

Space Race Between China and India to Win Hegemony

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Abstract

Space race refers to the race to master space technology. This activity began in the Cold War Era when the United States of America and the Soviet Union raced to explore outer space in the 1950s. The race continued and at the end of the 1960s other countries followed to conduct space activities by launching rocket and satellite. China and India are two countries which have advance technological development and those countries also compete in mastering space technology. Besides having rapid capability to master space technology, China and India also show the same interest to win global authority. This research is important because studying the use of space technology to win hegemony is a new topic. This research attempts to answer a research problem related to the efforts conducted by China and India to win hegemony through space race. This research aims to give new insight on the use of space technology to win hegemony. It was qualitative research which used descriptive method and library research technique to collect secondary data about China and India's space activities and also the space race between them from books, scientific journals, and other relevant sources. The analysis results show that China and India use their space capabilities to win hegemony.

Keywords: *Hegemony; Global Authority; Space Exploration; Space Race; Space Technology*

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INTRODUCTION

The term space race first appeared in the Cold War era which refers to a technology race to explore outer space between the United States and the Soviet Union. The Cold War was an arena for continued competition between the United States and the Soviet Union to create power by making outer space the center of the competition (Erickson, 2018). After the World War II, both the United States and the Soviet Union competed to show strength to the world, one of which was by mastering space technology. After the Soviet Union launched Sputnik I and Sputnik II in 1957, the United States soon followed by launching its first artificial satellite called Explorer I in 1958 (History.com, 2022). The competition continued until the 1960s. However, in the late 1960s, not only the United States and the Soviet Union conducted space activities. Other countries began to follow by launching rockets and satellites. Some countries that had started to actively carry out space activities were Canada, France, Japan, China, and India.

This article aims to discuss the competition between China and India in space activities to win hegemony. Asian countries are not the pioneers in space activities. However, although they are late comers compared to the United States and the Soviet Union, the development of space technology in some Asian countries grows rapidly. Two countries which have rapid development in space technology are China and India. The capability to master space technology and space exploration activities from those two countries is equal with the United States and Russia. Besides, the United States also realizes that its competitor in space activities in this era is not only Russia, but also China and India. It is stated on the news on space.com mentioned that some observers, including U.S. Vice President Mike Pence, have declared that America is now in a new space race with up-and-coming global superpowers like China and India (Mann, 2019). Besides the fact that China and India have the capability to master space technology, they are interesting to be analyzed because they show the same intention to win global influence or domination.

This article is unique comparing to the previous studies because most of the previous studies which discuss space race talk about security dilemma in the competition to master space technology. Three previous studies which discussed security dilemma in mastering space technology are described here briefly. First, the study entitled Space Security Dilemma: India and China discussed security dilemma between India and China. The security dilemma between India and China has been rooted since colonial times, especially regarding the issue of the 4,000 km border between the two countries. China claimed several Indian territories in Arunachal Pradesh,

Jammu, Kashmir, Uttarakhand, and Himachal Pradesh as its territory. On the other hand, India also claimed Chinese territory in Aksai Chin, where China built a road linking Xinjiang with Tibet in the 1950s, as its territory. The tension between China and India occurs in this area as a result of the absence of a national boundary agreement between the two countries. However, both countries are trying to avoid war. In 1962, China attacked India in the Ladakh area. The war lasted for a month and India suffered defeat due to lack of preparation. This incident taught India a lesson that it needs to always be prepared to face security disturbances from China. In an effort to prepare for potential harm from one another, both China and India have invested in nuclear, missile, and space technology. Dual-use space technology is seen as a profitable investment by both countries. Through space technology, the two countries get benefit economically from the commercialization of space activities as well as from the defense and security (Lele, 2019).

Second, the study entitled *Antariksa dalam Tujuan Pembangunan Berkelanjutan: Konflik Non-Konvensional dan Potensi Peran Indonesia sebagai Mediator* discussed space race 2.0 which is marked by the emerging of middle power countries which have started to develop their capability to master space technology. China and India are two middle power countries which significantly develop their capability to master space technology. They become new actors in space activities competition. This study is in line with the study from Lele (2019) mentioned that China and India are developing their capability to master space technology. Space technology mastery is not only aimed to master the science, but also to develop military power (Ratmoko & Felayati, 2018).

Third, the study entitled *South Asia and Space Security: India and China* discussed military competition in outer space conducted by the United States, Russia, and China. The dependence of the United States and its allies on space to maintain military power is challenged by Russia and China. Russia and China in particular pose a threat in turning space from a militarized arena to a weaponization arena. Russia and China have developed anti-satellite and ballistic missile defense (BMD) capabilities. The United States responds to this condition by building a better space defense system and trying to strengthen international norms and promote the effectiveness of space law against space weaponization. This competitive condition does not only affect the United States, China, and Russia. However, this condition also affects other actors in space activities. For example, the conflict between China and India is getting sharper as is the conflict between China and the United States (Davis, 2019). This study shows that countries do not build military power on Earth. They have expanded it to the outer space.

Besides the three studies above, there is another study on space race. However, this study discusses space race based on three different perspectives in International Relations. The study entitled *Research Viewpoint: International Relations and the Second Space Race between the United States and China* analyzed the competition between the United States and China in exploring the Moon economically using liberal internationalism, realism, and constructivism perspectives. This study concluded two things. First, based on liberal internationalism and constructivism perspectives, space race between the United States and China shows the failure of diplomatic communication between the two countries. Second, based on realism perspective, space race between the United States and China is a form of balance of power (Hickman, 2019).

The first three studies discuss the existence of security dilemmas and the mastery of space technology as an effort to strengthen a country's defense and security. In addition, the mastery of space technology can also support a country's economy with the commercialization of space activities. Meanwhile, the fourth study discusses the space race based on three different perspectives in International Relations, namely liberal internationalism, realism, and constructivism. The existing studies discuss security dilemmas, the role of space technology to maintain national security by building military forces in space, for example, and the analysis of space race using three different perspectives in International Relations. None of these studies discuss the mastery of space technology to win hegemony which has novelty in this article. Therefore, the article entitled *Space Race Between China and India to Win Hegemony* can enrich previous studies by providing a new perspective on the mastery of space technology. This article can enrich perspectives related to the mastery of space technology which has been associated with the efforts to strengthen defense and security, by providing a new perspective, namely the mastery of space technology as an effort to win hegemony carried out by China and India.

Besides the four studies described in the previous paragraphs, there is one more study about space race that can be described here. The study entitled *Gearing up for the 21st Century Space Race* discussed space race in the 21st century which is dominated by private companies focused on satellite-based internet connection business. The private companies provide satellite-based internet that has higher bandwidth and lower latency with a constellation of thousands of satellites. This study described the opportunities and challenges of the satellite-based internet connection business that will dominate the space race in the 21st century (Bhattacharjee et al., 2018). Although this study talks about space race, this study does not talk about space race conducted by countries. Thus, the article entitled *Space Race Between China and India to Win Hegemony* is still relevant because of two reasons. First, it is relevant because it analyzes space race

between two countries, China and India. Second, it is relevant because it uses a new perspective namely hegemony theory which is used to analyze an effort to master space technology.

China and India as two countries which have the ability to master space technology and compete each other in developing space technology have used these capabilities for economic and security purposes. The ability to master space technology also makes the two countries have influence or dominance at the international level, but research on the efforts of the two countries to win influence or hegemony has not been carried out. Therefore, this article aims to provide new insights on the use of space technology to win hegemony. In order to achieve this goal, this study aims to answer an article problem on the efforts of China and India to win hegemony through space race.

In order to achieve that purpose, the article problem is analyzed using hegemony theory. The paper entitled *Anatomi Teori Hegemoni Antonio Gramsci* discussed hegemony theory proposed by Antonio Gramsci in depth. The explanation of the theory is taken from Antonio Gramsci's personal life, the socio-political conditions in Antonio Gramsci's lifetime, the thoughts and theories of previous figures that influenced the birth of the hegemony theory, the theoretical questions posed by Antonio Gramsci and alternative answers based on the hegemony theory, as well as the methodology and social reality that supports the discovery of hegemony theory (Siswati, 2017). This paper is chosen as one of the references to review hegemony theory by Antonio Gramsci because it gives detail and comprehensive explanation about hegemony theory.

According to Antonio Gramsci, hegemony is not merely the control of a country over another country as in its original meaning in Greek (*egemonia*). However, according to Antonio Gramsci, hegemony is an agreement or consensus. Therefore, according to Antonio Gramsci, hegemony emphasizes the control of ideology. It does not emphasize the domination of a country geographically. The ideological mastery of the dominant group over other groups then creates a consensus or agreement from other groups to follow the dominant group. According to Antonio Gramsci, this consensus can occur because of three things. They are the fear of the consequences if do not adapt certain ideology, getting used to follow goals in a certain way, and having awareness or approval of certain elements (Siswati, 2017).

Hegemony occurs when a controlled society accepts and imitates the way of life, way of thinking, and views of the group that holds hegemony. Because the controlled society has accepted and imitated the way of life, way of thinking, and views of the superior group, there will be obedience from the controlled society towards the group that holds the hegemony. If obedience

has emerged, then there is no longer a critical mind to question an ideology (Siswati, 2017). Furthermore, a group is said to be a group which holds hegemony if the group has the approval of other groups and the other groups are obedient to a certain group. Therefore, according to Antonio Gramsci a group can become a hegemonic group by increasing its capacity to get support from other groups (Gramsci in Hutagalung, 2004). An example of hegemony that occurs in the modern world today is the hegemony of liberal ideology which prioritizes individual freedom such as freedom of opinion, freedom to make life choices, and other freedoms. Currently the spirit of freedom has echoed throughout the world even though each country has its own leader or has become an independent country.

Next, Antonio Gramsci mentions three levels of political awareness. The first level is called the economic corporate level. An example of awareness at this level is a trader who feels he has a moral obligation to support other traders. However, these traders do not support factory workers. The second level is called solidarity of interest. At this level, all members of the social class have realized that they have the same interests, namely economic interests. The third level is the level that Gramsci calls hegemony when all group members are aware of interests that are much broader than economic interests and these interests also involve people outside the group who are in a weak position (Hutagalung, 2004). At this stage, the role of the intellectuals is needed to create coherent latent aspirations and the potentials that already exist in their group. The relationship between the intellectuals and their groups is dialectical. It means that the intellectuals create and materialize experiences in their groups as well as instill theoretical awareness in the groups (McLellan in Hutagalung, 2004).

RESEARCH METHOD

This article used descriptive method by collecting secondary data about space activities conducted by China and India and also the space race between those countries. This article used library research technique by collecting data from books, journals, and other relevant sources, like space.com. Then, for answering the article problem, the data were analyzed using hegemony theory. Data about space activities conducted by China and India and also the space race between them were matched with the definition and variable from hegemony theory. The variable of hegemony theory mentioned by Antonio Gramsci showed that space race between China and India is an effort to gain global influence or to become hegemonic countries in space sector.

RESULTS AND DISCUSSION

China's Space Activities

The study entitled Space Security Dilemma: India and China mentioned that China's space program was began in the 1950s when on 17 May 1958, the Chairman of the Congress announced that China would have its own satellite. However, China's first satellite, Dongfanghong I, was launched on 24 April 1970. This shows that China became a spacefaring nation¹ in 1970. China published four White Papers in 2000, 2006, 2011, and 2016 about its space activities in the present and its future space projects. However, the White Papers are still considered mysterious because they only contain information that China wants the world to know. China has developed meteorology, remote sensing, earth observation, communications, and navigation assets. China's navigation satellite system, BeiDou, has been recognized globally. China has also successfully implemented satellite vehicle launch programs, space science missions, and human spaceflight missions. China is the third country to successfully carry out a human spaceflight mission. The only Chinese mission that failed was the Mars mission. China has completed the pilot project of the Tiangong 1 and Tiangong 2 space stations and will soon launch the Tiangong 3 space station which is known as the Chinese Space Station (CSS). China through the China Manned Space Agency (CMSA) in collaboration with the United Nations Office for Outer Space Affairs (UNOOSA) made a detail plan for scientists around the world to carry out research in CSS (Lele, 2019). China has a plan to complete its space station by 2022 (Hines, 2022).

Apart from developing national capacity, China also provides rocket launch services to other countries. By 2019, China has launched more rockets than any other countries. Regarding commercialization, in 2014, China issued Document 60, "Guiding Opinions of the State Council on Innovating the Investment and Financing Mechanisms in Key Areas and Encouraging Social Investment," to encourage private Chinese companies to engage in space activities. The result of this initiative is that China currently has an estimated 100 private space companies (Hines, 2022). Besides those achievements, China is the third country to successfully conduct an anti-satellite weapon test on 11 January 2007. Table 1 shows China's achievements in space activities.

¹ According to the Merriam Webster dictionary, the term spacefaring nation refers to a country that has the ability to develop and launch a spacecraft into space.

Table 1. China’s Achievements in Space Activities

No	Achievements	Year
1	Chairman of the Congress announced that China would have its own satellite	1958
2	The launch of China’s first satellite, Dongfanghong I	1970
3	Manned Space Program	1992- present
4	The publication of China’s White Papers	2000, 2006, 2011, 2016
5	China’s navigation satellite system, BeiDou	2000 (first generation), 2011 (second generation), 2015 (third generation)
6	Anti-satellite weapon test	2007
7	Document 60, “Guiding Opinions of the State Council on Innovating the Investment and Financing Mechanisms in Key Areas and Encouraging Social Investment”	2014
8	Rocket launch services for other countries	... until present
9	China Space Station	Targeted to finish in 2022

Source: Created by the author from various sources, 2021

Those achievements show that China has big ambitions in developing space technology. In a study entitled China's Space Ambitions, it is stated that China is developing space technology expansively and 95% of the technology is dual use. This shows that China has a great concern for its civil society and military. Furthermore, the same research states that space activities, such as manned spaceflight², also brings its own prestige to countries that are able to do so. For China, this prestige is defined as political power. By successfully launching a manned spaceflight mission, China has gained the attention of other major countries such as Japan and the United States (Johnson-Freese, 2007).

²Manned Spaceflight is the title of a Chinese space program designed to take humans on a mission into space. In general, this program is a human spaceflight program or a mission to bring humans into space.

Besides the goal to gain an international prestige, the development of space technology in China also requires China to prepare its human resources with technical education, so that, they are able to carry out technical jobs needed in space activities. China hopes that by preparing human resources who master technical capabilities, these human resources will be useful for other industrial sectors that will emerge as a result of China's achievements in space activities. The fact that 80% of the human resources involved in China's manned program³ are under 40 years old shows that the younger generation in China is interested in working in the space sector (Johnson-Freese, 2007). China's efforts to develop space technology and equip its human resources with the technical capabilities needed in space activities show that China pays a great attention to civil society or its citizens. Investments in dual use space technology are considered to bring great benefits to China. This is also in line with the thoughts of other space actors, such as European countries. Investment in space technology also shows that China has made progress in the economy by utilizing infrastructure projects (Alunaza & Sherin, 2022), including space infrastructure.

India's Space Activities

Space research in India began in the 1950s under an institution called the Indian Atomic Energy Commission (Hussain & Ahmed, 2019). Then, India's space activities began in 1962 when Prime Minister Jawaharlal Nehru established the Indian National Committee for Space Research (INCOSPAR). India's first rocket was launched on 21 November 1963. In 1969, the space committee established by Prime Minister Nehru turned into the Indian Space Research Organization (ISRO) (Kabir, 2019). ISRO is mandated to develop applications of space technology and space-related science for socio-economic benefits for India (Kaul & Jakhu, 2010). In 1972, India established the Department of Space (DOS) which was directly led by the prime minister (Hussain & Ahmed, 2019). Then, India launched its first satellite named Aryabhata in 1975. Since the launch of its first satellite, India has experienced significant developments in space activities. India has launched several more satellites and India's space activities are primarily focused on promoting social and economic growth.

India has mature technology in remote sensing satellites. India has also launched various satellites for communications, education, meteorology, astronomy, and navigation purposes. India has a regional navigation satellite system with seven satellites. India has also been able to develop satellite transport technology to low orbit and geosynchronous orbit. In July 1980, India

³ Manned Program is another term for manned spaceflight in China. It has the same explanation with number 2.

launched the satellite launch vehicle III which made India the sixth country to successfully conduct spaceflight missions. India sent its first astronaut into space in 1984. In 2008, India sent a lunar orbiter and the lunar orbiter managed to find water molecules on the Moon for the first time. Then, on 5 November 2013 India sent a Mars orbiter which successfully entered Mars orbit on 24 September 2014 (Suri & Kalapana in Ratmoko & Felayati, 2018). This achievement makes India the first country to successfully explore Mars. In addition, India also provides facilities for other countries to launch satellites. Several countries that utilize India's satellite launch facilities are South Korea, Germany, Belgium, Argentina, Italy, Israel, Japan, and Canada (Burlison in Ratmoko & Felayati, 2018). Indonesia has also launched the Lapan-TUBsat satellite from India on 10 January 2007 (Ratmoko & Felayati, 2018). In March 2019, India announced that it had successfully fired an anti-satellite weapon at a satellite in low orbit. This achievement makes India the fourth country to successfully use anti-satellite weapon. India is planning a human space mission in 2022. Table 2 shows India's achievements in space activities.

Table 2. India's Achievements in Space Activities

No	Achievements	Year
1	Space research under Indian Atomic Energy Commission	1950s
2	The establishment of Indian National Committee for Space Research (INCOSPAR)	1962
3	The launch of India's first rocket	1963
4	INCOSPAR changed into Indian Space Research Organization (ISRO)	1969
5	The establishment of Department of Space (DOS)	1972
6	The launch of India's first satellite, Aryabhata	1975
7	The launch of satellite launch vehicle	1980
8	India's first astronaut was sent into space	1984
9	India's lunar orbiter which found water molecules on the Moon was sent for the first time	2008
10	The Mars orbiter was sent	2013

No	Achievements	Year
11	The Mars orbiter entered Mars and made India became the first country to successfully explore Mars	2014
12	Satellite launch services for other countries	... until present
13	The firing of anti-satellite weapon	2019
14	Human space mission	2022

Source: Created by the author from various sources, 2021

The Indian government specifically invests in space activities with the basic aim of providing the benefits of space-based services to its citizens (Nagendra, 2016). Adhering to the basic objective, the rapid development of space activities in India is supported by the government which recognizes the importance of mastering space technology to support the country's economic growth. In the article entitled Regulation of Space Activities in India, it is stated that since its independence in 1947, India has identified the importance of capabilities in the space sector to achieve social and economic goals. Therefore, ISRO has started inviting private parties to participate in space activities under certain contracts as well as commercializing several technologies. Research and development activities for space technology in India are carried out by three institutions, namely the Indian Space Research Organization (ISRO), Physical Research Laboratory (PRL), and the National Mesosphere-Stratosphere-Troposphere Radar Facility (NMRF). In addition to these three institutions, ISRO has a marketing department called Antarius Corporation which is tasked with carrying out the commercialization of Indian space products and services such as launch services, satellite development, assisting in export-import activities of space technology, and inviting the private sector to participate in facilitating the development of the domestic space industry (Kaul & Jakhu, 2010).

The above description shows the serious efforts of the Indian government to develop space technology for socio-economic purposes in the country. The government's attention and support are shown by giving research mandates to three institutions, namely ISRO, PRL, and NMRF. In addition, the Indian government also allocated a number of budgets for ISRO and the Department of Space (DOS) to develop space programs to support accelerated development in India (Kaul & Jakhu, 2010). The following excerpt shows the budget allocation of the Indian

government in 2008-2009 for DOS and ISRO .

“(i) Rs. 125 crore earmarked for ISRO’s manned mission initiatives as it hiked the allocation for the Department of Space (DOS) by nearly 24%; (ii) The DOS has been allocated Rs 4,074 crore for 2008–2009, a Rs. 784 crore hike over the Rs. 3,290 crore allocation last fiscal; (iii) Rs 10 crore set aside for the Space Recovery Capsule Experiment-2; (iv) allocation of Rs. 10,000 crore for technology development and designing facilities for human spaceflight and astronauts; (v) the Indian Institute for Space Technology, taking shape near Thiruvananthapuram (Kerala); and (vi) The Indian Regional Navigation Satellite System got a massive hike from Rs. 94 crore last year to Rs. 270 crore in this fiscal” (Outcome Budget of the Department of Space, Government of India, 2008–2009 in Kaul & Jakhu, 2010).

The quotation above shows that the Indian government is serious in its efforts to develop space technology in its country. The Indian government's efforts have had tangible results because India is currently recognized as one of the most advanced countries which masters space technology that can be compared to the United States and Russia .

Space Race Between China and India to Win Hegemony

According to Antonio Gramsci, hegemony occurs when one group controls the ideology of other groups and hegemony is not merely the domination of geographical areas. This is in line with what Rementería (2022) stated that the existence and access to outer space have long shown a compatible influence with the exercise of power in global politics. The exercise of this power is based on four aspects. They are security, production, finance, and knowledge. These four aspects are targeted to spread ideology. Besides showing that hegemony is more of an ideological control than just a geographical area, the statement by Rementería (2022) also specifically states that the outer space can be used to exercise power and establish hegemony. This statement is in line with this study which analyzes space race between China and India using hegemony theory.

Next, Gramsci also mentioned the role of the intellectuals in instilling an ideology in society which eventually becomes hegemony because it is followed by many people from various groups. Regarding the mastery of space technology, the effort to master space technology is an intellectual endeavor. Space technology is a scientific development that requires extensive research. People involved in space activities are required to have certain technical qualifications. The existence of research and technical education is an intellectual endeavor.

The benefit of mastering space technology has been proved since the Soviet Union launched Sputnik I in 1957. After that, the United States and the Soviet Union continued to compete in various space activities and after the 1960s other countries followed the efforts of the United States and the Soviet Union to make efforts to master space technology. Other countries which followed the efforts of the United States and the Soviet Union showed that the idea of

mastering space technology has succeeded in hegemonizing the countries of the world. The following quotation shows the success of the two countries' efforts to use space technology as a hegemon.

“The wide-ranging benefits of a space program have been recognized since the days of the U.S. Apollo program, and only expanded since that time. Those benefits include prestige, the creation of technical jobs, dual-use technology and its spin-offs, motivating students into technical fields, and boosting economic development overall. Many of the benefits overlap and intensify the others as well. Beginning with economic development, early European space efforts in the 1960's were spurred by the notion that space activity required technology, technology required the development of a strong industrial sector, and a strong industrial sector led to economic growth. This same premise holds true today and extends into the generation of a Knowledge-Based Society considered requisite for success in a globalized economy as well” (Johnson-Freese, 2007).

The quotation above explains that the benefits of the space program have been realized since the United States launched the Apollo program with the expansion of space programs. Some of the benefits derived from developing space technology are prestige, the emergence of jobs that require technical skills, dual-use technology and technology spin-offs, motivating students to be involved in technical fields, and accelerating overall economic growth. Economic growth made European countries become aware in the early 1960s about the existence of a cycle of space activities. Space activities require technology, technology requires industry, and industry in the end also drives economic growth. The last part of the quotation states that the cycle is still valid today and is increasingly widespread in the scientific communities which also want success in the economics. The quotation shows the influence of mastering space technology on the lives of countries. With the initiation from the Soviet Union and the United States which was then followed by European countries, now countries in Asia and Africa are also making the same effort. This condition shows that the idea of mastering space technology has become a hegemon.

Talking about African countries, Nigeria is a pioneer country in the space activities. Nigeria established a space agency called the National Space Research and Development Agency (NASRDA) in 1999. In 2001, the Nigerian government approved a national space policy. Subsequently in 2003, Nigeria's first Earth observation satellite, NigeriaSat-1, was launched. These satellites provide useful data in development and economic planning in the country. In the following years, Nigeria continues to launch satellites that provide data information related to socio-economic conditions in the country, communication satellites, and navigation satellites. Nigeria is also actively engaged in bilateral and multilateral cooperation with other countries. Seeing the development of Nigeria, other countries in the African continent are interested in mastering space technology. This is proved by the launch of satellites in several countries in the African continent, namely South Africa, Egypt, Ethiopia, and Namibia; rocket launches in Algeria, Lib-

ya, and Congo; and the creation of launch pads in South Africa and Kenya (Tella, 2018). This fact shows that in the African continent the mastery of space technology has become a hegemon. It started from one country, Nigeria, and was followed by other countries in African continents.

A study entitled “*Antariksa dalam Tujuan Pembangunan Berkelanjutan: Konflik Non-Konvensional dan Potensi Peran Indonesia sebagai Mediator*” stated that the competition in space sector is currently dominated by middle power countries. Competition in the space sector is shown by the rapid development of satellites and spacecraft by these middle power countries. Competition in the space sector is an attempt to expand the influence at the international level. China and India are two middle power countries that continue to strive to master space technology (Ratmoko & Felayati, 2018). The efforts of China and India to master space technology to expand their influence in the international world show that the two countries are trying to dominate other countries. The same thing was stated by Li, Ma & Li (2022) that China, specifically through the human spaceflight program, does not only want to show that it has advanced technological capabilities, but also shows an effort to engage in international cooperation. In fact, China is indeed involved in various initiatives in space sector at the global level by participating in various international organizations, signing bilateral agreements with many countries, and actively entering the global launch market. Meanwhile, India is one of the countries which develops space programs to gain status and power at the regional and international level through investment in the space program (Hussain & Ahmed, 2019).

One example of the competition in space activities between China and India is mentioned below.

“...manned spaceflight is nevertheless considerably more expensive than unmanned spaceflight. But, as the saying goes, nobody holds a parade for robots. Manned spaceflight garners attention simply because people are interested in other people. The same week that China launched its first taikonaut into orbit in 2003, India launched its most sophisticated remote sensing satellite. Yet that accomplishment received minimal global attention compared to China’s manned launch” (Johnson-Freese, 2007).

The quotation above mentions that China has successfully launched a manned spaceflight mission even though the cost for the mission is much more expensive than the unmanned spaceflight mission. After this success, China has got the attention of other countries, including India. In the same week when China launched its first taikonaut (the Chinese way of calling astronaut) in 2003, India also launched its first most advanced remote sensing satellite. This condition shows that there is a competition in space activities or space race between China and India

at a global level even though the launch of India's remote sensing satellite does not get a lot of attention from the global community.

After China's success in manned spaceflight mission and it received a lot of attention from other countries, China began to expand its influence by providing assistance to countries in Africa, Asia, and Latin America which are still developing countries. The result of China's efforts is a positive picture from other countries about China, especially from developing countries that have got a lot of benefits from China's manned spaceflight program (Johnson-Freese, 2007). On the other hand, India also continues to develop its space capabilities. In a study entitled South Asia and Space Security: India and China, it is explained that India specifically developed satellites for both civilian and military purposes. India with the paradigm of "small, cheap, and many" focused on developing a small satellite system (small-sat) which is a constellation of satellites with smaller size and more numbers but with lower manufacturing costs. India's ability to develop this constellation of small satellites demonstrated innovation in space technology and rapid progress in space capabilities. Furthermore, India's ability to produce small satellites in large quantities at low cost had also resulted in new satellite manufacturing techniques, such as 3D printing techniques. The existence of new techniques for producing satellites also boosted India's economic growth because the emergence of these new techniques also improved the commercial sector of the private sector involved in manufacturing satellites. The emergence of the commercial sector in space activities in India was also quickly followed by other countries such as Australia and China. These countries began to take the same approach, namely involving the commercial sector in space activities (Davis, 2019).

The above explanation shows that there is a competition in space activities or a space race between China and India. In 2003, India tried to compete China's success in launching a human spaceflight mission. Then, in the next few years China also followed India in developing the commercial sector in space activities. This competition shows an effort to win influence or hegemon at the global level by mastering space technology. In the article entitled Space Hegemony, Who Holds It, it is written as follows:

"In space, the United States and Russia (formerly the Soviet Union) once led the world, and it was called the "bipolar structure", but now, in addition to Europe and Japan, emerging countries such as China and India have also emerged, and like the ground. We are entering the age of multipolarization" (Yamamasu, 2020).

The quotation above states that at the beginning the United States and Russia led the world in the space sector. The condition of the existence of two countries as leaders emerged the term bipolar structure. However, in subsequent developments, it is not only those two countries that are influential in the space sector. The quotation mentions Europe, Japan, China, and India as countries conducting space activities whose capabilities are recognized as equal to the United States and Russia. This condition emerges the term multipolarization. From this quotation, it can be seen that China and India have emerged as two countries which are influential or become hegemony in the space sector. This quotation supports the statements of Johnson-Freese (2007) and Davis (2019) which mentioned that there is a competition between China and India to win world hegemony by mastering space technology, as described in the previous paragraphs. These two Asian countries have been aligned with the United States and Russia. Achievements and progress in mastering space technology occur as a result of competition between the two countries. Specifically in Asia, competition between China and India in space sector has affected the conditions in the region as stated by Davis (2019) that the dynamics of South Asian space competition are driven by India and China. That statement shows the influence of competition in the space sector carried out by China and India in the Asian region, especially in South Asia.

CONCLUSION

The above explanation shows the development of space activities in China and India. The space activities are still growing until now. The analysis using hegemony theory shows that China and India are competing to become more sophisticated in mastering space technology. This capability brings prestige to both countries when they are recognized as equal to the old players in the space sector, namely the United States and Russia. Furthermore, China and India expand their influence by providing facilitation in space activities for other developing countries in Africa, Asia, and Latin America. The developing countries which feel the benefit of space technology facilitated by China and India view space activities conducted by China and India positively. This view has an impact on the wider hegemony or influence of the two countries at the global level through the mastery of space technology.

The analysis using hegemony theory is a new perspective to analyze space race. This perspective enriches previous analysis using security dilemma. Space activities and space race are growing very fast, so that, study or research about space race seen from different

perspectives are still relevant in the future. In particular, for International Relations scholars, analyzing space race can be seen from various point of views. Considering the development of space activities, the study about space race can be conducted by seeing the role of non-state actors like private companies and individuals. Moreover, the study about space race can be conducted by seeing the benefits of mastering space technology in various aspects of life. The theories which can be used to analyze space race are economy and global politics, the commercialization of space activities, diplomacy through space activities, and other relevant theories.

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