

# ISSUE BRIEF

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## Responding to China's Manned Space Challenge

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As the U.S. continues to engage in study after study about its future space plans, the People's Republic of China (PRC) has progressed steadily in developing its own space program. This was demonstrated again when the PRC launched a *Shenzhou* manned capsule and docked it with the *Tiangong-1* space lab that China orbited in 2011. This marks the first step toward a greater Chinese presence in space, as docking and extended missions are essential to any space station or lunar mission.

For the U.S., its public image of being the leading space power is steadily eroding in the face of challenges from a nation that was far behind the U.S. and the Soviet Union at the start of the space age. Given that space is emblematic of national power, the U.S. should reinvigorate its public space efforts.

**China's Manned Space Program.** China has long had an

interest in manned space missions. With the demonstration of manned space flight capabilities by the U.S. and the Soviet Union in 1961, the PRC also began to investigate the possibility of launching its own astronauts into space. The result was an initial attempt in the early 1970s to modify a Chinese satellite to carry a person. While some 80 pilots underwent initial screening, because cost and technical feasibility issues, none of the 19 astronaut candidates ever rode the *Shuguang-1* into orbit.

Interest in manned space was revived as part of Plan 863, formally termed the National High-Technology Research and Development Plan (*guojia gaojishu yanjiu fazhan jihua*; 国家高技术研究发展计划). Aerospace systems, under the designation "863-2," were one of the key areas gaining concentrated research and development resources. In the late 1980s, the Chinese held a number of design conferences on how to put a man in space, settling on a space capsule approach in 1989.

In a March 1991 memo, Admiral Liu Huaqing, then vice chairman of the Central Military Commission (which runs the Chinese military), encouraged Communist Party General Secretary Jiang Zemin, Premier Li Peng, and other senior

leaders to support manned spaceflight. Li Peng reportedly concluded:

Money is a difficult [issue]. However, for a major nation such as ourselves, it is a resolvable issue. ... The "Gulf War" warns us that, in order to maintain great power status, one must have a certain level of real power. Although we cannot engage in an arms race with the United States, in some areas, we must engage. If our nation is to engage in space capsules, we should start from our own roots!<sup>1</sup>

One senior Chinese leader also observed that pursuing a manned space program would promote science and technology to a younger generation, sustaining China's aerospace and high-technology workforce. On September 21, 1992, the Standing Committee of the Politburo of the Chinese Communist Party (CCP), the true governing authority of the PRC, approved the proposal regarding manned spaceflight. The plan sought to build the basic foundational knowledge for manned spaceflight and lead to a space station.

At this point, the collapse of the Soviet Union aided Chinese manned space development efforts, as Russia

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was willing to sell entire systems and subsystems to the PRC for cash. While China has generally relied on domestic research efforts for much of its space program, it reportedly purchased life support systems, space suit technology, and docking systems from the Russians. In 1996, two Chinese astronauts, Wu Jie and Li Qinglong, began training at the Yuri Gagarin Cosmonaut Training Centre in Russia. Afterwards, it is believed that they had a hand in the selection, and possibly the training, of the 12 Chinese astronauts that were the first cadre of *Shenzhou* astronauts.

Contrary to some claims, the Chinese *Shenzhou* is not simply a copy of the Russian *Soyuz*. Superficially, the two are similar, both comprised of three separate modules. But the *Shenzhou* is wider, longer, and about half a ton heavier.<sup>2</sup> Furthermore, the *Shenzhou* has two sets of solar panel arrays, compared with the single set of arrays on the *Soyuz*. As one of these solar arrays is on the *Shenzhou*'s orbital module, this allows the module to sustain itself.

Similarly, the *Tiangong-1* space lab bears little resemblance to the Soviet *Salyut* space station—not least because the Chinese vessel does not mount a cannon. At less than 10 tons, it is smaller than the Soviet vessels, much less the U.S. *Skylab*. *Tiangong-1* is almost certainly intended primarily to allow the Chinese to spend more time in orbit and to practice docking.

The June 2012 *Shenzhou-IX* marks China's fourth crewed mission since *Shenzhou-V* in 2003. With this mission, China is putting in place the pieces necessary for building a space station and landing people on the

moon—both goals that were listed in the 2011 Chinese space white paper.

## What the U.S. Should Do

■ **Incorporate the space program into strategic communications and public diplomacy.** For the PRC, space is seen not only as an arena for industrial policy but as a diplomatic and public relations tool. By contrast, NASA has a level of name recognition and positive association known the world over, but it underutilizes it. NASA's products are a regular refutation of the claim of American decline and should be used as such. Although the 1970s-era *Voyager* spacecraft departed the solar system (marking the farthest distance any man-made object has ever traveled) the same week as the *Shenzhou-IX* mission, it received little fanfare.

■ **Increase reliance on the business sector.** A few weeks prior to the *Shenzhou* mission, a private SpaceX cargo spacecraft resupplied the International Space Station (ISS). Basic research in space science should be a major focus of NASA and other U.S. aerospace agencies. But the commercial sector, ever intent on reducing costs, has a different incentive structure for certain missions than the government does. Space exploration arguably requires the government. The business of space exploitation—whether resupplying the ISS or promoting space tourism—does not.

■ **Be cautious in engaging China in space.** There is always an American audience interested in space cooperation, especially relating to manned space, but the Chinese position emphasizing indigenous development suggests that Beijing will pursue technological “cooperation” that favors itself in any joint space ventures, such as demanding establishment of R&D facilities in China and preferential transfers of technology. As important, Chinese interest in legal warfare should serve as a caution toward creating new international regimes or codes of conduct where Beijing may well be able to constrain American efforts at preparing for potential space conflicts. Cooperation needs to benefit both sides—not just Chinese state-owned champions—and should not provide China with ready ammunition for future legal warfare measures.

■ **Improve assessments of China's space program, both manned and unmanned.** China's space program is not engaged in a race with the U.S.; its pace is simply too slow. But that is not grounds for complacency, for China has a concerted, sustained, long-standing space effort underway. The solution to the Chinese space challenge is not just better counterespionage but rather a sustained, extended American effort. This requires devoting more resources to understanding China's space program. Interactions with the Chinese space program may be necessary—but only if the American side

1. Zuo Saichun, *Chinese Astronaut Flight Documentary* (Beijing, PRC: People's Publishing House, 2003), p. 37.  
2. Ben Iannotta, “China's Divine Craft,” *Aerospace America*, April 2001.

knows their counterparts, understands what the Chinese are after, and has clear goals for any such meeting and interaction.

**Implications for the U.S.** Beijing has used its space program, including its manned space efforts, to highlight its technological prowess, build diplomatic bridges, and signal its growing military capabilities. Washington, despite a wider array of space capabilities, seems to have employed them less effectively, but it can make significant improvements.

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