Space Policy's Development and its Role

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Main Contents

- The concept of space policy
- The development of space policy of the US, Russia, and Europe
- The strategy embodied in space policy
- Implications for China's space policy
- Conclusion

I. The concept of space policy

- In the development of space industry, space policy plays a very important role.
- Space policies are relevant political decisions made by governments, space agencies, international organizations or theirs member states for the space development.
- Including: national or international organizations' policies on civil, military and commercial space projects, as well as national policies formulated for space industry.

II. The development of space policy of the US, Russia and EU

- A. US - Soviet space race
- The first 30 years of the development of the space technology was the history of the two countries' space race, and the main goal of space technology was to achieve the leading position in international politic. Their problem was who was overwhelmed or "who led the world peace".
- In 1957 the first satellite of Soviet Union entered into outer space, and in 1958 the United States passed the "National Aeronautics and Space Act" and established NASA.

US - Soviet space race

- Over the first 30 years American and Soviet space funds accounted for 95% of the total space funds of the world, and their total number of satellite launching accounted for 96%. The space technology development of the two super powers basically determined the trends and patterns of the world's space technology development.
- After 30 years of space competition, the Soviet had formed its own advantage in launch vehicle and space station, and American advantage was in the field of reusable launch vehicle (space shuttle).

US space policy

As the first space power, the United States have maintained the leading-edge in the fields of military, civil and commercial space.

This result is reflected in the investment level and no one can match: American space expenditure equaled 53% of the world expenditure in this area (including civil and defense). In the world competitiveness rankings of space industry, the United States is no doubt the leader, and is stronger than other countries a lot.

For example, in Futon's the Global Competitiveness Index 2014 rankings (including government, human resources, industrial etc. in total 50 aspects), the United States scores 90.60, the Europe is the second with 50.34, Russia is the third with 43.76, and China is the fourth with 24.39.

US space policy

- US space development policy includes a variety of space policies issued by US President and other administrative departments, and there are general policy and separate policy, covering every area of military, civil and commercial space development.
- Including: the National Space Policy, National Security Space Strategy, the Pentagon Space Policy, the Air Force Space Policy, National Space Development Plan, the Pentagon Strategic Plan, NASA Strategic Plan, commercial remote sensing policy, positioning, navigation and timing policy, space transportation policy and so on.
- "2010 National Space Policy" is the US National Space Policy in force, issued by President Obama, and is the highest guiding principle in the space policy

US national space policy

- Specifically, first, it highlights that all countries should "responsibly" carry out space activities.
- Second, the purpose of the new policy aims at encouraging the capable departments to participate in international space competition, to seize emerging space market, and to control developing space activities resources.
- Third, it prominently emphasizes international space cooperation. The United States international space cooperation is designed to ensure American space leadership.

- Fourth, it attaches great importance to the development of commercial space capability, so as to lay a solid basis for the US space industry.
- It encourages private sector to participate in "space competition", builds a "public-private partnership" for the space industrial base, vigorously promotes commercial space level, and this is another strategic thinking of the new space policy to plan the whole development of American space capacity.
- Its main intention is to meet governmental requirements by purchasing commercial space products and services to the utmost, and to strengthen the leading role to the world's space technology development by increasing investment in civil space technology innovation.

- However, the two incidents occurred recently in the United States also force people to consider security issues of private companies engage in space-related affairs.
- On October 31, 2014, manned commercial "spacecraft on the 2nd", developed by the British company Virgin Galactic, at the American Southwest test flight crashed in the Mojave Desert; the "spacecraft on the 2nd" accident caused a co-pilot death, and another pilot seriously injured;
- On October 28, 2014, the US Orbital Sciences Corporation carrying Cygnus cargo spacecraft Antharas rocket occurred explosion after launch.

B. Russian space policy

The overall objective of the Russian space activity is "to maintain the Russian status of space superpower." Russian national space policy reflects more features on priority, commerce, and international cooperation.

Russia's space policy includes national space policy and space development programs. In order to revive the former glory, Russia increases space investment year by year, The last year’s budget on space is over 1 0 billion dollars, it continually strengthens space strategic planning, has introduced the "Russian Federal Space Plan (2006-2015)", "The future development strategy of the Russian Space Activities before 2030", "Russian Federal Space Activities Plan (2013-2020)", and is formulating "Russian Federal Space Activities Plan (2016-2025)", in order to maintain its leading space position in the world and the important role of space industry in its national economy.

Russian Space Policy

- December 2, 2013, the Russian Federation President Vladimir Putin signed a presidential decree on the Rocket and Space Industry Management System. According to the decree, the Russian space industry set up a very large OJSC - "United Rocket and Space Corporation" (ORKK), and most of the space industry companies joined ORKK.
- This marked that the Russian Space reform had taken an important step.

- September 4, 2013, Deputy Prime Minister Dmitry Rogozin announced the latest space reform program in the space reform meeting.
- According to the program, the Russian Space Agency was held as the national authority, and fulfilled the functions of the National Orderer and developing space policy, and continually managed more than a dozen affiliated space research institutes and organizations; most of the space industry enterprises under the former Agency left the Agency, and joined a newly established large holding company, which would implement national ordering tasks as the general contractor.

Russian space policy

- GLONASS is a global satellite navigation system. Until the end of 2011, it had completed the networking of 24 satellites of the whole network system constellation, and could provide positioning, timing, navigation services for global users at any time and any place.
- In the process of maturing GLONASS technology, on the basis of "the Russian Federation Satellite Navigation Activities Act" in January 2009, Russia constructed a system to secure and promote GLONASS system development. To protect national defense and national security, and to achieve economic development, through the construction of the system since 2007, Russia ensures extensive use of GLONASS in the military field, but also in civil and commercial areas.
- The system for GLONASS is consisted of federal law, the presidential decrees and decisions, the federal government resolutions, and legal documents formulated by related ministries, commissions and bureaus, as well as GLONASS’s development specific outline and technical regulations.

C. European Space Policy

Europe is the leader in commercial space. It attaches great attention to commercial space. Western Europe's space policy has obvious practical feature from the outset. It uses American launch technology to launch national application satellite, and pays close attention to the commercial application in order to gain more and more profit.

In 1975, 11 European countries constituted European Space Agency. After 1979 it has successfully developed Ariane 1 - 4, which bear the launch of European most satellites and satellites of other areas, occupying more than 50 percent of the international satellite launch market.

European space policy includes: space development strategy, space framework agreements, space technology strategy, the European space programs and the space policies of Member States. Before 2000, the European Union and the European Space Agency implemented their own space policy, ESA focused on civil space industry.

- January 22, 2003, EU and ESA jointly published the "Green Paper on European Space Policy", which laid a good foundation for the introduction of European new space policy. November 2003, the EU and ESA jointly signed the "Space White Paper: An action plan for implementing the European Space policy" (the White Paper).
- May 22, 2007, 29 European countries adopted and published a “Resolution on the European Space Policy.” The Resolution was jointly adopted by the EU and the ESA, which aimed to establish a mechanism for better coordinating space activities among the EU, ESA and their Member States, to maximize the investment value, to avoid repetitive research and development, thereby to meet common needs of Europe.
- It emphasized that space system contributed to European self-reliance, security and prosperity, and playing a key role in the world. It emphasized that investment focused on Earth-oriented space systems, and payed attention to bringing tangible benefits for European citizens. The above are key-points of the European new Space Policy.

The role of space policy

- Industrial space policy plays the roles of guidance, motivation, coordination and control.
- In the process of formulating and implementing policy, it should follow the systematic principle, the comprehensive and highlighted principle, the principle of combining motivation and monitoring, as well as the principle of combining expectation and reality.

Development Trends of Space Policy

- Through examining national space policies, it can be found that space policies are developing towards classification, regionalization and institutionalization.

Classification

- The so-called classification is that outer space only referred to military space at first, then was classified into military, civil and commercial space.
- For this point, the United States started first, and only after the collapse of the Soviet Union, Russia began to change its space development strategy from primarily developing military space to jointly developing military, civil and commercial space.
- The revised "Russian Federal Space Activities Act", released at the end of November 1993, modified in1996, clearly defined the terms on developing military and civil dual-use technology.

Regionalization and Institutionalization

- The so-called regionalization is defined that national space policy develops towards the direction of region-based space policy, for example, now the European Space Policy is formed by the space policy of EU, ESA and European countries, and in some cases, people more and more support to regard the Europe as a institution similar to a country.
- The so-called institutionalization refers to that the promulgation of space policy is increasingly becoming a regular matter with time nodes. Such as the US National Space Policy is usually promulgated after the new president takes office, and China's Space Activities white paper or China's space five-year plan is promulgated with a five-year deadline.

III. The strategy embodied in space policy

A. To maintain the status in military, civil and commercial space

- The United States has announced to consolidate American space leadership in its 2010 national space policy.
- Russia continuously develops new programs in order to maintain its leading space position in the world and the important role of space industry in its national economy.
- In military and civil areas, the United States and Russia will continue to keep ahead, but in terms of the commercial launch Europe has its own advantage.

B. To reduce the funding proportion of military space and to strengthen civil space

- After the Cold War, the United States and Russia have adjusted their space policy. At present the US and Russia have changed the mind that military space is greater than civil space.
- The United States has gradually balanced military and civil space investment, it has modified or deleted some programs, such as military satellite plans and heavy reconnaissance satellites plans, and since 1993, the budgets of its civil space and military space are maintained at about the same level; Russian civil space fund is larger than that of military space.

C. To focus on development and application of military and civil dual-use technology, to actively develop civil and commercial use of military space technology and vice versa

- The United States emphasizes the development of military and civil dual-use technology, and allocates funds for the development. At the same time it promotes the transfer of military technology to civil use.
- For example, the GPS system has been used for American military needs for decades and costs more than 10 billion dollars for its completion and deployment, now it has become a world's information resource, supports a variety of civil and commercial functions, and has fully play its military, civil and commercial value.
- On the other hand, it tries to accomplish the tasks of national defense through the civil and commercial space systems.

D. To encourage and support commercial space activities, and to enhance national competitiveness

- Governments of the United States, France, Russia and Japan all encourage and support their space industry to vigorously carry out commercial space activities. The situation of United States has been previously mentioned.
- French successive governments have paid attention to the commercial space, specifically take developing commercial space as a basic development strategy of space industry.

- Germany and the UK hope to enhance capacity to rival the US space companies in the market through the merger and restructuring of the European space industry.
- Encouraging commercial space activities has already become an important principle for Russian Government to develop space programs. The Russian government has enhanced the space commercial awareness. Russia believes that developing commercial space can help to extricate space industry from funding predicament, but also help to enhance the competitiveness of space companies.

E. To promote space development through international cooperation

- United States, Russia, Europe and Japan all regard developing space cooperation as an important strategy to promote civil and commercial space. Working together can reduce the burden, can remedy the lack of space budget, also can enhance the space competitiveness, and can jointly enter the international market.
- In recent years, the US, Russia, Europe and Japan, in addition to cooperation in the International Space Station project, have also launched a number of cooperation projects, especially Russian companies combine American and European companies to constitute powerful world-class joint ventures, which greatly enhance the competitiveness in the international market.

IV. Implications for China's space policy

- China's space policy is the document of China government's decisions on space industry.
- In China, "China's Space Activities" white paper series is a carrier of the governmental oaths to space policy.
- After the first "China's Space Activities" was published in 2000, the "China's Space Activities in 2006" and "China's Space Activities in 2011" were also issued.
- They not only proclaim Chinese space principles and stances, but also sum up the achievements of China's space, and arrange new tasks.
- Correspondingly, the five-year plans of China National Space Administration also reflect China's space policy.

- The white papers on "China's Space Activities" all emphasize to constitute space law system.
- The White Paper clearly proposes to develop Space Law.
- White paper on "China's Space Activities" in 2011 states: "To strengthen the construction of policy and regulation. It should actively carry out research of national space law, gradually develop and improve laws and regulations on space activities management and space industrial policy, guide and regulate space activities, and create a policy and regulatory environment more in favor of the development of the space industry."
- This is the reflection of the legislative unified thought of the "Space Law".

- The report at 18th CPC National Congress took "comprehensively promoting the rule by law" as an important task of political construction and political structural reform, and stressed "to accelerate the construction of a socialist country under the rule of law."
- In the 2010 NPC, deputies of Chinese space industry submitted a legislative proposal for the space law.
- May 30, 2012 the NPC Financial and Economic Committee officially launched the legislative research and demonstration work for "Space Law".
- In October 2013, "Space Law" was brought into the NPC legislative plan.

From great space power to space superpower

- At June 11, 2013, the President Xi Jinping of China met representatives relating to missions of Temple One and Shenzhou 10 manned flight at the Jiuquan Satellite Launch Center, and he pointed out: "Developing space industry and constructing space superpower are our relentless pursuit."
- On June 24, 2013, the President Xi Jinping had a call with three astronauts who were in Temple One, and further pointed out: “Flying dream is an important part of superpower. "
- From the perspective of quantitative analysis, the above-mentioned speech of the President Xi Jinping can be understood as that China is currently in the second echelon of international space field, and China can become the most powerful country in space field through tireless efforts and enter the first echelon .

- China should develop Space Law and the national space policy as early as possible, should formulate a long-term, clear space development planning and space technology development programs, as well as related subsidiary laws, but also should improve policy in the fields of development and utilization of space technology, especially space industrial policy, so as to coordinate and plan the future of China's space.

Conclusion

- Concerning the relationship between space law and space policy, on the one hand, the two things are different. For example, in certain country, the change of president may be the opportunity for the new national policy, but after the law is passed, it will not change with the president, and the law can be modified only when required.
- Their relationship is very close, on some major issues, the government uses legal and policy together, besides, under certain conditions, policy can also be changed into law.
- On the other hand, there are legal limitations. Such as law must be passed after the discussion of legislature, which often requires a lot of time. At this point, perhaps the adoption of policy is more convenient and effective.

Thank you!