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China's Manned Space Program by Dean Cheng

In recent weeks, there has been mounting attention paid to the Chinese space program, as China prepares to join the United States and Russia in launching one of its citizens into outer space. This has been a long-standing goal of the Chinese space program, since at least the founding of the Space Flight Medical Research Center by Qian Xuesen, in 1968 (two years before China's first satellite was orbited). Indeed, it has become clear in recent years that the Chinese seriously considered trying to put a man in orbit early in the 1970s.

That program, however, came to a halt with the passing of Mao Zedong. Whereas Mao had viewed the Chinese space program primarily in terms of national prestige and national security, those goals changed with the accession of Deng Xiaoping to the Chinese premiership. Deng's Four Modernizations program placed highest priority on economic and scientific efforts that would help develop China's economy. With a much stronger economic and technological base, however, China believed that it could now afford to target both prestige and economic benefits in its space program.

The result was Project 921, a renewed manned space program. As with all of China's space program, the original Project 921 proposal focused on indigenous development, of both a series of new rockets and new spacecraft. This program did not proceed, apparently being too expensive. In 1994, however, a cash-strapped Russia indicated its willingness to sell space expertise to China. In March 1995, Russia agreed to transfer manned spacecraft technology to China, including cosmonaut training, Soyuz spacecraft capsules, life support systems, docking systems, and space suits. In 1996, two Chinese astronauts, Wu Jie and Li Qinglong, began training at the Yuri Gagarin Cosmonaut Training Centre in Russia. After training these men returned to China, where it is believed that they have helped select, and possibly even train, the current class of 12 Chinese astronauts.

A manned program imposes enormous costs on a space program, including the weight of not only the astronauts but also their life support systems and additional redundancies. Why are the Chinese so interested in a manned space program, given these costs? Possible answers are military implications, political prestige, and economic factors.

Although other aspects of China's space program have clear military applications, the military benefits of its manned program are less clear. As seen with the United States and the Soviet Union, manned missions impose enormous costs, both at the mission and at an overall programmatic level. A human in space is incredibly fragile. In terms of military implications, it is not clear how the manned program, unlike the rest of the Chinese space program, might provide military benefits.

This is especially the case since the Chinese already field an array of satellites that fulfill a variety of military missions, including reconnaissance, meteorology, and communications. The addition of a manned program does not provide significant additional advantage.

Manned programs do promote certain technological areas, which may in turn hold military benefits. The ability to dock spacecraft, for example, requires very precise manufacturing and quality control for motors, controls, etc. These capabilities would clearly also affect missile production. Similarly, the ability to track *Shenzhou* orbital modules would provide the PRC with the ability to track space-borne objects generally. Indeed, China has gained access to a number of nations' space-tracking systems, and has also constructed new space-tracking facilities in Namibia and Kiribati.

The primary considerations for the Chinese manned program, however, would seem to be in terms of political prestige and economic factors.

A space program, but especially a manned space program, is in many ways like hosting the Olympics. For many states, hosting the Olympics marked their transition from lesser developed, or less accepted, state, to more developed or more accepted. This was true for Japan, in 1964, West Germany in 1972, and South Korea in 1988. Similarly, a space program represents a "coming out" party.

A space program clearly is the product of both national will and a level of national resources, measured in terms of both money and scientific talent. A manned program underscores both a national leadership's determination to be a space power, as well as a surplus of resources that can be devoted to that end.

And a manned presence says, in a very distinct way, that China cannot be ignored on the world stage. This is particularly true if the *Shenzhou* is not an end, in and of itself. Chinese writings clearly suggest a desire for a manned Chinese foothold in space by 2010-2015, and lunar missions in the longer term. It is worth noting that the U.S. managed to put a man on the Moon within 10 years of first putting a man in space. The idea of a Chinese space station, or even a lunar mission, given China's expanding economic base, thus moves from the exorbitant to the merely expensive.

The message from a successful manned Chinese program is aimed not only at a domestic audience, but also a broader international one as well. It is interesting to note that China offered to take Taiwanese seeds into orbit on the *Shenzhou*-V launch.

A final consideration is that a successful manned effort is likely to also bring direct benefits to China's launch industry. A successful *Shenzhou* launch would represent an enormous

bit of advertising for China's space launch program, which has been in the doldrums for most of the last several years. The last major commercial effort was the launches, between 1997 and 1999, of the Iridium satellites.

The logic, if this is a motivating aspect, would be that Chinese launchers are sufficiently reliable to put people into orbit – presumably it would meet the needs for satellite launch as well. In the meantime, there is also the possibility that pursuit of the manned program serves to keep not only production lines but design teams employed.

In light of these considerations, what are the policy implications for the United States of a successful manned Chinese space mission? At a minimum, it should serve as a "wakeup call" regarding ongoing multilateral space projects. For example, at present, China is not a member of the consortium working on the International Space Station (ISS). A manned Chinese presence in space calls for a reexamination of this policy. If the Chinese knock at the airlock door, what will be America's response?

In the larger sense, however, the U.S. needs to take into greater consideration China's burgeoning space capabilities, of which its manned program is merely the most public display. As an independent space power, China is a complicating factor for future American diplomatic and military initiatives, not only in the bilateral context, but potentially in regional and even out-of-area situations as well.

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