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CHINESE SPACE POLICY NARRATIVE IN 2000–2022: COMPARATIVE ANALYSIS OF FIVE WHITE PAPERS ON SPACE

K. Stetsiuk
PhD Candidate
School of Political Science and Public Administration
Shandong University, Qingdao, China
katelinna@mail.sdu.edu.cn

The People's Republic of China is in a state of transition from the first tier of emerging space actors to developed ones. The country represents a unique case, reaching the same "firsts" but at a faster pace, making a shift from a reactive to a proactive space policy, from being one of the space followers to turning into one of the space leaders.

China has published five White Papers on space activities over the past 23 years: in 2000, 2006, 2011, 2016, and 2022. They provide a concise overview of China's key achievements in this field and its strategic goals for the next five years.

The aim of this comparative analysis is to track the evolutionary processes that took place in the Chinese space policy narrative from 2000 to 2022. The White Papers are compared according to the following five criteria: 1) aims and principles; 2) progress made in space technology, applications, and science; 3) development concepts; 4) international cooperation guidelines; and 5) major bilateral, multilateral, and commercial events in space collaboration.

Such core elements of space technology as the space transportation system, space infrastructure, manned spaceflight, and deep space exploration are considered with a focus on China's achievements in these areas.

This paper attempts to construct a holistic picture of China's space policies based on a critical analysis of the five White Papers. The crucial features that make Chinese space narrative especially progressive, appealing, and captivating are defined. Attention is paid to the essential elements that are of special interest in the field of international relations and foreign politics. The role of Ukraine in bilateral space cooperation is mentioned.

Key words: China's space policy, White Paper, space policy narrative, space technology, international space cooperation.

НАРАТИВ КИТАЙСЬКОЇ КОСМІЧНОЇ ПОЛІТИКИ У 2000–2022 РОКАХ: ПОРІВНЯЛЬНИЙ АНАЛІЗ П'ЯТИ БІЛИХ КНИГ ПРО КОСМОС

К. Стецюк

Китайська Народна Республіка перебуває у стані переходу від першого ешелону космічних акторів, що розвиваються, до розвинених. Країна є унікальним випадком, бо досягає тієї же «першості», але швидшими темпами, здійснюючи перехід від реак-

тивної до проактивної космічної політики, від одного з космічних послідовників до перетворення на одного з космічних лідерів.

Китай опублікував п'ять Білих книг з космічної діяльності за останні 23 роки: у 2000, 2006, 2011, 2016 та 2022 роках. Вони містять короткий огляд ключових досягнень Китаю у цій галузі та його стратегічних цілей на наступні п'ять років.

Мета цього порівняльного аналізу – простежити еволюційні процеси, що відбувалися у нарративі китайської космічної політики з 2000 до 2022 року. Білі книги порівнюються за такими п'ятьма критеріями, як: 1) цілі та принципи; 2) прогрес космічної техніки, додатків та науки; 3) концепції розвитку; 4) керівні засади міжнародного співробітництва; 5) головні двосторонні, багатосторонні та комерційні заходи у галузі космічної співпраці.

Такі основні елементи космічних технологій, як космічна транспортна система, космічна інфраструктура, пілотовані космічні польоти та освоєння далекого космосу, розглядаються з акцентом на досягнення Китаю у цих галузях.

У статті робиться спроба створити цілісну картину космічної політики Китаю на основі критичного аналізу п'яти Білих книг. Визначено ключові риси, які роблять китайський космічний наратив особливо прогресивним, привабливим та захоплюючим. Увага приділяється суттєвим елементам, що становлять особливий інтерес у галузі міжнародних відносин та зовнішньої політики. Згадується роль України у двосторонньому космічному співробітництві.

Ключові слова: космічна політика Китаю, Біла книга, наратив космічної політики, космічні технології, міжнародна співпраця у космосі.

Background

The range of human activities has expanded from the land to the ocean, from the ocean to the earth's atmosphere and sky, and from the earth's atmosphere and sky to the stars. The advent of space technology in the 1950s ushered in a new era of human space exploration [White Paper 2000].

After the foundation of the People's Republic of China (PRC) in 1949, China successfully developed and launched its first satellite created in 1970 [White Paper 2000]. China's space industry has undergone more than 60 years of extraordinary development since its establishment in 1956, and it now rates among the world's most advanced nations in numerous key disciplines of space technology.

Since the Chinese government published the first White Paper (WP) on Space Activities in 2000, the country's space sector has flourished [White Paper 2006]. The Chinese leadership views the space industry as a vital component of the country's future prosperity and is committed to the peaceful exploration and use of space. In 2016, April 24 was declared China's Space Day to maintain this tradition and inspire interest in space exploration and development [White Paper 2016].

In 2017, President Xi Jinping noted in his speech that "exploring the vast universe, developing space programmes and becoming an aerospace power have always been the dream we've been striving for" [White Paper 2022]. There has been accelerated and innovative development in Chinese space industry, as evidenced by the final stage of the country's three-phase lunar exploration programme ("orbit, land, and return"), the completion of the high-resolution earth observation system and the Beidou Navigation Satellite System, the ongoing enhancement in the operational capacities of broadcasting and communications satellites, the successful construction of the Tiangong space station, the Tianwen-1's impressive interplanetary

journey and landing outside the Earth-Moon system, followed by Mars exploration. These accomplishments have garnered global attention [White Paper 2022].

China has published five White Papers (WPs) on space activities over the past 23 years: in 2000, 2006, 2011, 2016, and 2022. In order to help the international community better comprehend China's space industry, the WPs are published every five years to provide a concise overview of China's key achievements in this field and its primary goals for the next five years. They demonstrate that China has made significant advances in a relatively brief period of time and can be regarded as a swiftly ascending space power. The emphasis of the Chinese space agenda is on its civilian aspects.

This paper attempts to construct a holistic picture of China's space policies based on a critical analysis of the five WPs. The following structural parts of the WPs are compared:

1. Aims and principles.
2. Progress made in space technology, space applications, and space science.
3. Development concepts.
4. International cooperation guiding principles.
5. Major events (bilateral, multilateral, and commercial).

The **purpose** of this comparative analysis is to track the evolutionary processes that took place in the Chinese space policy narrative from 2000 to 2022, to define the crucial features that make this narrative especially appealing and captivating, and to pay attention to the essential elements that are of special interest for international politics. Excessive technical details (names, numbers, and specific terms) related to rocket science and space research are omitted when they do not add any informative value to the aim of the analysis.

Aims and principles

With minor alterations, all five WPs include four main points: 1) outer space exploration; 2) use of space for peaceful purposes; 3) protection of national interests, economic demands, and technological development; and 4) building up the comprehensive national strength. However, WP-2016 adds a "Vision" paragraph, mentioning "support for the Chinese Dream of the renewal of the Chinese nation" [White Paper 2016]. WP-2016 clearly and openly reflects an aspiration to turn China into "a space power in all respects" [White Paper 2016]. WP-2022 does not mention the concept of the Chinese Dream any longer but stresses the necessity of "a positive contribution to China's socialist modernization" in the added "Vision" paragraph [White Paper 2022]. Moreover, WP-2022 adds a "Mission" paragraph stating that "global consensus on our shared responsibility" should be facilitated [White Paper]. This peculiarity reveals how national priorities have subtly shifted in the narrative and the allocation of responsibilities at the global level.

A list of four to five principles is still the same in all WPs: innovative, coordinated, peaceful, open, and comprehensive development. Their order may vary from paper to paper, but the general meaning is preserved. Only WP-2000 proposes a restricted number of targets. Starting with WP-2006, there is a focus on the "comprehensive development of space science, technology, and applications" [White Paper 2006]. A state plan coordinates all space-related endeavors to promote and enhance the overall quality and efficacy of space development.

There are two sites of interest. In any WP, innovative development is equal to independent development and self-reliance. Despite the fact that China combines

them with opening to the outside world, this constant repetition brings a spirit of developmentalism into the context of the WPs. China, adhering to the path of self-sufficiency and independence, relies predominantly on its own capabilities and resources to modernize its space sector in line with the country's real circumstances and strengths. The second point is a "leap-frog development" term used in two papers [White Paper 2006; White Paper 2011]. This vivid image of a frog that moves with huge leaps fits in rather well with the national narrative of space.

Progress made in space technology, space applications, and space science

The Chinese Academy of Sciences (CAS) initiated a project titled "Strategic Research on China's Science & Technology Roadmap to 2050" in October 2007 with the intention of predicting the development of science and technology in China until the middle of the twenty-first century. The initiative encompasses 18 essential areas of science and technology, with a particular emphasis on strategic goals of space science, applications, and technology [Guo 2010].

To draw an analogy, a Roadmap-2010 is a kind of "bone structure", a skeleton, and a framework. WPs are a "muscle mass", which, attaching to the "bones", gives practical significance to theoretical calculations.

WPs address the three main strategic goals of space technology, applications, and science [Guo 2010]. They summarize the achievements and progress made by the time of publication of each paper according to these goals. Indeed, space science, applications, and technology mutually support and depend on each other. Without the encouragement of novel space science and applications, it is conceivable that the advancement of space technologies would lose its impetus. Without ongoing innovations in space technologies, space science would also stagnate.

Because this sort of achievement is best covered in the news, is most accessible and understood to a large audience, and produces public interest and an emotional response, the components of space technology should be thoroughly viewed. The technical aspect of space exploration is often the focus of narrative construction since it is more obvious to the audience.

1. Space transportation system (launching vehicles and sites)

The constantly increasing number of the Long March carrier rocket launches and successful flights demonstrates a significant improvement in the reliability of China's launch vehicles:

- October 1996 – October 2000: 63 launches, 21 consecutive successful flights;
- October 1996 – the end of 2005: 46 consecutive successful flights;
- 2006–2011: 67 successful launches;
- 2011 – November 2016: 86 launch missions;
- 2016 – December 2021: 183 launch missions.

WP-2000 and WP-2006 mention three launching sites, namely Jiuquan, Xichang, and Taiyuan. WP-2006 states the building of a new space launch site in Hainan (Wenchang); WP-2016 marks the first launch held at this site; and WP-2022 outlines adaptive upgrades made at four launch sites.

2. Space infrastructure (man-made satellites)

China has made steady progress in developing and launching the main types of satellites: 1) remote-sensing (Earth observation); 2) communications and broadcasting; 3) navigation and positioning; and 4) scientific and technological test satellites.

− WP-2000: four satellite series
− WP-2006: six satellite series
− WP-2011: launching the 4-satellite Beidou Navigation System.
− WP-2016: completing the 14-satellite Beidou Navigation Satellite System (Beidou-2)
− WP-2022: completing and operating the 30-satellite Beidou Navigation Satellite System (BDS-3)

3. Manned spaceflight

In record speed, the PRC transitioned from unmanned to manned spaceflight, eventually moving on from astronaut extravehicular activities to building its own space station (the three modules had been successfully completed by November 2022):

− WP-2000: the first unmanned experimental spacecraft;
− WP-2006: China became the third nation in the world to independently develop manned spaceflight;
− WP-2011: China became the third nation in the world to have mastered the essential technology required for astronauts to engage in extravehicular activity;
− WP-2022: China has successfully reached the second stage of its manned spaceflight project and continued further construction of the Tiangong space station.

4. Deep space exploration

Results of deep space exploration appear in three of the last WPs. According to them, the PRC finished the three-step Moon exploration programme consisting of orbiting, landing, and returning. It is remarkable that China has made the leap from cislunar (Moon) to interplanetary (Mars) exploration.

− WP-2011: successful launch of the first two lunar probes.
− WP-2016: soft landing of the third lunar probe.
− WP-2022: epic soft landing of the fourth lunar probe on the far side of the Moon for the first time in human history; return of the fifth lunar probe with samples from the Moon; orbiting and landing of the Mars probe; Mars rover exploration.

As for the space applications, China has come a long way from establishing specialized institutions to providing comprehensive monitoring with the help of remote-sensing technologies (e.g., emergency monitoring of natural disasters around the country and abroad); from using foreign countries' navigation satellites to launching its own full-fledged satellite navigation system; and from providing basic TV broadcasting services to expanding and commercializing the space application industry (e.g., the Internet of Things, tracking of individual movements for COVID-19 epidemics control).

Progress in space science can be observed in each WP as well. A growing number of research tasks indicates the complexity of the process and fills the theory and observations with real practical significance. WP-2011 added achievements in lunar scientific research and space debris monitoring to China's space science agenda. WP-2022 highlights studies on the Moon and Mars geological structures and surfaces based on an empirical approach. It also promotes the idea of space environment governance and the role of China as a responsible space actor, making a positive contribution to mitigating space debris.

Development concepts

In general, development policies expressed throughout the five WPs can be summarized into eight main points:

1. Rationally organizing space activities.
2. Increasing innovation capability in space science and technology.
3. Bolstering basic space industry capabilities and expediting the industrialization of space activities.
4. Expanding satellite application industry.
5. Promoting the commercialization of the space industry and enhancing the system of diverse funding.
6. Advancing law-based governance by strengthening legislative work.
7. Boosting team-building and training professionals for the space industry.
8. Promoting space education and culture among organizations and individuals in all walks of life and sharing knowledge about space science.

The most interesting point in terms of constructing a space narrative is the last message about the popularization of space education and culture in society. The stated objective is to promote public understanding of science while also sparking the interest of young people in the scientific endeavors of discovery and innovation. This implies that China will be more persistent about safekeeping its space history and will increase the number of space museums and experience parks in order to promote space education and enthusiasm (e.g., Shanghai Astronomy Museum is the world's largest planetarium). As a result, more works of literature and art will be produced with a focus on outer space exploration.

International cooperation guidelines

An invariable principle of international space cooperation is the consolidation of space activities around the institutions, specialized agencies, and treaties of the United Nations, which is stated in every WP. The specificity of the Chinese approach to constructing a space narrative in this aspect is manifested in the fact that China emphasizes the special importance of the Asia-Pacific region in the context of space cooperation [White Paper 2006; White Paper 2011]. The PRC narrative is inclusive as it insists on cooperation with both developed and developing countries [White Paper 2006; White Paper 2011; White Paper 2022]. Among the proposed platforms for cooperation are the Belt and Road Initiative (BRI), Asia-Pacific Space Cooperation Organization (APSCO), BRICS, Shanghai Cooperation Organization (SCO), and G20. In WP-2022, for the first time, China adds its own active participation in the development of rules regarding outer space to the principles, which indicates an increasingly proactive country's stance on this issue.

Major events (bilateral, multilateral, and commercial)

The most indicative are the real cases of international space cooperation, which can be conditionally divided into three key areas: the results of bilateral, multilateral, and commercial cooperation.

In ***bilateral cooperation***, attention is drawn to the growing number of ties with other states, geographical diversity, and the expansion and deepening of areas of interaction on a bilateral basis. This format is carried out mainly within the framework of the special space committees at the interstate level. It is noteworthy that China's role has changed from being a technology-dependent and consuming follower to being the leader, setting its own agenda, and sharing its own technologies. Among the most frequently mentioned partners are many European states and the ESA, Brazil, other South American states, and a number of countries on the African continent. Bilateral space cooperation is implemented in a variety of ways, ranging from

the creation of reciprocal space programmes and the exchange of academicians and specialists to the cooperative development of satellites or satellite components and the provision of "piggyback" service and commercial launching service.

The role of ***Ukraine*** in bilateral space cooperation with China previously had high potential for growth and expansion. As noted in WP-2000, Ukraine was on the list of countries with which the PRC signed intergovernmental or interagency cooperative agreements, protocols, or memoranda and established long-term cooperative relations. WP-2006 consolidated space exchanges and collaboration with Ukraine. Under the auspices of the Sino-Ukrainian Joint Commission on Space Cooperation, the two states determined plans for partnership in space. Space cooperation continued to develop incrementally. According to WP-2011, China unfolded extensive cooperation with Ukraine under the Space Cooperation Sub-committee mechanism of the Sino-Ukrainian Cooperation Commission. The two nations signed the "Sino-Ukrainian Space Cooperation Programme". However, there was an information gap and a sharp decline afterwards. WP-2022 briefly concluded that Ukraine was on the list of countries with which China has collaborated on space products and technologies (without specifying certain actions or decisions).

In the ***multilateral format of cooperation***, the Chinese space narrative portrays China as an equal participant and exemplary performer, which over the years has become an ideological organizer, sponsor, and even inspirer of multiple space interactions. Actively participating in all space-related structures of the UN and other intergovernmental organizations, China continues to promote its own format of space relations in the Asia-Pacific region, which gives it a voice in the framework of regional organizations and other cooperation mechanisms established by China itself. Among the most crucial issues that require joint work in multilateral formats are: the problem of space debris; the manufacture and application of small multi-mission satellites; the coordination of the Beidou satellite navigation system with systems of other countries and the global expansion of its capacity; the provision of space-based information for disaster management and emergency response; international academic exchange programmes; and trainings for professionals in the space industry.

Throughout the WP-2022, China has emphasized peaceful cooperation based on mutual interest and aimed at benefiting humanity. The construction of the Belt and Road Initiative Space Information Corridor (BRISIC) is a component of China's BRI. This 2013-launched strategic initiative is the linchpin of China's foreign policy, and through land and sea infrastructure investments, it seeks to connect China to the rest of the world via Central Asia and Europe. The construction of the BRISIC will further improve and benefit the development of the BRI.

As for the ***commercial component*** of international space cooperation, in this part of the narrative, China is presented, first of all, as a "spokesman" for the aspirations of developing countries, to which China provides its capabilities for launching the satellites. Indeed, the PRC has actively promoted the extensive applications of Earth observation satellite data in various countries. China has provided numerous states with free receiving stations for meteorological satellite broadcasting systems and comprehensive systems for the analysis and processing of meteorological data. The PRC has assisted developing nations in boosting their space science and research and made its space facilities available to them. Opportunities for commercial satellite carrying are also provided for interested developed countries.

Discussion

From putting a taikonaut into orbit to launching a lunar rover and a mission to Mars, China's space programme has made incredible strides in the previous two decades. In July 2019, The State Council Information Office of the PRC issued the WP "China's National Defense in the New Era." Outer space is considered as one of the major security fields where national interests should be safeguarded: "Outer space is a critical domain in international strategic competition. Outer space security provides strategic assurance for national and social development [China's National Defense 2019]."

There is no unified consensus among space policy experts on the rationales for Chinese national space policy initiatives. Most foreign researchers tend to believe that the Chinese space programme grew out of military necessity along with the evident ancillary benefit of enhancing China's international political image. China's dual motivations mirrored those of the United States (US) and the Soviet Union, the two original space pioneers [Handberg 2006]. Some experts add a technological component to the list of motivations by stating that Chinese space exploration is driven by the logic of science, technology, and national pride [Suzuki 2019].

Popular belief holds that China's space narrative rests upon three pillars: national development, military empowerment, and great-power competition. China's development in space has been driven by the first two factors since the programme's inception, while the third factor has become especially prevalent in the last decade [Julienne 2021].

Indeed, space activities may be viewed as a substitute for displays of national military power. The 2007 anti-satellite weapon (ASAT) test has undermined China's space sustainability efforts by producing a significant quantity of long-lived orbital debris. It prompted numerous speculations regarding China's stance on space safety and security. The 2007 ASAT test is frequently cited as evidence of ignorance regarding the sustainability of the outer space environment and the recklessness of engaging in a space arms race. However, China has remedied the situation and has not conducted similar debris-generating tests since 2007 [Du 2017]. According to Chinese researchers, current China's positioning on space governance includes four transitions: 1) from "spoiler" of to an adherent to space rules, 2) from a maintainer of space rules to a guider of space rules, 3) from an implementer to an overseer of space rules, and 4) from a receiver of space rules to a provider [He 2021].

The "China threat" school of thought interprets Chinese policy, including its space programme, as a challenge to US dominance posed by China's pursuit of an array of military space capabilities. Proponents of this idea claim China's expanding space capabilities can be used against other spacefaring nations, even though it is difficult to determine the military scope of China's efforts [Hilborne 2016].

Due to the strong dual-use nature of space technology, it is a complicated task to distinguish between civilian and military applications of outer space. Some researchers point out that Chinese space ambitions, which are portrayed as peaceful and for the benefit of all mankind, have a "shadow side." For them, China's military activities in outer space are largely unclear, causing concern and anxiety abroad [Julienne 2021].

The difficulty in assessing the space budgets of states lies in the fact that these data are a state secret in any country in the world, not only in China. Given the difficulties

in separating the civilian and military elements of space programmes, claims for greater transparency in space budgets sound unrealistic. Space expenses can be judged indirectly by the country's military budget, based on publicly available statistics and databases. However, this number will still be approximate.

According to "Trends in World Military Expenditure, 2022" by the Stockholm International Peace Research Institute (SIPRI), the US has the largest military budget in the world ($877 billion), surpassing China ($292 billion). In 2022, China increased its defense expenditure for the 28th consecutive year, the longest uninterrupted period of spending growth by any nation [Tian 2023].

The US has by far the largest space budget in the world. With $61.97 billion of expenditure on its space programmes in 2022, the US government's spending outweighed that of all other governments combined ($41 billion). China ranks second with $11.94 billion in 2022 [Euroconsult 2022]. Based on these data, we can conclude that in terms of investment in the space industry, the US remains the leading space power in the world. What is remarkable, however, is that China is making extraordinary progress at a lower cost.

China's stated intention to be a responsible space actor is at odds with the false perception that it poses a possible or imminent threat to space security [Wu 2015]. This mere military security emphasis leads to cognitive biases in the perception of Chinese space policy and a one-sided approach. The most realistic estimate is that China's space programme is the product of a variety of factors, including strong domestic political and developmentalist goals that prove to be complex and multifaceted [Sheehan 2013]. The PRC values space because it has the potential to increase the country's comprehensive national power (CNP), which is the sum of a nation's diplomatic, informational, military, and economic power [Pollpeter 2020]. In brief, China's space activities are intended as a tool designed to simultaneously meet the needs of economic growth, scientific and technological advancement, national security, social progress, domestic political benefits, and boosted international influence [Aliberti 2015].

Certain authors mention that although China's commercial space startups may create some competition for state-owned enterprises and provide new options for acquiring space products and services, they are not anticipated to make any significant technological advances or innovations [Pollpeter 2020]. Nonetheless, this pessimistic trend may undergo substantial change in the near future. China successfully tested a methane-powered carrier rocket on 12 July 2023, signifying the first orbital flight of any methane-powered rocket in the world. The rocket carried an experimental payload into Earth's orbit, according to LandSpace, a Beijing-based private company that devised and constructed this rocket [Zhao 2023a].

Attempts by some researchers to apply central ethical concepts from Chinese philosophy ("harmony" and "benevolence") to the space industry have led them to the conclusion that rather than a conquer-and-dominate attitude toward the space environment, which could pit nation-states against one another, "the Chinese seek to not *own* space but to fully *utilize* space" [Solomone 2013, 57]. In their opinion, China views space as an environment in which humans can live, work, and generate wealth through habitation and resource extraction. Three distinct Chinese space objectives are highlighted: (1) space-based solar power, (2) lunar exploration and asteroid mining, and (3) establishing its own permanent space station [Goswami 2018].

It is necessary to note that the PRC is not a signatory to the "Moon Agreement" (*Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*). Since its inception on 18 December 1979, this agreement has not been ratified by any state that engages in self-launched human spaceflight; thus, it has little to no relevance to international space law [Du 2017].

While the completion and operation of the space station have been resolved, the prospect of space mining remains vague. On the one hand, the China Space Station is a response to China's exclusion from the International Space Station project. On the other hand, the China Space Station would be the only manned spacecraft in orbit if the International Space Station were to be terminated [Jiang 2021].

But there is no evidence that the Chinese leadership has officially approved many aspects of the expansive vision for space natural resource extraction or the Roadmap issued by China Aerospace Science and Technology Corporation, which outlines space industry plans for technological development until 2050. For instance, the mega-engineering projects presented in the 14th Five-Year Plan (2021–2025) for National Economic and Social Development do not include the majority of the projects described in the Roadmap [14th Five-Year Plan 2021].

It is conceivable that statements made by personnel involved in China's space programme and goals outlined in the Roadmap are vision statements that do not reflect approved objectives. In English-language sources, generals' statements on cislunar space are conveyed as official statements, whereas in Chinese-language sources, they are presented as personal opinions [Pollpeter 2020].

A recent survey has revealed that investment in human spaceflight and deep space exploration is primarily supported by the Chinese public. In spite of the high costs, respondents ardently support investments in lunar and Mars exploration. Respondents also believe it is crucial for China to become a leader in space exploration and are positive about the long-term prospects of China's space programme [Hines 2022].

If the concept of a permanent cislunar presence is approved, China will need to allocate significantly more financial and human resources to its space programme. Many of the proposed initiatives are complicated and expensive. In addition, the allocation of these resources would occur at a time when China's economic growth is stabilizing and its population is aging, thereby increasing the opportunity costs associated with pursuing costly and potentially hazardous projects.

Conclusions

The five WPs were published in order to map Chinese activities in space. The fundamental purpose of these WPs was to emphasize the progress made thus far, outline plans for the next five years, discuss developmental policies and measures implemented up to that point, make proposals for the future, and emphasize international exchanges and cooperation. It is crucial not to view the Chinese space narrative as merely an effort to demonstrate technological superiority. China sees a direct correlation between investments in space technologies and its national prestige. It is as much about demonstrating visionary leadership as it is about becoming a developed space power by landing on the Moon as the first nation expected to do so in 2030 [Zhao 2023b].

Even if these WPs are only the "tip of the iceberg" in Chinese space policy (due to security concerns), the space narrative, even in its cut-down form, looks powerful, promising, and compelling. Each of the WPs is not just an ambitious "dummy"

or a declaration of intent, but a well-crafted fragment of discourse with real content. The latest WP-2022 features a detailed account of the progress in the space industry over the past 20+ years, a realistic assessment of China's own capabilities, and a balanced approach to short-term and long-term planning. Such a rational view inspires unequivocal trust in the intended audience. It should be noted that, as of 2023, some of the space tasks have already been implemented, highlighting the plausibility and validity of China's strategic goals in space science, applications, and technology.

Space science, applications, and technology are anticipated to be thoroughly developed in China by 2050 and to play a significant role in the country's modernization. With accomplishments and discoveries in the relevant disciplines, they should be able to provide effective solutions to certain problems that the country may confront and grant China a prominent and stable position among the developed space actors of the world.

As China's space programme advances, its commercial and scientific activities will gain prominence and extend the competition to include economics and diplomacy, challenging the US leadership in space just as China challenges the US across the entire spectrum of diplomatic and economic power. In this regard, China's space programme is just "another brick in the wall" of the inevitable and long-lasting transition from the current US-dominated international system to a multipolar one.

The most essential is that China's space narrative contributes to its "strong, rich, and respected" status [Pollpeter 2020]. The PRC views its space programme as a manifestation of national power, serving its political, economic, and military interests. All of these governing principles ultimately relate space activities to the overall objective of bolstering China's CNP.

To complete all of these space-related initiatives simultaneously by 2050 would be an enormous undertaking for any nation. China's space industry faces technological challenges from each of the initiatives. To achieve these goals, China would have to abandon its traditional role as a "fast follower" by leveraging foreign and domestic experience and technology to become the world's technological leader in a wide range of space technologies. In order to accomplish this, the PRC would have to simultaneously address a number of unprecedented technical obstacles in the history of space exploration. It is uncertain whether China's space programme will be able to overcome these obstacles, particularly by mid-century. Time will tell.

REFERENCES

Aliberti M. (2015), *When China Goes to the Moon…* (Vol. 11). Springer International Publishing, Cham (In English).

Du R. (2017), "China's approach to space sustainability: Legal and policy analysis", *Space Policy*, Vol. 42, pp. 8–16 (In English).

Euroconsult (2022), *Government Space Programs*. 22nd edition (In English).

Goswami N. (2018), "China in space: Ambitions and possible conflict", *Strategic Studies Quarterly*, Vol. 12, pp. 74–97 (In English).

Guo H. and Wu J. (eds.) (2010), *Space Science & Technology in China: A Roadmap to 2050.* Springer, Berlin; Heidelberg (In English).

Handberg R. and Li Z. (2006), *Chinese space policy: A study in domestic and international politics.* Routledge (In English).

He Q. (2021), “China’s Space Power Strategy in the New Era”, *Asian Perspectiv*e, Vol. 45 № 4, pp. 785–807 (In English).

Hilborne M.P. (2016), “China”, *Space Policy*, Vol. 37, pp. 39–45 (In English).

Hines R.L. (2022), “Heavenly Mandate: Public Opinion and China’s Space Activities”, *Space Policy*, Vol. 60, pp. 101460 (In English).

Information Office of the State Council of the People’s Republic of China (2000), *“The White Paper on China’s Space Activities (November 22, 2000)”*, available at: http://www.china.org.cn/e-white/8/index.htm (accessed 25 May 2023) (In English).

Information Office of the State Council of the People’s Republic of China (2006), *“The White Paper on China’s Space Activities in 2006 (October 12, 2006)”*, available at: http://www.china.org.cn/english/features/book/183672.htm (accessed 25 May 2023) (In English).

Information Office of the State Council of the People’s Republic of China (2011), *“The White Paper on China’s Space Activities in 2011 (2011, December 29)”*, available at: http://www.china.org.cn/government/whitepaper/node_7145648.htm (accessed 25 May 2023) (In English).

Information Office of the State Council of the People’s Republic of China (2016), *“The White Paper on China’s Space Activities in 2016 (2016, December 27)”*, available at: http://www.china.org.cn/government/whitepaper/node_7245058.htm (accessed 25 May 2023) (In English).

Jiang S. and Zhao Y. (2021), “China’s national space station: opportunities, challenges, and solutions for international cooperation”, *Space Policy*, Vol. 57, pp. 101439 (In English).

Julienne M. (2021), “China’s Ambitions in Space: The Sky’s the Limit”, *Études de l’Ifri*, Ifri (In English).

Pollpeter K. (2020), “China’s Space Program: Making China Strong, Rich, and Respected”, *Asia Policy*, Vol. 15 № 2, pp. 12–8 (In English).

Sheehan M. (2013), “Did you see that, grandpa Mao? The prestige and propaganda rationales of the Chinese space program”, *Space Policy*, Vol. 29, pp. 107–12 (In English).

Solomone S. (2013), *China’s Strategy in Space*. Springer, New York (In English).

Suzuki K. (2019), “Space Policies of Japan, China and India: Comparative Policy Logic Analysis”, 立命館国際研究 *(Ritsumeikan Kokusai Kenkyū)*, Vol. 31 № 5, pp. 49–67 (In English).

The State Council Information Office of the People’s Republic of China (2019), *“China’s National Defense in the New Era (2019, July 24)”*, available at: http://english.www.gov.cn/archive/whitepaper/201907/24/content_WS5d3941ddc6d08408f502283d.html (accessed 30 July 2023) (In English).

The State Council Information Office of the People’s Republic of China (2022), *“China’s Space Program: A 2021 Perspective (2022, January 28)”*, available at: http://english.www.gov.cn/archive/whitepaper/202201/28/content_WS61f35b3dc6d09c94e48a467a.html (accessed 25 May 2023) (In English).

Tian N., da Silva D.L., Liang X., Scarazzato L., Béraud-Sudreau L. and de Oliveira Assis A.C. (2023), *Trends in World Military Expenditure, 2022*. SIPRI, Stockholm (In English).

Wu X. (2015), “China and space security: How to bridge the gap between its stated and perceived intentions”, *Space Policy*, Vol. 33, pp. 20–8 (In English).

Xinhua News Agency (2021), *"Outline of the People's Republic of China 14th Five-Year Plan for National Economic and Social Development and Long-Range Objectives for 2035"*, translated by Etcetera Language Group Inc., Center for Security and Emerging Technology (In English).

Zhao L. (2023a), "China sends world's first methane rocket into orbit", available at: https://www.chinadaily.com.cn/a/202307/13/WS64aeffb7a31035260b8160a8.html (accessed 30 July 2023) (In English).

Zhao L. (2023b), "Nation unveils plan on crewed moon mission", available at: https://www.chinadaily.com.cn/a/202307/13/WS64aedfeca31035260b8160a0.html (accessed 30 July 2023) (In English).

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