

The New Developments of China's Space Policy

*Li Shouping**

1 Introduction

China's Space Activities in 2011 (thereafter 2011 White Paper) was published by State Council Information Office of the People's Republic of China on December 29, 2011, and it was the third white paper on space activities after 2000's white paper and 2006's white paper.¹ This 2011 White Paper summarizes splendid achievements China had received in space area within last five years, and systematically introduces the principles of China's space activities; at the same time, it also presents the world the policies, measures and key areas of China's space activities in the following five years. This 2011 White Paper is the most detailed, concrete, and integrated elaboration of China's space policy, and it will be the guideline for China to explore outer space with peaceful purpose in the next five years.

This Article proceeds in two parts. Part I gives a brief introduction of 2011 White Paper. Part II analyzes the development and new tendency of China's space policies provided in 2011 White Paper by comparing with 2000's white paper and 2006's white paper.

2 Introduction of 2011 White Paper

2011 White Paper succeeded and developed the 2000's white paper and 2006's white paper, It is built on following five parts: Purposes and principles of development; Progress made since 2006; Major tasks for the next five years; Development Policies and Measures; and International exchanges and cooperation.

2.1 Purposes and Principles of Development

2011 White Paper points out Chinese government makes the space industry an important part of nation's overall development strategy, and sets "exploring outer space and enhancing understanding of the Earth and the cosmos;

* Professor of Law school of Beijing Institute of Technology, Director of Institute of Space Law of Beijing Institute of Technology. Editor-in-chief of Chinese yearbook of space law. lishouping@bit.edu.cn.

1 The first Space White Paper *China's Space Activities* was published in 2000 by State Council Information Office of the PRC, and the second was published in 2006.

utilizing outer space for peaceful purposes, promoting human civilization and social progress, and benefiting the whole of mankind; meeting the demands of economic development, scientific and technological development, national security and social progress; and improving the scientific and cultural knowledge of the Chinese people, protecting China's national rights and interests, and building up its national comprehensive strength"² as the purposes of China's space industry. At the same time, Chinese government innovatively proposed five principles of space development in 2011 White Paper—the principles of scientific, independent, peaceful, innovative, and open development.

2.2 Progress Made Since 2006

The 2011 White Paper draws a summary that breakthroughs have been made in major space projects like human spaceflight and lunar exploration; it also confirmed that space technology has been generally upgraded remarkably since 2006. It approved the economic and social benefits of space applications and innovative achievements in space science.

The progress mainly reflects in nine aspects: space transportation system, man-made earth satellites, human spaceflight, deep-space exploration, space launch sites, space telemetry tracking & command (TT&C), space applications, space science, and space debris.³

2.3 Major Tasks for the Next Five Years

As the 2011 White Paper points out, China will strengthen its basic capacities of the space industry, accelerate research on leading-edge technology, and continue to implement important space scientific and technological projects, including human spaceflight, lunar exploration, high-resolution Earth observation system, satellite navigation and positioning system, new-generation launch vehicles, and other priority projects in key fields. China will develop a comprehensive plan for construction of space infrastructure, promote its satellites and satellite applications industry, further conduct space science research, and push forward the comprehensive, coordinated and sustainable development of China's space industry in the next five years.⁴

This White Paper reinforces continuity of China's space activity, and also lays out a blueprint on space transportation system, man-made earth satellites, human spaceflight, deep-space exploration, space launch sites, space telemetry/tracking and command, space applications, space science, and space debris.

2.4 Development Policies and Measures

Chinese government has formulated policies and measures for the development of China's space industry to ensure completion of the set goals and tasks. Such as giving priority to applied satellites and satellite applications, developing

2 *China's Space Activities in 2011*, STATE COUNCIL INFORMATION OFFICE OF THE PEOPLE'S REPUBLIC OF CHINA (Jan. 3, 2012), <www.scio.gov.cn/zfbps/ndhf/2011/201112/t1073720.htm>.

3 *Id.*

4 *Id.*

human spaceflight and deep-space exploration properly, and giving active support to space science exploration; vigorously promoting development of the satellite application industry, guaranteeing the sustainable and steady financial investment for space activities, and strengthening basic capability in space science as well as training of professionals for space industry.⁵

2.5 International Exchanges and Cooperation

This 2011 White Paper affirmed China's achievements in international space cooperation. Since 2006, China has accomplished various international space cooperation, for instance, it has signed a number of cooperation agreements and memoranda on the peaceful use of outer space with countries, space agencies and international organizations. China also has taken part in relevant activities sponsored by the United Nations and other relevant international organizations and supported international space commercial cooperation. 2011 White Paper shows Chinese government will put its attention mainly in eight areas, including scientific research, application of Earth observation, and commercial satellite service, etc.⁶

3 Development and New Tendency of China's Space Policy Set Forth in 2011 White Paper

Since first China's space white paper, Space White Paper has become an authority document for the whole world to understand China's space policies and space strategy.

Succeeding on 2000's and 2006's White Papers, 2011 White Paper further developed and enriched China's space strategy and space policies in the new new situation.

3.1 Enriched Timely the Principles of Development

Each space White Paper emphasizes on principles of China's space industry and makes them the foundation of China's space activities. 2000 White Paper first raises five principle for space industry – “Adhering to the principle of long-term, stable and sustainable development and making the development of space activities cater to and serve the state's comprehensive development strategy; Upholding the principle of independence, self-reliance and self-renovation and actively promoting international exchanges and cooperation; Selecting a limited number of targets and making breakthroughs in key areas according to the national situation and strength; Enhancing the social and economic returns of space activities and paying attention to the motivation of technological progress; Sticking to integrated planning, combination of long-term development and short-term development, combination of spacecraft and ground equipment, and coordinated development.”⁷

⁵ *Id.*

⁶ *Id.*

⁷ *China's Space Activities in 2000*, STATE COUNCIL INFORMATION OFFICE OF THE PEOPLE'S REPUBLIC OF CHINA (Jan. 12, 2012), <www.cnsa.gov.cn/n1081/n7484/98354.html>.

It was the first time that Chinese government had confirmed the space industry as an integral part of whole country's comprehensive development strategy, and applied self-reliance, self-renovation, and coordinated development policy in White Paper.

2006 White Paper upgraded the principles as "Maintaining and serving the country's overall development strategy, and meeting the needs of the state and reflecting its will; Upholding independence and self-reliance policy, making innovations independently and realizing leapfrogging development; Maintaining comprehensive, coordinated and sustainable development, and bringing into full play the functions of space science and technology in promoting and sustaining the country's science and technology sector, as well as economic and social development; Adhering to the policy of opening up to the outside world, and actively engaging in international space exchanges and cooperation."⁸

This also put stress on integral state's whole development and technological process motivation.

With the development of China's space technology and space activities, China's space industry is confronting new challenges. The best solution is steadily keeping pace with the times to adjust the principles of development.

Compared to 2000's and 2006's White Papers, the principles in 2011 White Paper have three outstanding points.

1. 2011 white paper highlight the principle of developing China's space industry for peaceful purpose. This principle addresses that "China always adheres to the use of outer space for peaceful purposes, and opposes weaponization or any arms race in outer space."⁹

China steadily takes its position for "peaceful purpose", and will not threaten space security of any country or area. The 2011 White Paper is undoubtedly the best response to some States' irresponsible "China Threat Theory"¹⁰ remarks, and it can make China's voice clearly heard by the whole world.

2. 2011 white paper stress the principle of scientifically developing China's space industry. It means China respects the law of the development of science and works out comprehensive plans and arrangement for its space industry regarding space technology, space applications and space science, in order to maintain comprehensive, coordinated and sustainable development of the industry. Guided by the *Scientific Outlook on Development*, 2011 White Paper not only reinforces the principle of coordinated development in 2000's and 2006's White Papers, but also innovatively propose the principle of scientific development.
3. 2011 white paper lay stress on the principle of innovative development of its space industry. China has achieved many goals in space area, but that

8 *China's Space Activities in 2006*, STATE COUNCIL INFORMATION OFFICE OF THE PEOPLE'S REPUBLIC OF CHINA (Jan. 12, 2012), <www.cnsa.gov.cn/n1081/n7484/98351.html>.

9 *Supra* note 4.

10 See Xu Dai, *People's Liberation Army Starts Space War? The Inside Story of "China Threat Theory" – A New Excuse for U.S. Army Expansion*, 1 WORLD OUTLOOK (2007).

doesn't mean it's powerful enough, China now still desires independent innovation, especially the needs to improve its innovation system. By implementing important space science and technology projects, the country can concentrate its strength on making key breakthroughs for leap-frog development in this field.

Guided by the principle, China's space industry will focus on the establishment of innovative infrastructure and innovative mechanism and innovative capability in the next 5 years.

3.2 Scientifically Made a Program on Main Missions in the Next 5 Years

2000 White Paper brought up a long-term and short-term development goal for China's space industry, which has become an import instruction for China's development in 21st century.¹¹

The short-term development targets were almost accomplished: an independently operated satellite broadcasting and telecommunications system has been set up; manned spaceflight has been realized; BeiDou (Compass) Satellite Navigation System has been put into production; the overall level and capacity of China's launch vehicles has been upgraded. Especially since 2006, China has made rapid progress in its space industry. Breakthroughs have been made in major space projects, including human spaceflight and lunar exploration; space technology has been generally upgraded remarkably; the economic and social benefits of space applications have been noticeably enhanced; and innovative achievements have been made in space science.¹²

A great blueprint plays a leading role in pivotal transition time of China's space development. Only when it goes well, so does it can guarantee its long-lasting aim.

In the next five years, China will strengthen its basic capability of the space industry, accelerate research on leading-edge technology, and continue to implement important space scientific and technological projects, including human spaceflight, lunar exploration, high-resolution Earth observation system, satellite navigation and positioning system, new-generation launch vehicles, and other priority projects in key fields.

These key fields are: space transportation system, man-made earth satellites, human spaceflight, deep-space exploration, space launch sites, space TT&C, space applications, space science, and space debris. Among them, there are three landmark tasks.

1. China will push forward human spaceflight projects and deep-space exploration. It will launch the Shenzhou-9 and Shenzhou-10 spaceships and achieve unmanned or manned rendezvous and docking with the in-orbit Tiangong-1 vehicle. China will also launch space laboratories, manned spaceship and space freighters; make breakthroughs in and master space station key technologies,

11 Short-term development target in 2000 White Paper is set for next decade (from 2000), long-term development targets is for the next 20 years or more (from 2000).
See *Supra* note 9.

12 *Supra* note 4.

including astronauts' medium-term stay, regenerative life support and propellant refueling; conduct space applications to a certain extent and make technological preparations for the construction of space stations.¹³

To carry out deep-space exploration, China will launch orbiters for lunar soft landing, roving and surveying to implement the second stage of lunar exploration. In the third stage, China will start to conduct sampling the moon's surface matters and get those samples back to Earth.¹⁴

2. China will build a stronger space infrastructure. It will enhance the reliability and adaptability of launch vehicles in service, and develop new-generation launch vehicles and their upper stages, implement the first flight of the Long March-5, Long March-6 and Long March-7 launch vehicles. It will enhance the reliability and automation level of launch site facilities and equipment, strengthen the comprehensive capability of launch of spacecraft, and satisfy the launch demands. It will also complete the construction of the Hainan space launch site and put it into service. During the interval, China will improve its space TT&C network, build deep-space TT&C stations, develop advanced TT&C technologies, and enhance its TT&C capabilities in all respects to satisfy the demands for remote TT&C.¹⁵
3. China will further promote the commercial use of outer space. Through application of Earth observation satellites, communication & broadcasting satellites, and navigation & positioning satellites, China will further improve its satellite application and service system, expand satellites application scope, and promote the national new strategic industries, to meet demands of national economic and social development.¹⁶

To be more specific, China will improve the sharing and comprehensive application of data retrieved from Earth observation satellites, make more self-obtained space data, and guide social resources to actively develop market-oriented data application services. It will implement application demonstration projects, and promote the wide utilization and industrialization of Earth observation satellites, as well as expanding value-added business in the satellite communication field, further commercializing satellite communication, and expanding the industrial scale of the application of communications and broadcasting satellites. In addition, China will also pay attention to strengthen technological research, product development and standardization system of navigation and positioning satellites, enhance application level, promote position-based services, expand the industrial scope, and focus on promoting further use of the BeiDou (Compass) Satellite Navigation System in various fields of China's national economy.

3.3 Building up More Key International Cooperation Areas

As released in 2011 White Paper, China firmly maintains international exchanges and cooperation principle, and believe it should be strengthened to

13 *Id.*

14 *Id.*

15 *Id.*

16 *Id.*

promote inclusive space development on the basis of equality and mutual benefit, peaceful utilization and common development. China will implement the international space exchange and cooperation in diverse forms and at various levels under the guidance of relevant state policies, laws and regulations.

China's space policy follows its routine on major cooperation areas as before. For the sake of manned spaceflight great success¹⁷ along with development of satellite navigation system¹⁸, Chinese government adjusts space major cooperation areas, they are: Applied technological cooperation, research and development of terminal equipment, reinforced facility building, specific industrial services and other areas of satellite navigation systems; Technological cooperation on a space lab and a space station in China's human spaceflight program; space science research and experiments and other areas.

Related services for satellite navigation and positioning was listed as a major area for all international cooperation in 2006, and 2011 White Paper elaborates it in detail: technological cooperation, research and development of terminal equipment, reinforced facility building, and specific industrial services. Manned spaceflight is just initiated for international cooperation, as well as building and service of satellite ground TT&C.

4 Conclusion

2011 White Paper is a blueprint for purposes and principles of China's space activities, which recalls achievements of the last five years and looks forward its major tasks for the coming five years; it also confirms development policies & measures, conjointly with international exchanges and cooperation on the basis of equality and mutual benefits, peaceful utilization and common development. China will steadily head towards a peaceful and clean outer space, and fight for common interests of all mankind. Compared with 2000's and 2006's White Papers, the 2011 White Paper highlights that China is working together with international community on supporting peaceful purpose of outer space all the way. It also stressed the new thinkings on scientific and innovative development of China's space industry. China now is positively sketching a brilliant space future—a powerful China is just around the corner!

17 BeiDou (Compass) Satellite Navigation System is the basic infrastructure of China's space industry. It's an independent research and self-reliance global satellite navigation system which can widely benefit whole society. Up to Dec. 27, 2011, 10 BeiDou satellites has been launched successfully, since then, Beidou system can provide experimental service like positioning and navigating etc. See *China BeiDou Satellite Navigation System*, XINHUANET (Jan. 28, 2012), <http://news.xinhuanet.com/ziliao/2010-08/02/content_13951719.htm>.

18 Sep. 25, 2008–Sep. 28, 2008, Shenzhou-7 conducted a first ever space walk, and release of miniaturized satellite for China, China became one of the only three countries enjoys space walk technology in the world. In September 2011 and November 2011, China successfully launched Tiangong-1 vehicle and Shenzhou-8 spaceship, and achieved rendezvous. See *Supra* note 4.