January 2009, Beijing. The White Paper has reiterated China's no-first-use policy of nuclear weapons.

sanctions, China has modified its behavior throughout the 1990s, making more stringent commitment to refraining from such transfers.

In the meantime, the U.S. has continued weapons sale to Taiwan, which is viewed by China as provocative. Ideological differences aside, the thorny issue of Taiwan's quest for independence, China's vow to thwart a *de jure* independence by Taiwan, as well as America's threat through intervention in accordance with the *Taiwan Relations Act*, all bode ill for a physical confrontation between China and the U.S. China therefore deems an effective nuclear deterrence, despite its moderate size, necessary to keep America more cautious. Nevertheless, national missile defense, as well as ambitious space militarization by the U.S. DOD, serves to neutralize the effectiveness of China's deterrence.

China has raised, time and again, the seriousness of such development, in violation of Anti-Ballistic Missile (ABM) Treaty and other international treaties to ban space weaponization. For much of the 1990s, China had been working in the United Nations-based Conference on Disarmament, to propose to set up an ad hoc committee negotiating an international instrument on the "prevention of arms race in outer space" (PAROS), and even has attempted to link this to the American initiative to negotiate a separate international Fissile Material Cutoff Treaty (FMCT).<sup>19</sup> Under the Bush Administration, in particular, China's efforts were in vain— America abrogated the ABM, embarked on an aggressive space weapons program, and opposed PAROS. This may change with the Obama Administration in the U.S. that has called for "a worldwide ban on weapons that

interfere with military and commercial satellites."<sup>20</sup>

International politics have prompted China to take realistic responses in kind, to attain "mutually assured space vulnerability."<sup>21</sup> Though China has voiced opposition to space weapons, it is understood that it might have kept its own R&D program of such. In regard to the January 2007 ASAT test, which created international repercussions, China has promised not to repeat tests.<sup>22</sup> However, this may not allay concerns over China's continuing effort to build a space-based defense capability to offset American unilateral superiority that threatens the effectiveness of nuclear deterrence.<sup>23</sup>

If the history of nuclear proliferation serves any lessons, the current initiation of a space race of a military nature ought to be avoided as early as possible. America's pursuit of absolute security through dominating space will only pressure other countries, China and India, for instance, to join this expensive competition. Will the U.S. Government realize

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<sup>19</sup> See, "Chinese CD PAROS Working Paper", February 8, 2000, *Disarmament Diplomacy*, Issue No.43, January-February 2000, <http://www.acronym.org.uk/dd/dd43/43paros.htm>.

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<sup>20</sup>See <http://www.whitehouse.gov/agenda/defense> (accessed 2 February 2009). "The Obama-Biden Administration will restore American leadership on space issues, seeking a worldwide ban on weapons that interfere with military and commercial satellites. They will thoroughly assess possible threats to U.S. space assets and the best options, military and diplomatic, for countering them, establishing contingency plans to ensure that U.S. forces can maintain or duplicate access to information from space assets and accelerating programs to harden U.S. satellites against attack."

<sup>21</sup>Eric Hagt, "Mutually Assured Space Vulnerability", *China Security* 2: 2 (2006), pp. 84-106.

<sup>22</sup>"Chinese authority promised to the U.S. that it would not test missile against satellite again," *China Times* (in Chinese), Taipei, 27 October 2008.

<sup>23</sup>For more description from a Western perspective, see Ashley J. Tellis, "China's Military Space Strategy," *Survival* 49: 3 (2007): 41-72, and "Punching the U.S. Military's 'Soft Ribs': China's Anti-satellite Weapon Test in Strategic Perspective," Policy Brief 51, Carnegie Endowment for International Peace, Washington, DC, June 2007.

that it is highly undesirable to quest for space monopoly through building a military capacity vis-à-vis space?

### **Recommendations: Packaged Program of Cooperation**

It is highly undesirable and unhelpful if China and the U.S. would enter a military space race, while being unable to collaborate in civilian space cooperation.<sup>24</sup> In fact, the more they hedge against militarily, the less likely the two countries will endeavor to undertake civilian cooperation as it intrinsically carries a possibility of dual-use diversion. Reversely, the build-up of political and military trust shall help nurture cooperation in civilian and dual-use space programs.

To this end, China and the U.S. ought to address their political objectives and security concerns frankly and aspire to collaborate strategically. The change of the international political and economic climate— President Obama’s distancing to missile defense and support to prevent space weaponization, global call to nuclear zero (an elimination of nuclear arms), improvement of political ties across the Taiwan straits after Ma Ying-jeou’s coming into power, and ongoing global financial crisis and subsequent need for cooperation— sheds some hope for a better China-U.S. space relationship.

In fact, President Obama’s political view of missile defense is quite different from his predecessor, but echoed President Clinton.<sup>25</sup>

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<sup>24</sup>Bruce W. MacDonald, “China, Space Weapons, and U.S. Security,” Council on Foreign Relations Special Report 38, New York, September 2008; and Peter Brown, “A fresh start or a protracted showdown?” *Asia Times Online* (3 December 2008), <http://www.atimes.com/atimes/China/JL03Ad01.html> (accessed 2 February 2009).

<sup>25</sup>William Walker, “President-elect Obama and Nuclear Disarmament: between Elimination and Restrain,” *IFRI Security Studies Paper*, Winter 2009.

During his presidential campaign, Obama had voiced distance with missile defense.<sup>26</sup> As President, he has asked for prudence in regard to the current program, somehow relieving tensions with Russia. Obama may have not expected that his cautious position could soften China’s strategic suspicion of the U.S. as well, and, in turn, can make America safer if he can help foreclose Chinese development.

In fact, Obama could decide not only to hold-off on further American missile defense and space weapons programs, but also lead an effort to global nuclear disarmament effort. Though it is still distant to foresee a nuclear weapons free world, a world with thousands of deployed U.S. strategic weapons could only harm America— there is no enemy at that magnitude to check and too many nuclear weapons only make America less able to demand that North Korea and Iran abandon their nuclear aspirations.<sup>27</sup>

President Obama could lead to both curtail American nuclear defense and offense, but still enhance America security significantly. The U.S. freeze of strategic defense shall help speak to China to suspend Chinese programs and ambitions of a similar nature. China has appreciated the Bush Administration’s distancing of Chen Shui-bian government in Taiwan in 2008, when the political campaign eventually led to the change of leadership to Ma Ying-jeou. The U.S. political gesture helps assure China that America has no strategic intention to confront China. It will be

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<sup>26</sup>President-elect Obama considered that missile defense has to be proven to work before being deployed, and the system in Europe has to be supported by allies. See, “Arms Control Today 2008 Presidential Q&A: President-elect Barack Obama,” *Arms Control Today*, December 2008.

<sup>27</sup>See, George P. Shultz, William J. Perry, Henry A. Kissinger, and Sam Nunn, “A World Free of Nuclear Weapons,” *The Wall Street Journal* (4 January 2007), and “Toward A Nuclear-Free World”, *The Wall Street Journal* (15 January 2008).

desirable if the Obama Administration will carry this momentum to build a cooperative partnership with China, including collaboration with the current financial crisis and strategic space exploration.

China-U.S. talks on space relations could possibly include three elements that are highlighted below.

1. At political level, China and the U.S. should re-affirm that space will be preserved only for peaceful purpose of all mankind. At present, both sides shall freeze space weapons programs at current levels in a transparent way. Such a commitment would not cut U.S. space defense programs and would help assure that China would not make progress in this regard. The U.S. has been worrying that China could challenge America's space dominance by laser blinding of space sensors, disrupting space-based communications, and launching ASAT weapons to destroy orbital satellites. China shall benefit in a similar fashion.

President Obama would run a major risk in his Presidency if he would push American missile defense and space weapons programs forward. In doing so, Obama could pressure countries like China to respond in kind and they could afford such response financially and technically.

Eventually, America would not end with a safer world, but open up outer space as a new frontier to militarily compete. This would be a strategic mistake as America might not be able to sustain its space dominance in the new century anymore.

2. The U.S. and China shall address threats of mutual and common concern in a collaborative way, especially to tackle missile proliferation in the context of building trust for space cooperation. The

rise of China with an ever apparent global presence is increasingly exposed to an international environment of missile threats. As such, China and the U.S. shall define more common interests in dealing with missile threats together, and be able to understand and accept some kind of point or area missile defense. Over time, the Bush Administration's Proliferation Security Initiative (PSI) may be more acceptable in building security cooperation and trust, while catering to China's concern of PSI's compatibility with existing international legal system and practice, especially in the context of North Korea. China and the U.S. may find a way to constructively address their respective national security in dealing with the level of acceptability of mutual missile vulnerability.

3. China and the U.S. could set moderate goals in civil space cooperation, on the aforementioned two principles of non-diversion and reciprocity. Initial stages of civil space cooperation could include joint academic endeavors to address civil space objectives, space personnel safety, space debris, and space science and medicine. Various space education efforts, such as to launch joint student summer camps for space science, space modeling, and space vehicle design could be considered.

The two countries could design some civil space exchange programs that would lead to least disclosure of space technology, but maximum build-up of trust and confidence. An incremental program, to add to step-by-step, could be conceived to exchange information on crew training and lunar topography at this stage. When China is to launch its space station, the two countries shall work more closely to build their systems with compatibility, so as to maximize their chance to collaborate

in the future, for space transportation or rescue missions.

It is necessary as well to envisage the legal dimension.<sup>28</sup> As legal instruments are necessary on the Earth to avoid conflict on the high seas and in the air, a space engagement code globally is necessary as well. The U.S. and China could take the lead to start their talks on making such an international law on space affairs.

This convention or code for space will address the identification and protection of national assets in the space, and non-intrusion of each other's assets. It shall establish the code of conduct of astronauts and taikonauts to engage in space through procedures and courtesy. The International Institute of Space Law (IISL) is important to this purpose, but as an international non-governmental organization, it is not in a position to efficiently make an all-encompassing international law to regulate human behavior in space. Similarly, the International Astronautical Federation (IAF) shall not be enough to administer an international law regulating all human behavior in space. It is necessary that state governments associate themselves in conducting their programs in space, or to entrust their national space agencies to form an international organization with government authority for this matter.

In the spirit of Sino-U.S. cooperation, China and the U.S. could engage in drafting such a code of promoting international civil space exchange and collaboration, as well as to

freeze, and to ban eventually, space weaponization activities for their bilateral interests and global benefits.<sup>29</sup> It is not difficult to realize that they are the two most important states in the world for the 21<sup>st</sup> century. So, they bear the responsibility of mutual respect and accommodation of each other's interests, as well as to lead the world into a more secure order.

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<sup>28</sup>Regina Hagen and Jürgen Scheffran, "International Space Law and Space Security— Expectations and Criteria for a Sustainable and Peaceful Use of Outer Space," in M. Benko and K.-U. Schrogl, eds., *Space Law: Current Problems for Future Regulations* (Eleven International Publishing: The Netherlands, 2005): 273-301; and Nancy Gallagher and John D. Steinbruner, "Reconsidering the Rules for Space Security," American Academy of Arts and Sciences, 2008.

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<sup>29</sup>The Council of European Union already approved a "Draft Code of Conduct for Outer Space Activities," 8-9 December 2008, <http://register.consilium.europa.eu/pdf/en/08/st17/st17175.en08.pdf> (accessed 2 February 2009).