



China's space policy—a historical review

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A B S T R A C T

The political and economic climate in China has changed often and wildly since the country's space programme was founded. Nevertheless the programme has remained remarkably stable and achieved major successes. This article traces the programme's history in the context of the four major periods through which it has lived and offers an explanation of why and how it has survived so well: high-level government support, international prestige and committed personnel. The recent Tiananmen turmoil has not dimmed its progress and the programme looks set both to advance its space commercialization efforts in the short term and to develop a manned capability in the long term.

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In recent years China's space programme has provoked increasing international attention. Prior to the mid-1980s it was viewed largely with curiosity, as an interesting undertaking by a peripheral actor. However, by 1986 it was taken seriously. Two factors explain this. First, China's 1986 offering of Long March launch services signalled to the world that it intended to be a serious competitor in the global space services arena. Now the aerospace industry had to give serious attention to the competitive challenge coming from China. This required a good understanding of its space services capabilities. Second, for the first time in the history of the Chinese space programme, details of its operations and achievements were made available to outsiders. Research, manufacturing, and launch facilities were opened to foreign observers.

This growing interest was reflected from 1987 onwards in a dramatic surge of articles on the subject. For the most part, these have been highly descriptive, focusing primarily on such things as the types of services on offer, payload capabilities, manufacturing infrastructure, etc.

The aim of the present article is to go beyond a descriptive treatment of China's space programme and focus on its rationale and political and managerial origins. This will be done by taking a historical perspective on the programme. The historical record leads to the conclusion that the Chinese space programme has shown a remarkable resilience, regardless of the specific political, economic, or social forces operating at different times: whether Chinese society is being buffeted by the anti-Rightist campaign of 1957, the Cultural Revolution of 1966–76, the radical shifts of the economic reform policies of 1980–89, it would appear that the space programme marches on.

This will be argued by examining Chinese space policy during four distinct periods. First, we look at space policy from 1956 to 1966. During this period, China experienced a number of traumatic political events: the anti-Rightist campaign, the Great Leap Forward, and the sudden withdrawal of Soviet support for Chinese science and technology. Despite this great turmoil, China was able to establish its space programme.

The second period examined is 1966–76. This period was dominated by the Cultural Revolution. While virtually all sectors of Chinese society were torn apart by its forces, the space programme managed to stay the course. It was during this time that China launched its first satellite and truly entered the space age.

The third period is 1976–86, a time when the nation tried to recover from the excesses of the Cultural Revolution. The space programme was placed on the back burner as the Chinese leadership and people focused their attention on getting their lives back into order. This was a period of major reassessment of China's most fundamental economic and social goals and potentially posed the greatest threat to the space programme since it entailed creating new economic and social priorities. China's economic development became a paramount concern and the space programme's contributions to society had to be justified on economic grounds. Once again, the space programme survived a major challenge.

Finally, the fourth period lasted from 1986 to the present time and represents the heyday of the Chinese space programme, since at this time a commitment was made to making it the cornerstone of the national science and technology development effort. It is in this period, of course, that the events in Tiananmen Square took place.

1. In the beginning (1956–66)

The space age did not officially begin until the launch of Sputnik in October 1957. China, however, was interested in space-related affairs even before Sputnik. What would ultimately emerge as its space programme began in 1956. Several events occurred at this time which encouraged the development of a strong space effort.¹

First, in January 1956 Mao Zedong called for a major national drive to upgrade China's scientific capabilities, signalling a willingness on the part of the leadership to support 'big science' in China. Then in February Dr Qian Xue-sen issued a proposal to the central government entitled *Proposal to Establish China's Defence Aviation Industry*. Dr Qian had recently returned to the country from the USA, where he had been actively involved in the US army's missile programme.² He was later to become regarded as the father of China's space programme.

Key events of the period that helped the programme on its way are listed below:

- The establishment of the Fifth Academy of the Department of Defence. This military organization was given primary responsibility for developing China's space programme. It served this function until 1964, when key elements of its role were transferred to the Ministry of the Seventh Machinery Industry.
- Cooperation with the USSR to acquire Soviet missile technology. In September 1957 a Chinese delegation visited the USSR to negotiate a cooperative agreement. On 15 October 1957 a bilateral agreement was signed in which the Soviets agreed to help the Chinese develop rocket technology. In 1958 the USSR pledged to help China build three R&D institutions that would focus on missile development. Two sample Soviet P-2 rockets were shipped over to China to provide the Chinese with a close look at operational missile technology.
- The decision to build short–medium-range rockets independently. Political tensions between China and the USSR flared in 1960. In August of that year the Soviets withdrew all technical assistance for China's missile programme. The Chinese immediately decided to go it alone. In February 1961 the Fifth Academy decided that all attention should focus on developing independent capabilities to build short–medium-range missiles. China's first attempt to launch a missile on 21 March 1962 failed. The first successful launch occurred on 29 June 1964 and the first successful launch of a fully operational medium-range missile occurred on 26 December 1966.
- The successful launch of sounding rockets. This occurred on 19 February 1960. The rockets were independently developed and formed the basis of China's civilian space programme in the early years. Another milestone was achieved

on 29 July 1964 when China launched its first sounding rocket for biological research.

- The commitment to producing satellites. After the Sputnik launch Dr Qian and his colleagues initiated a plan to develop satellite building and launching capabilities. Activities related to this plan were given the name 'Mission 581'. A major component was the call to build three satellite and launch design institutes. The First Design Institute was established in August 1958. In November it was moved to Shanghai and renamed The Institute for Generator Design of the Chinese Academy of Sciences. The Chinese leadership's commitment to developing satellite launching capabilities was demonstrated in Mao Zedong's 1958 declaration to the Second Plenary Session of the Eighth Central Committee of the Communist Party when he said: 'We must make artificial satellites too'.³

During this period a number of political, economic and social upheavals created turmoil in Chinese society. Their impact on the space programme is now discussed.

1.1. The Anti-Rightist Campaign

The year 1956 began auspiciously for China's intellectuals. In January the Party Central Committee convened a meeting to examine the role of intellectuals in China. One outcome was recognition of the importance of science and technology – and by implication, scientists and engineers – to China's development. On 2 May 1956 Mao Zedong issued his famous statement on 'letting a hundred flowers blossom and a hundred schools of thought contend'.⁴ This suggested that the Chinese leadership would tolerate diverse viewpoints, and as a consequence intellectual life flourished. Many intellectuals who had fled in 1949 decided to return to the country.

Tolerance did not last long. Beginning in April 1957 with the Rectification Campaign, attention focused on the Rightists, who wanted a liberalization of China's economic and political system. By the summer a full-scale anti-Rightist campaign was launched. Chief among its victims were intellectuals, including many scientists and engineers. Many of them were imprisoned and lost their jobs. Both the short- and long-term impacts of the campaign on China's artistic and scientific development were disastrous.

Fortunately the scientists and engineers working on China's missile and space programme were buffered from the destructive forces of the campaign. Their work was considered important for national defence. Older scientists and engineers who had returned from abroad were treated like patriots. Younger ones were sent off to the USSR for advanced training and thus escaped the more egregious excesses of the anti-Rightist campaign.⁵

1.2. The great leap forward

The Great Leap Forward had its intellectual origins in the Second Plenum of the Eighth National Congress of the Chinese Communist Party, convened on 5–23 May 1958.⁶ The actual implementation of Great Leap Forward policies began in August of that year. The overriding emphasis was to accelerate economic development through extraordinary measures. In agriculture, for example, all

¹ The major historical records on China's space programme for this period come from two books: Zhang Jun et al., *Dangdai Zhongguo Hangtian (Contemporary China's Space Effort)*, Chinese Social Science Publishing House, Beijing, 1984; and Nie Rong-zen, *Nie Rong-zen Huiyilu (Memoirs of Nie Rong-zen)*, Chinese People's Liberation Army Publishing House, Beijing, 1984. Two western books also provide valuable insights into China's political background. These are Ellis Joffe, *Party and Army: Professionalism and Political Control in the Chinese Officer Corps, 1949–1964*, Harvard East Asian Monographs, Harvard University Press, Cambridge, MA, 1965; and John Wilson Lewis and Xue Litai, *China Builds the Bomb*, Stanford University Press, Palo Alto, CA, 1988.

² For details of Dr Qian's involvement in the US army's missile programme, see Charles S. Sheldon II, 'People's Republic of China', *World-Wide Space Activities*, Science Policy Research Division, Congressional Research Service, Library of Congress, US Government Printing Office, Washington, DC, 1977; and Jean-Pierre Brule, *China Comes of Age*, Timely Publications, Washington, DC, 1972.

³ Zhang He-ping, 'A review of the achievement of China space technology', *Renmin Ribao*, overseas edition, 13 October 1989.

⁴ Foreign Languages Press, *Selected Works of Mao Tsetung*, Volume V, The People's Publishing House, Beijing, 1977, pp 284–303.

⁵ For details see Nie Rong-zen, *op cit*, Ref 1, pp 292–299.

⁶ Cheng Jin, *A Chronology of the People's Republic of China, 1949–1984*, Foreign Languages Press, Beijing, 1986, p 23.

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