Planning International Collaboration on the Chinese Space Station

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Within the past decade, China has experienced a steady progression of technology resulting in prestigious accomplishments for the manned space program. To reassure the world of its benign rise China is seeking collaboration in the exploration and utilization of outer space. China's future space station, for example, is being advertised as an international collaborative project on an unprecedented scale for China. If the Chinese Space Station (CSS) endeavor can be effectively managed by China's leadership as a platform for international cooperation and global leadership, then CSS can achieve subsidiary benefits for the PRC in domestic and foreign policy. However, inviting international partners in the process of constructing and operating a space station presents an expansively demanding policy problem. China must determine if there are tangible benefits associated with different scales and scopes of space station cooperation. The key policy problem is finding a model that is effective for fair and rational cooperation, which is defined in Chinese white papers as mutually beneficial, transparent, reciprocal, and sharing the costs, while striking a balance with partners over ownership, intellectual property, and utilization rights.

Officially, the Chinese government holds that each and every country enjoys equal rights to freely explore, develop, and utilize outer space. The open invitation to join in CSS changed the political climate for nations contemplating space activities, such as Pakistan. Calls for cooperation allow other countries and experts to envision research projects through Chinese guidance, which were otherwise not possible. However, before assuming a utilitarian image of cooperation on CSS, it is important to determine the feasible model of cooperation based on the Chinese condition while defining what China means by its four-tiered definition of meaningful cooperation. By assessing terrestrial examples of cooperation with other nations and positing Chinese grand strategic goals, it is possible to determine the framework on which CSS cooperation will most likely be based in the 2020s.

"Mutual benefit" is echoed in several documents pertaining to cooperation in outer space. In the 2006 National Space Policy, the U.S. "encourage[s] international cooperation with foreign nations and/or consortia on space activities that are of *mutual benefit* (emphasis added) and that further exploration and use of space." In the 1996 Declaration on International Cooperation, the United Nations claims that in all aspects of international cooperation states must cooperate on an equitable and mutually acceptable basis. Understanding what China believes is a "mutually acceptable basis" requires further examination of current practices of international cooperation. Chinese intentions become more apparent when approaching this definition through the theory of international modernization, which suggests an interaction between national transformation and the international environment resulting in a dynamic process that involves multinational activities. For Chinese space activities, this dynamic process includes fostering multilateral bodies such as the Asia-Pacific Space Cooperation Organization (APSCO), bilateral cooperation with several Latin American and African countries, and increased participation in United Nations space related organizations.

Mutual benefit also suggests an element of "reciprocity," which means "an interchange of privileges." In fact, the drafting history of Article XII

of the Outer Space Treaty reveals that the inclusion of the phrase "on the basis of *reciprocity* (emphasis added)" was expressly conditioned on universal acceptance over this interpretation. Thus, in the context of cooperation, reciprocity differs from mutual benefit, because it suggests an exchange of services rather than a transaction of goods. Reciprocity also has to do with recognizing sovereign rights. China holds that states, while free to determine all aspects of their participation in space cooperation, should adhere to the legitimate rights and interests of the parties concerned, as, for example, with intellectual property rights. In a Chinese-led space station, this would presumably mean guests would adhere to their host's rules.

Defining theses terms in their literal context is important, but so is grounding this argument in reality. China will not simply collaborate for the sake of collaboration. China will also not reject any goodwill offer from another developing country to join CSS. China's strategic allies in the developing world are interested in the Chinese space program. Hence, the political gesture of training astronauts for missions could have significant benefits for China's international image. In the event that another country lags far behind in science and technology, China must figure out what can be exchanged for training and cooperation. Perhaps access to natural resource rights, business contract preferences, and related agreements could be part of the exchanges. Also, port calls for the People's Liberation Army (PLA) Navy are another form of in-kind transfers developing costal countries like Venezuela could offer China. For example, astronaut training and a trip to CSS for a developing African nation could be remunerated by guaranteeing Chinese companies like Huawei and ZTE contracts in building that country's telecommunications infrastructure. The model for cooperation on CSS should not be limited to the framework of the International Space Station (ISS), in which in-kind transfers are through transportation agreements and laboratory utilization rights. CSS presents the opportunity for a more explicit *quid pro quo* model.

The fact that China's space program is controlled by its military and related transparency issues makes Sino-U.S. cooperation difficult.. China is sensitive to maintaining secrecy over information, and its opacity in technical exchanges at times deter some nations from cooperating with China bilaterally. In fact, cooperating with the U.S. on CSS might actually do more harm than good for China. There is no precedent for high-technology space cooperation between the two countries and the mere act of cooperating would cause significant backlash from the more hawkish leaders in both countries. In the near future, China would be better off not trying to accommodate the U.S. on CSS, but rather pursue agreements with the United Nations (UN).

China should include the UN in selecting astronauts from non-spacefaring states. Also, an agreement with the UN should also coincide with Comprehensive Test-Ban Treaty (CTBT) ratification to symbolize China's commitment to align with the international system. The U.S. and China have yet to ratify the treaty banning the testing of nuclear weapons. This issue has proven quite contentious in UN forums. China has stated that it is waiting for U.S. ratification before it considers, however, getting out in front of the U.S. on this issue. Ratification, carried out simultaneously with a space cooperation agreement, would gain the Chinese a higher level of influence in the UN system. As a result, China would appear more transparent and benign without compromising national security, thus facilitating its rise and expanding its global influence.

The Chinese government's incentive policies and stated goals reflect a strategic decision and concerted effort to capture the benefits of space as an enabling, high-tech industry. Domestic policies and incentives, however, may not be sufficient to overcome the high costs associated with advanced space operations; therefore China sees international cooperation as a form of cost sharing as well. CSS has great strategic significance, high scientific value, and broad business prospects, but the project is risky. The development cycle is long and requires a great investment which does not necessarily materialize in short-term benefits. Domestic stability is a great concern for Chinese leaders, and many in China believe the large sums of money used on the space program could be better spent elsewhere, such as in improving the standard of living in China's rural areas. As the cost of operating CSS grows, China will be more inclined to cooperate for fiscal reasons rather than its touted motive: "for the benefit of mankind."

Currently, the model for cooperation on CSS has not yet been determined. There are several suggestions, but it is unlikely that any substantial agreements are made in the near future. China is

advertising openness and inclusion in the space station effort, but in reality, Chinawill be much less blithe regarding the legal framework. As a model for cooperation, China should pursue a hub-and-spoke model similar to the International Space Station. China should control the majority share, establish a chain of command, and be in a position similar to the U.S. on ISS. An important thing to note is that it is likely that ISS will remain in orbit when CSS is operating. China should vigorously pursue technical and operational interfaces with ISS while both are in orbit. Any increased interaction with the ISS partners, even just multilateral meetings, will make later cooperation on CSS more possible.

In the meantime, cooperation on CSS will most likely be limited to regional, non-ISS nations. It is important to note that if CSS is not truly an international platform, but rather an Asia-centered space station, the benefits for China are still significant. In fact, this model would be similar to the USSR accommodating visitors from the Interkosmos organization on Salyut. Interkosmos was a research organization founded by the Soviet Academy of Sciences. In 1976, a number of socialist countries signed an accord with the Soviet Union to cooperate in outer space. The international space research organization was run by the Soviets in partnership with fraternal socialist states. Shortly after its formation, the USSR introduced the idea of having a guest visit the Salyut station from one of the Interkosmos nations. After several record breaking flights on Salyut, the Soviets began the first of the Interkosmos missions. In 1978, a Czechoslovak became the first non-American or Soviet to fly into space. The public relations value of having an operational facility accommodating a succession of foreign researchers was tremendous.

The Soviet Interkosmos missions of the 1970s and 1980s should serve as an effective model for future APSCO missions. In the case of CSS, the visitors would come from APSCO, a Chinese-determined consortium of strategically important nations, and possibly a UN selection. The development of space resource services for other countries will further enhance China's soft power in those regions. In this model, countries joining China on CSS would be expected to provide their own experiments and focus research on their home country. Chinese experiments would remain separate from the guests'. China could define sovereignty as supreme authority resting in the hands of the owner of a given element. For example, on ISS independent nations operate their given areas, but exercise jurisdiction with partners in mind, then cooperation will be much more open. These levels of openness, however, will not further Chinese strategic goals. Chinese rule over major space station elements should only be yielded to a nation that is commensurate to their partners' technical contributions. The ISS framework, however, is a useful model, and those studying space social sciences in China agree.

The formative events in China's space development: the launch of the first satellite in 1970, the launch of the first geostationary orbit communications satellite in 1984, and the first human spaceflight in 2003, qualified China for inclusion among the major spacefaring countries. In the context of China's space history, equity appears central to the principal concern of China's political leadership. It is therefore thought that China seeks inclusion and not isolation from the international community. A China-centered space station allowing APSCO and UN selection of Member States to send their astronauts to CSS will present the image of a responsible international actor for China. Meaningful technical cooperation will be limited, as it was with Interkosmos, but the diplomatic advantages will be well worth the investment. In the near future, the CSS will be an effective regional foreign policy tool that serves a greater grand strategic purpose. As for Sino-U.S. cooperation on CSS, it is not that the United States will receive the same exclusionary treatment it gave to China, but rather U.S. inclusion at this time might not be worth the effort for either side. Of course, China would be open and willing to cooperate with the United States, but the most realistic depiction of a cooperative framework on CSS in the 2020s does not include the major space powers on the same space station. CSS will remain a China-led regional platform for cooperation during its time in orbit. Incremental steps towards cooperating bilaterally can be made between the two spacefaring nations in the meantime, but China is no dire need to include the United States on this specific project. There are many forms of cooperation, and CSS remains flexible enough to accommodate the United States if there is a change of heart in the next decade. However, China can achieve its strategic goals of operating an international space research platform without U.S. involvement. When the time finally comes for the

decommissioning of ISS, China will own the only operating space station, so the question becomes: why would they include the U.S. on anything but Chinese-terms?

Opinions, interpretations, conclusions and recommendations are those of the author and are not necessarily endorsed by the US Government.

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