

China's Lunar Exploration and Utilization: Positive Energy for International Law or Not?

Exploración y explotación lunar de China ¿Energía positiva para el derecho internacional?

Wu Xiaodan*

SUMMARY: I. *Introduction*. II. *An Evaluation of China's Lunar Exploration and Utilization under the Existing International Legal Regime*. III. *China's Views in International Rules Making Regarding Lunar Exploration and Utilization*. IV. *Conclusions*. V. *Bibliography*.

* The Law Faculty, Central University of Finance and Economics, Beijing, China. Appreciation is owed to Professor Joanne Irene Gabrynowicz of the University of Mississippi, the U.S., for her comments and corrections. However, errors and omissions in the article are the sole responsibility of the author.

Artículo recibido el 8 de julio de 2014
Aprobado para publicación el 24 de septiembre de 2014

ABSTRACT: China's lunar exploration and utilization, the Chang'e Program, was officially initiated in January 2004. Its technologies and activities in this field have been developing at a rapid rate and many achievements have been gained during the last decade. In general, China's activities of lunar exploration and utilization conform to the requirements of its international legal obligations in accordance with the UN space treaties it have acceded to: primarily motivated by science advancement and economic development without intention to intensify the trend of militarization; more and more aware of the importance of the safe and sustainable access to and use of outer space and no evidence demonstrating that the Chang'e Program has damaged the lunar environment; the non-appropriation principle being confirmed by relevant case law.

Key words: China's lunar exploration and utilization; demilitarization; environmental protection; non-appropriation principle; resource exploitation.

RESUMEN: La exploración y explotación lunar de China, el Programa Chang'e, se inició de manera oficial en enero de 2004. Sus tecnologías y actividades en este campo se han desarrollado de una manera rápida y varios logros han sido alcanzados durante la última década. En general, las actividades chinas en la Luna son acordes con los requerimientos de sus obligaciones jurídicas internacionales nacidas de los acuerdos internacionales espaciales de Naciones Unidas a los que ha accedido: principalmente motivados por el avance científico y el desarrollo económico sin intención de intensificar la tendencia de militarización; cada vez más conscientes de la importancia del acceso y uso sustentable y seguro del espacio exterior y sin evidencia de que el Programa Chang'e haya dañado el ambiente lunar; el principio de no apropiación siendo confirmado por jurisprudencia relevante.

Palabras clave: Explotación y exploración lunar china; desmilitarización; protección ambiental; principio de no apropiación; explotación de recursos.

RÉSUMÉ: Le Programme «Chang'e» d'exploration et d'utilisation lunaire de la Chine a commencé officiellement en Janvier 2004. Les technologies et les activités de ce programme dans ce domaine ont été développées rapidement et beaucoup de réussites ont été gagnées pendant la dernière décennie. En général, les activités lunaires d'exploration et d'utilisation par la Chine se conforment aux exigences de ses obligations internationales en vertu des traités des Nations unies sur l'espace auxquelles elle a adhéré: motivée premièrement par le développement économique et scientifique sans intention d'intensifier la tendance de la militarisation; de plus en plus conscient de la sécurité et de l'accès soutenable et l'usage de l'espace et la manque de preuves de dommages à l'environnement lunaire par le Programme Chang'e; le principe de non-appropriation a été validé par la jurisprudence approprié.

Mots-clés: Utilisation et exploration lunaire de la Chine, démilitarisation, protection de l'environnement, principe de non-appropriation, exploitation de ressources

I. INTRODUCTION

The moon, as the only natural satellite of Earth and our nearest neighbour in the universe, has always been a focus ever since the outer space era began. Despite the enormous cost, the scientific and technological benefits of lunar exploration and utilization are significant. In January 2004, China officially initiated its lunar exploration by announcing its Chang'e Program.¹ Chinese technologies and activities in this field have been developing at a rapid rate and China has made remarkable achievements since then. The first phase of Chang'e Program, orbiting, was ended by the successful launches of the lunar probes of Chang'e 1 and Chang'e 2 respectively on 24 October 2007 and 1 October 2010.² The second phase of landing is an unmanned mission called Chang'e 3 incorporating a robotic lander. On 14 December 2013, China landed a lunar rover, Jade Rabbit, on the moon and became the third country to make a soft landing on the moon and the first state to visit the lunar surface in almost 30 years.³ This demonstrated that China's high level of space technology and operational capability made it one of the top three space powers in a new field other than manned spaceflights. The third operational phase of the Chang'e Program is a robotic mission to the moon to be accomplished by 2017. Although there is no official announcement, a human lunar landing might be possible in 2025 to 2030.⁴

¹ In Chinese myth, Chang'e was an archer's wife who swallowed a magic elixir that lifted her to the moon. She took with her a pet rabbit, Yu Tu, or Jade Rabbit and became the lunar goddess.

² The major mission of Chang'e 1 was conducting remote sensing of the Moon, while the launch of Chang'e 2, similar in design to Chang'e 1, aimed at performing research in preparation for soft landing of a rover. This was accomplished some 40 years after the U.S.S.R. and the U.S. sent their first spacecraft to orbit the Moon. On 31st March 1966, the Soviet Union launched Luna 10, the first spacecraft from Earth to orbit the Moon. On 10th August 1966, the United States launched Lunar Orbiter 1. See <http://history.nasa.gov/ap11ann/chronology.htm>, 7 July 2014.

³ The last state to visit the lunar surface was in 1976 by the Soviet Union. The U.S., the second country to make a soft moon landing, has not done so since 1972. *Ibidem*.

⁴ China Considering Manned Lunar Landing in 2025-2030, Xinhua News Agency, 24 May 2009, http://news.xinhuanet.com/english/2009-05/24/content_11425131.htm, 7 July 2014.

However, there exist suspicions about China's real purpose for advancing space technologies and whether China will be a responsible space actor.⁵ There are doubts or criticism that, with its advance in space capabilities, China's lunar efforts would endanger its fragile environment, cause trouble to other stakeholders, and even start a race for exploiting the moon and other celestial bodies. China is described as the sleeping dragon that is waking up and its success in space greatly increase the risk of a space race in Asia or between China and the U.S.⁶ The primary purpose of this paper is to evaluate China's lunar exploration and utilization in accordance with its international obligations; analyze the prospects of China's role in the future international rules making; and to conclude whether China has brought positive energy for international law.

II. AN EVALUATION OF CHINA'S LUNAR EXPLORATION AND UTILIZATION UNDER THE EXISTING INTERNATIONAL LEGAL REGIME

The international community has concluded a number of legal instruments for the regulation of outer space activities. Since the signing of the Outer Space Treaty in 1967,⁷ the international legal framework related to outer space has grown to include the Astronaut Rescue Agreement,⁸ the Liability Convention,⁹ the Registration Convention,¹⁰ the Moon Agree-

⁵ China's Jade Rabbit Lands on the moon, but will it play nice there?, <http://www.csmonitor.com/Science/2013/1216/China-s-Jade-Rabbit-lands-on-the-moon-but-will-it-play-nice-there-video>, 7 July 2014.

⁶ Among others, see Suzuki, "The Contest for Leadership in East Asia: Japanese and Chinese Approaches to Outer Space", in *Space Policy*, vol. 29(2), 2013, pp. 99-106; Seedhouse, *New Space Race: China v. USA*, Berlin, Spring, 2009.

⁷ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, opened for signature on 27 January 1967 and entered into force on 10 October 1967.

⁸ Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, open for signature on 22 April 1968 and entered into force on 3 December 1968.

⁹ Convention on International Liability for Damages Caused by Space Objects, open for signature on 29 March 1972 and entered into force on 1 September 1972.

¹⁰ Convention on Registration of Objects Launched into Outer Space, open for signature on 14 January 1975 and entered into force on 15 September 1976.

ment¹¹ and the related UN General Assembly resolutions,¹² as well as a range of other bilateral or multilateral arms control agreements and relevant customary international laws. The five treaties negotiated in the United Nations framework establish the basic principles for outer space activities. China ratified the Outer Space Treaty in 1983 and the Rescue Agreement, the Liability Convention and the Registration Convention in 1988, but has not signed the Moon Agreement. The key aspects of the international legal problems for China's lunar exploration and utilization, mainly regarding how to safeguard the security and sustainability of the moon, will be elaborated as following:

1. *Demilitarization*

The Outer Space Treaty attempted to prevent nations from conducting military activities beyond the Earth's atmosphere. It makes an important distinction between the moon (and other celestial bodies) and outer space in general by establishing a stricter regime in respect of the former when it comes to military activities: nuclear weapons or any other weapons of mass destruction are prohibited in space in general, but the celestial bodies are saved exclusively for peaceful purposes.¹³ The Moon Agreement reiterates the principle of peaceful purposes and in a more general sense aims at preventing the celestial bodies from becoming areas of international conflicts.¹⁴

¹¹ Agreement Governing the Activities of States on the Moon and other Celestial Bodies, open for signature on 18 December 1979 and entered into force on 11 July 1984.

¹² While the resolutions of the UN General Assembly are not legally binding, they are considered to carry the weight of world opinion. The important declarations and legal principles include: The Declaration of Legal Principles Governing the Activities of States in the Exploration and Uses of Outer Space, Resolution 1962 of 13 December 1963; The Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting, Resolution 37/92 of 10 December 1982; The Principles Relating the Remote Sensing of the Earth from Outer Space, Resolution 41/65 of 3 December 1986; The Principles Relevant to the Use of Nuclear Power Sources in Outer Space, Resolution 47/68 of 14 December 1992; The Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, Resolution 51/122 of 13 December 1996.

¹³ Article IV of the Outer Space Treaty.

¹⁴ Article II and III of the Moon Agreement.

The Chinese government declares its persistence towards peaceful use of outer space in various documents and fora. China commits itself to abide by all principles of the Outer Space Treaty. Its White Papers on Space Activities repeatedly declares that one of the purposes and principles of its space activities is to utilize outer space for peaceful purposes.¹⁵ Chinese initial space activities reflected directly and indirectly the major historical events, its concerns about national security, and its determination to enhance the international and domestic prestige. Since the 1980s, China's space activities have switched to advance economic development with the primary focus on the civilian applications due to the national priority given to economic development. Its space activities are primarily intended to advance China's economic and technological development and national security is listed as less important.¹⁶ The Chang'e program was mainly motivated by science advancement and economic development.

Nonetheless, there is a fear that China's lunar exploration and utilization would intensify the trend of outer space militarization. It is not unusual to find the arguments that China's space equipment hid military aims and China could adapt its dual-use space capabilities to endanger the world peace. Particularly, the U.S. perceives that its military is facing challenges and threats from the development of China's space capabilities and there is an urgent need to ensure that China will not pose a challenge to U.S. national security.¹⁷ These arguments neglected that the actual thrust of Chi-

¹⁵ The first sections of the 2000, 2006 and 2011 White Paper on China's Space Activities issued by the State Council Information Office of the People's Republic of China, see <http://www.scio.gov.cn/zfbps>, 7 July 2014.

¹⁶ This is clearly evident from the priority aims of space activities listed in Section I of the 2011 White Paper on China's Space Activities. China's space activities aim to explore outer space and enhance understanding of the Earth and the cosmos; promote human civilization and social progress; meet the demands of economic construction, scientific and technological development, national security and social progress; protect national interest and build up the comprehensive national strength. See <http://www.scio.gov.cn/zfbps/ndhf/2011/Document/1073720/1073720.htm>, 7 July 2014.

¹⁷ Some U.S. American commentators, governmental and military officers tend to believe and even advocate that China is aggressively pursuing a space program with military applications; its advances would increase the potential and actual challenge to the U.S. American military assets, and change the current balance of power by denying others access to outer space. Among others, see Annual Reports to Congress on the Military Power of the People's Republic of China, U.S. Department of Defense; Wortzel, *The Chinese People's Liberation Army and Space Warfare: Emerging United States – China Military Competition*, Washington, DC: Ameri-

na's space strategy and technological development is defensive in nature and orientation.¹⁸ Peaceful and harmonious development is the existing strategic goal that China has set for its future.¹⁹ China does not seek hegemony or world dominance and the primary goal of China's space activities is not to gain asymmetric military advantages.²⁰ This standing stems from a strategic calculation that China's national interest, especially in economic development, lies in a peaceful world and intends to take advantage of a stable international milieu for development. Therefore, it is safe to declare that starting an arms race is and will not be an intentional option for the Chinese government, which has every interest to avoid triggering any confrontation in outer space.

Meanwhile, the defense orientation does not rule out an offensive component aiming at deterring or thwarting an adversary's effort to affect the space assets on which China increasingly depends. Outer space activities constitute a crucial part in the Chinese military modernization effort. Emphasis has been put on the development of space program that enhanced Chinese military capabilities, such as establishing a wide array of space and terrestrial-based capabilities to provide reconnaissance, navigation, and communications support to military operations. However, economic development triumphs military advance: China's investment on communication and navigation satellites are more than those on signals intelligence and re-

can Enterprise Institute, 2007, pp. 7-8; Moltz (ed.), *New Challenges in Missile Proliferation, Missile Defense and Space Security*, Special Joint Series on Missile/Space Issues, Mountbatten Institute of International Studies, University of Southampton, Monterey, California, 2003.

¹⁸ Blair and Chen, "Editors' Note: The Space Security Dilemma", *China Security - China's Space Ambitions*, vol. 2, 2006, p. 13.

¹⁹ Guo, "China's Peaceful Development and World's Common Prosperity", *People's Daily*, 31st March 2006; "Stick to the Path of Peaceful Development and Strive to Construct Harmonious World (Editorial)", *People's Daily*, 24th August 2006; Hu Jintao, "Hold High the Great Banner of Socialism with Chinese Characteristics and Strive for New Victories in Building a Moderately Prosperous Society in All Respects (Report to the 17th National Congress of the Communist Party of China on 15th October 2007)", *People's Daily*, 25th October 2007; Xi Reaffirms Adherence to Peaceful Development, http://www.chinadaily.com.cn/world/2014xivisiteu/2014-03/29/content_17389272.htm, 7 July 2014.

²⁰ The 2011 White Paper on China's Space Activities indicates that the major tasks for the next five years are strengthening its basic capacities of the space industry, accelerate research on leading-edge technology, and implement important space scientific and technological projects so as to push forward the comprehensive, coordinated and sustainable development of China's space industry. Section III, *Ibid*.

connaissance satellites and microsatellites. The former types are of significant importance to economics but create less of an advantage for Chinese military forces.²¹ The lunar exploration has less military utility than the Earth satellites and the related effort may slow China's progress in military space technologies. In addition, progressive space capabilities serve as an essential element of national prestige and a demonstrator of Chinese space technologies convincing that China has clearly entered the realm of a major power, which has political significance in its ability to inspire national spirit, pride, confidence and unity. The capacities to explore the moon possess a strong deterrent value and reflect China's strong national strength so as to promote national security and the prestige associated with scientific and economic development.

2. *Environmental Protection*

The deterioration of the outer space environment, especially the increase of space debris, has been widely recognized as a major threat to the ongoing expansion of human activities in outer space. Nowadays, there is a universal consensus among space operators that irresponsible behavior in outer space can have negative implications for all space users and lunar exploration and utilization must be environmentally sustainable. Regretfully, the UN space treaties, drafted in the 1960s and the 1970s when the environmental consciousness had not yet emerged in the international community, do not directly deal with the issue of space environment protection, though some of their provisions could be utilized in this regard to some extent. Article IX of the Outer Space Treaty provides that States shall conduct all their activities in outer space with due regard to the corresponding interest of all other States Parties and shall adopt appropriate measures to avoid harmful contamination; and establishes consultation procedures where an activity or experiment planned by a State or its national would cause potentially harmful interference with the activities of another State. Moreover, a prohibition on polluting outer space can be deemed to be implicit in various provisions, such as the freedom of outer space and outer

²¹ Lewis, "China as a Military Space Competitor", in J. M. Logsdon, A. M. Schaffer (eds.), *Perspectives on Space Security*, Space Policy Institute of the George Washington University, 2005, p. 94.

space being used to the benefit of all states.²² The Moon Agreement went a little further than the Outer Space Treaty by creating a duty to “prevent the disruption of the existing environment”.²³

The growing awareness of the impact of space debris on space assets has encouraged spacefaring states and other space actors to take steps to develop soft law regarding preventing and mitigating the production of new debris. In 1993, the Inter-Agency Space Debris Coordination Committee (IADC), an international governmental forum composed of 12 space agencies, was founded in order to exchange information on space debris research activities, to facilitate related research and to identify debris mitigation options.²⁴ In 2002, the IADC proposed a set of debris mitigation guidelines.²⁵ Based on this, the UN Committee on the Peaceful Uses of Outer Space (COPUS) adopted the Space Debris Mitigation Guidelines in 2007, which were endorsed by the UN General Assembly.²⁶

The Chinese government is becoming more and more aware of the importance of the safe and sustainable access to and use of outer space. In June 1995, the Chinese National Space Agency acceded to the IADC and has actively participated in the relevant activities.²⁷ Since 2008, Chinese government has advocated the idea of a harmonious outer space, stressing the need to harmonize the exploration and use of outer space with an eye toward the sustainable development of its environment.²⁸ In recent years, China has accelerated the process of translating the related international guidelines into domestic policy and law, mainly by its first comprehensive national action plans on space debris research and monitoring initiated in 2001; the 2005 Requirements of Space Debris Mitigation and the 2010 Provisional Regulation on Mitigation and Management of Space Debris issued by the State Administration of Science and Technology and Industry

²² Article I of the Outer Space Treaty.

²³ Article VII of the Moon Agreement.

²⁴ See <http://www.iadc-online.org>, 7 July 2014.

²⁵ IADC Space Debris Mitigation Guidelines, IADC-02-01, 15 October 2002.

²⁶ UN Res. 62/217, 22 December 2007.

²⁷ China's 2006 White Paper on Space Activities, Section V of International Exchange and Cooperation, *Ibid.*

²⁸ The Statement by Ms. Chen Peijie, Counselor and Legal Adviser of the China Mission to the United Nations at the Sixth Committee of the 63rd Session of the UN General Assembly on International Cooperation in Peaceful Uses of Outer Space, <http://www.china-un.org/eng/hyyfy/t517715.htm>, 7 July 2014.

for National Defense (SASTIND).²⁹ These can be viewed as a commitment to the international community as a responsible space-faring nation. Thus, China has made and would probably make continuous efforts to explore ways and means to mitigate and reduce space debris and promote international cooperation on this issue.

As for the lunar exploration, the Chang'e 1 satellite crashed into the surface of the moon in a controlled collision at the end of its 16-month orbital mission in March 2009.³⁰ The lunar rover, Jade Rabbit, encountered operational difficulties on 25 January 2014 and has not been able to move on the lunar surface though still gathering some useful data after exceeding its expected three-month life span.³¹ Firstly, in accordance with Article IX of the Outer Space Treaty, if any other state party has reasons to believe that China's did not pay reasonable attention to its interests when designing, launching, operating or controlling these space objects, nor did not adopt appropriate measures to avoid harmful contamination, they shall consult to avoid causing harmful interference. Secondly, if these activities or the debris caused thereby damaged the outer space environment, the international space law rules on responsibility and liability and the general international law regime of international responsibility of states would apply. Article VI of the Outer Space Treaty provides that "... States bear international responsibility for national activities in outer space whether such activities are carried on by governmental agencies or by non-governmental entities". The Liability Convention further elaborated the launching States are responsible for damage inflicted upon other States by their space objects and sets up a compensation procedure.³² In China, the National Center for Lunar Exploration and Aerospace Industry, a sector of the SASTIND, is in charge of lunar exploration with assistance of several state-owned aerospace enterprises. Consequently, China's lunar exploration activities would be easily attributed as China's activities. So far, fortunately, neither of these scenarios has happened.

²⁹ The information center of China's State Administration of Science, Technology and Industry for National Defense, <http://www.cic.gov.cn>, 7 July 2014.

³⁰ China lunar probe mission ends with planned crash, http://usatoday30.usatoday.com/tech/science/space/2009-03-02-china-lunar-crash_N.htm, 7 July 2014.

³¹ Chinese Lunar Rover Alive but Weak, 29 May 2014, http://www.spacedaily.com/reports/Chinese_lunar_rover_alive_but_weak_999.html; Yutu Still Working after Expected Service Span Ended, <http://www.ecns.cn/2014/04-02/107795.shtml>, 7 July 2014.

³² Article II, III, IV, V, IX of the Liability Convention.

3. *The Non-Appropriation Principle*

When the nations negotiated on the rules of regulating outer space activities, they agreed to confer on outer space the status of *res communis*.³³ Outer space is defined as the “province of all mankind” and the “exploration and use of outer space, including the moon, shall be carried out for the benefit and in the interests of all countries”.³⁴ The “province of all mankind” in the Outer Space Treaty stipulates the legal status of outer space and celestial bodies and establishes that participation in the exploration and use of outer space is open to all humankind.³⁵ Consequently, the Outer Space Treaty prohibits national appropriation by claims of sovereignty or any other means, which constitutes the central rule of the space law system and has become a customary rule of international law.³⁶ In other words, outer space, including the moon, is owned by the whole human race and can be used by everybody, but cannot be owned by anyone. More importantly, through prohibiting the states from exercising sovereignty rights over outer space, the non-appropriation principle has successfully kept national rivalries and conflicts out of outer space and promoted an atmosphere contributing to the peaceful relations between States, which guaranteed the freedom to explore and that space activities have been carried out for the benefit and in the interest of all countries.³⁷ This contribution to

³³ Kerrest, “New Development and the Legal Framework covering the Exploitation of the Resources of the Moon”, *Proceedings of the 47th Colloquium on the Law of Outer Space*, 2005, p. 534; Christol, “The 1979 Moon Agreement: Where Is It Today?,” *Journal of Space Law*, vol. 27, No. 1, 1999, p. 4.

³⁴ Article I of the Outer Space Treaty.

³⁵ Maiorski, “A Few Reflections on the Meaning and the Interpretation of ‘Province of All Mankind’ and ‘Common Heritage of Mankind’ Notions”, *Proceedings of the 29th Colloquium on the Law of Outer Space*, 1986, p. 59.

³⁶ Article II of the Outer Space Treaty. Brownlie, *Principles of Public International Law*, Oxford: Oxford University Press, 5th ed., 1998, p. 264. Lachs, *The Law of Outer Space: An Experience in Contemporary Law-Making*, Leiden: Sijthoff, 1972, p. 138. Cheng, *Studies in International Space Law*, Oxford: Oxford University Press, 2004, pp. 125-149; Sloan, “General Assembly Resolutions Revisited (Forty Years Later)”, *British Yearbook of International Law*, 1987, p. 87.

³⁷ Tennen, “Article II of the Outer Space Treaty, the Status of the Moon and Resulting Issues,” *Proceedings of the 46th Colloquium on the Law of Outer Space*, 2004, pp. 523-524; Tobias, “Opening the Pandora’s Box of Space Law”, *Hastings International and Comparative Law Review*, Vol. 28, 2005, p. 300; Tronchetti, “The Non-Appropriation Principle as A Structural Norm

international peace and security has been a tangible benefit of space law for all humankind.³⁸

During recent years, due to the development of private or commercial space activities,³⁹ there has been some opposition about the role and status of non-appropriation principle. It was argued that this principle should be abolished based on the argument that it represented an obstacle and hindrance for the commercialization of extraterrestrial resources by removing the economic incentives.⁴⁰ It is further suggested that an international organization, under the auspices of the United Nations, be given sovereignty over outer space, with a system of leases to provide property rights to industries and individuals.⁴¹ However, other commentator argued that, as a cardinal concept on which the international space legal system is centered, the non-appropriation principle complies with the non-appropriative nature of outer space.⁴² The abrogation of the non-appropriation principle would add significant levels of insecurity, inefficiency and expense to private or commercial ventures in space.⁴³ The Board of Directors of the International Institute of Space Law, an NGO with members from the space

of International Law: A New Way of Interpreting Article II of the Outer Space Treaty”, *Air and Space Law*, vol. 33, 2008, p. 278.

³⁸ Sterns, Tennen, “Institutional Approaches to Managing Space Resources”, *Proceedings of the 41st Colloquium on the Law of Outer Space*, 1999, p. 33; Tennen, “Article II of the Outer Space Treaty, the Status of the Moon and Resulting Issues”, *cit.*, pp. 523-524.

³⁹ The U.S. American authors tend to use the term “commercial” where the European authors would use the term “private”. Whereas “private” refers to the legal classification of an actor (as opposed to “public”, comprising governments, governmental agencies and intergovernmental organizations) undertaking a space activity, “commercial” refers to the main driving factor behind of such activity and, hence, is to be contrasted to such other objectives as military or scientific purposes. Thus, governments or other public entities may also undertake commercial activities in outer space. Dunk, “The Moon Agreement and the Prospect of Commercial Exploitation of Lunar Resources”, *Annual of Air and Space Law*, vol. 32, 2007, p. 93.

⁴⁰ O’Donnell, Robinson, “This Treaty Needs a Lawsuit”, *Proceedings of the 40th Colloquium on the Law of Outer Space*, 1998, p. 185; Risley, “An Examination of the Need to Amend Space Law to Protect the Private Explorer in Outer Space”, *Western State University Law Review*, vol. 26, 1999, p. 47.

⁴¹ Tobias, “Opening the Pandora’s Box of Space Law”, *cit.*, p. 300.

⁴² Gabrynowicz, Serrao, “An Introduction to Space Law for Decision Makers”, *Journal of Space Law*, vol. 30, 2004, p. 227.

⁴³ Lee, “Creating An International Regime for Property Rights under the Moon Agreement”, *Proceedings of the 42nd Colloquium on the Law of Outer Space*, 2000, p. 415.

law academia, has stated that the prohibition of national appropriation includes appropriation by non-governmental entities and any authorization of claims to own any part of outer space by national legislation of a state party to the Outer Space Treaty is forbidden and unlawful.⁴⁴ Till now, no states have claimed sovereignty over extraterrestrial areas or appear to be interested in appropriating outer space. The states uniformly adhere to the requirement of non-appropriation in their space activities and there is no sign that states are intending to revise or abrogate this principle.

The Chang'e program does not aim at acquiring sovereignty and property rights over the moon or any of its parts. There is no reason that China would violate the non-appropriation and assault the cornerstone of international space law in defiance of world opinion and contrary to its legal obligations under the Outer Space Treaty. There are no rules in Chinese legislation about property rights over outer space and the answers have to be found in China's interpretation about its international legal obligations. While the exploration of the moon has been attracting the attention of the Chinese government, several claims have been advanced by individuals or private entities to property rights on the moon. Some of them have even sold to other individuals plots of lunar land pertaining to their alleged properties. But the relevant case law in China confirmed that no individuals or corporations can claim ownership of the moon and transactions regarding claims to property rights on the moon have no legal effect.⁴⁵

A related issue of the non-appropriation principle is exploitation of outer space recourse, but much more complex. The Outer Space Treaty is silent with respect to the extraction and appropriation of space resources: it does not explicitly address the question of exploitation of outer space nor does it refer to a possible ownership of material removed from it. The principles provided by the Outer Space Treaty are of a very general nature mainly about legal status of the moon: the "province of all mankind" and

⁴⁴ Statement and Further Statement by the Board of Directors of the International Institute of Space Law on Claims to Property Rights Regarding the Moon and Other Celestial Bodies, issued in 2004 and 2009, <http://www.iislweb.org/publications.html>, 7 July 2014.

⁴⁵ The rulings rendered by Beijing Haidian District Court and First Intermediate Court in November 2005 and March 2007 against a Beijing-based company, Lunar Embassy to China. This company sued the Beijing Administration of Industry and Commerce because the latter revoked its business license and fined it RMB 50,000 in October 2005 for selling plots of lunar land to individuals, <http://www.chinacourt.org/public/detail.php?id=220880> and <http://www.chinacourt.org/html/article/200703/17/238537.shtml>, 7 July 2014.

not subject to “national appropriation by any means”.⁴⁶ There are two opposite interpretations: banning exploitation activities; and permitting extracting natural resources by taking into account the equal rights and corresponding interests of other states, such as not exhausting them.⁴⁷ Thus, the respective regime for extraction and sharing benefit derived from lunar exploitation has not been established. However, the states’ practice indicates that the use of lunar resources for scientific reasons is allowed. The freedom of scientific investigation in outer space laid down by the Outer Space Treaty has been interpreted by the U.S. and the U.S.S.R. as including the right to collect and bring back to Earth lunar samples. Consequently, it is lawful under the Outer Space Treaty for China to recover a spacecraft carrying two-kilogram samples from the moon in the third phase of Chang’e Program.

III. CHINA’S VIEWS IN INTERNATIONAL RULES MAKING REGARDING LUNAR EXPLORATION AND UTILIZATION

The international community has been witnessing a revitalization of interests in the exploration and utilization of the celestial bodies in the last few years, particularly for the commercial opportunities in resource exploitation and using the moon to support the growing space capabilities.⁴⁸ Due

⁴⁶ Article I and II of the Outer Space Treaty.

⁴⁷ There are different opinions about whether the “use” of outer space in the Outer Space Treaty can be broadly interpreted to include commercial mining as well as private exploitation and whether the non-appropriation principle permits exploitation activities or not. Christol, “Article II of the Outer Space Treaty Revisited”, *Annals of Air and Space Law*, vol. 9, 1984, p. 217; Goedhuis, “Some Recent Trends in the Interpretation and the Implementation of the Rules of International Space Law”, *Columbia Journal of Transnational Law*, vol. 19, 1981, p. 219; Gorove, “Limitations on the Principle of Freedom of Exploration and Use in the Outer Space, Benefits and Interests”, *Proceedings of the 13th Colloquium on the Law of Outer Space*, 1970, p. 174.

⁴⁸ President Obama initiated a space exploration program in 2010 aiming at sending astronauts to an asteroid and onto Mars, using the moon as a way station. See Remark by the President on Space Exploration in the 21st Century, http://www.nasa.gov/news/media/trans/obama_ksc_trans.html, 7 July 2014. The European Space Agency has long-term plan of taking human spaceflight beyond the International Space Station and out into the solar system over

to the insufficiency and ineffectiveness of the current international legal regime, there is an urgent need to fill in the disturbing loopholes, particularly about how to guarantee the peaceful use of the moon; establish a mechanism for the resource exploitation of the celestial bodies and address the need for effective measure to curb the creation of space debris. China's influence on the international space regime arises as the result of the progress in developing its space technologies and the world logically attaches more importance to its related views.

1. *The Necessity to Fill in the Loopholes of the Current Legal Regime*

First, the existing space law treaties, which prohibit only certain military space activities, are far from satisfactory and deemed as inadequate to prevent the weaponization of outer space. And there is a growing concern in the international community regarding ensuring that the lunar exploration and utilization programs are used to achieve peaceful ends. The potential risk of space weaponization is proceeding rapidly with the advanced technological proliferation, the expansion of space activities, the increasing diversity of space actors and the economic and military value of space assets.⁴⁹ The scale of using space systems for military purposes has been expanding throughout the world and outer space is becoming host to a broadening array of military operations and an arena of tension that mirrors earthly tensions among key nations. Meanwhile, the UN treaties and other legal instruments suffered significant setbacks. For instance, the lack of definitional clarity presents challenges for space security. The intention of the Outer Space Treaty to keep space free of weapons of mass destruction is substantially undermined because it fails to define these weapons. There is no consensus on what are space weapons, though various definitions have been advanced around the nature and scientific principle of weapons, place of deployment and the location of targets.⁵⁰ Most importantly, not-

the next thirty years through the Aurora program. See http://www.esa.int/Our_Activities/Human_Spaceflight/Exploration/Mars, 7 July 2014. Plus, Japan launched its second lunar probe into orbit on 14th September 2007 and has set a goal of sending an astronaut to the moon by 2020. India launched its moon orbiter the Chandrayaan-1 in 2008 and Mars probe in 2013.

⁴⁹ Space Security Index: 2012, p. 11, www.spacesecurity.org, 7 July 2014.

⁵⁰ Chapter 3 on Laws, Policies and Doctrines, in Jaramillo (ed.), *Space Security*, 2011, p. 58.

withstanding the several references to the “peaceful use of outer space” or “peaceful purposes” contained in the space law treaties, the absence of an authoritative interpretation of “peaceful” has been a source of considerable confusion and controversy.⁵¹ There are two different interpretations: “non-military” and “non-aggressive”. The states seemed to accept at least certain passive military use of outer space, such as reconnaissance and surveillance, because outer space has been used militarily since the beginning of the space era. However, the international community is now faced with a possible qualitative shift from the passive military use of outer space towards the active, destructive military uses. Additionally, the increasing emphasis in a growing number of states on the use of military space systems in support of terrestrial military operations has begun to dangerously blur the line between “passive” uses and “active” military uses with destructive effect.⁵² Lunar exploration and utilization have raised new questions about which military uses are “in accordance with international law” and “in the interests of maintaining international peace and security” and which are intolerably threatening or aggressive.

Second, the exploitation of the moon (and other celestial bodies) could become a reality in the near future and it is time to consider the formation and elaboration of a regime on the basis of present UN treaties to assure an orderly, peaceful and fair usage of extraterrestrial resources. The particular interest of lunar exploration is mining the potential natural resources on the moon, especially water and the precious and rare minerals. With the constant development of space technologies and the increasing interests shown by governments and even private entities, the legal aspect of space resources exploitation is becoming imminently relevant. The Moon Agreement contains explicit provisions on the right to explore lunar re-

⁵¹ Sections 2 and 4 of the Preamble and Article IV of Outer Space Treaty; Section 2 and 5 of the Preamble of Liability Convention; Section 1 of the Preamble of Registration Convention; Article III of Moon Agreement. Vlastic, “The Legal Aspects of Peaceful and Non-Peaceful Uses of Outer Space”, Jasani (ed.), *Peaceful and Non-peaceful Uses of Space: Problems of Definition for the Prevention of An Arms Race*, United Nations Institute for Disarmament Research, New York, Tayler Francis, 1991, p. 37.

⁵² As a result of the revolution in military affairs, space is increasingly supporting tactical terrestrial military operations by providing military attack warning, communications, reconnaissance, surveillance, intelligence, navigation and weapon guidance. D. Wolter, “Common Security in Outer Space and International Law”, United Nations Institute for Disarmament Research, UNIDIR/2005/29, p. xvi.

sources and refers to the moon and its natural resources as the “common heritage of all mankind” (CHM).⁵³ But no specific mechanisms are provided in this document to guarantee that the benefits of exploiting the limited natural resource are equitably distributed among all countries. Article XI only envisages the creation of an “international regime, including appropriate procedures”, as “exploitation is about to become feasible”.⁵⁴ The CHM principle will be relevant only if it is translated into a detailed international regime that regulates how far unilateral exploitation is permitted and how to share the benefits of resources exploitation. Moreover, the Moon Agreement enjoys relatively marginal support and has not been ratified or signed by the major space-faring powers, including China, due to the controversial issues surrounding the CHM concept.⁵⁵ Nonetheless, it has the merits of dealing with extraterrestrial resource exploitation and laid the bases for elaborating an international regime.

Third, proper attention needs to be paid to preserving the environment of celestial bodies and their orbits. As above-mentioned, the environmental issues did not receive priority attention within the context of the development of international space law. The growing awareness of the impact of human activities on the space environment has led to some development in rules making. However, the outcome is non-legally binding documents with the emphasis on how to deal with the creation of space debris and the related potential or actual risk as a response the continuous increase of the amount of space debris in Earth orbits, instead of beyond.⁵⁶ This is

⁵³ The preamble of the Moon Agreement indicates that an important reason for its conclusion was motivated by the benefits which may be derived from the exploitation of the natural resources of the moon and other celestial bodies. Article XI (1) of the Moon Agreement provides that the moon and its natural resources are the common heritage of mankind. The concept of the common heritage of mankind was first proposed by Argentinean Ambassador Cocca in 1967, which has been developed to govern the exploitation of limited natural resources of international concern, such as the international seabed.

⁵⁴ Article XI (5) of the Moon Agreement.

⁵⁵ As of 1 January 2014, the Moon Agreement has been ratified by only 15 countries and 4 signatories while the Outer Space Treaty has been ratified by 103 countries and 25 signatories. Status of International Agreement Relating to Activities in Outer Space as at 1 January 2014, the UN Committee on the Peaceful Uses of Outer Space, A/AC.105/C.2/2014/CRP.7, 20 March 2014, <http://www.unoosa.org/oosa/en/SpaceLaw/treatystatus/index.html>, 7 July 2014. Dunk, “The Moon Agreement and the Prospect of Commercial Exploitation of Lunar Resources”, *Ibid*, pp. 91-113.

⁵⁶ The statistic of the European Space Agency show that, from 1957 after the launch of

verified by the UN definition of the space debris, which are limited to the non-functional man-made objects in earth orbits, excluding the enormous other parts of the outer space such as the moon and other celestial bodies.⁵⁷

2. China's Related Views

Generally, the Chinese government agrees that efforts should be made to close the gap in the existing legal regime governing outer space and address its flaws. Its position and opinions regarding how to update the international legal regime for the lunar exploration and utilization can be summarized as the following:

First, multilateral measures to prevent the weaponization of outer space have long been a cornerstone of China's official diplomatic space policy since the 1980s. The Chinese government continuously insists that maintaining a peaceful outer space is the cardinal principle that all space activities must abide by and it is the unshakable responsibility of States to effectively prevent militarization and weaponization of, and an arms race in, outer space.⁵⁸ Beijing believes that the most effective way to secure space assets would be an agreement of an international ban on weapons in space.⁵⁹ China has actively argued for a treaty prohibiting the deployment

first satellite of Sputnik to 2013, more than 4,900 space launches have led to an on-orbit population of more than 22,000 trackable, larger than 10 cm objects, among which, 94% are non-functional space debris and about 64% of are fragments from some 250 breakups, mainly explosions and collisions of satellites or rocket bodies, available at <http://congrexprojects.com/2013-events/13a09/introduction>, 7 July 2014.

⁵⁷ Space debris is defined by the UN as all man-made objects, including their fragments and parts, whether their owners can be identified or not, in Earth orbit or re-entering the dense layers of the atmosphere that non-functional with no reasonable expectation of their being able to assume or resume their intended functions or any other functions for which they are or can be authorized. Report of the Scientific and Technical Subcommittee of COPUOS on the Work of Its Thirty-fourth Session, UN Doc. A/AC.105/672, 10 March 1997.

⁵⁸ Statement by Ambassador Li Daoyu, President of China Arms Control and Disarmament Association at the International Conference on Safeguarding Space Security: Prevention of an Arm Race in Outer Space, "Prevention of the Weaponization of and An Arm Race in Outer Space: An Urgent Task with No Time to Delay", 21st March 2005, See <http://www.fmprc.gov.cn/eng/wjbm/zjzg/jks/kjfywj/t189569.htm>, 7 July 2014.

⁵⁹ Closing Statement by H. E. Ambassador Hu Xiaodi at the International Conference on "Safeguarding Space Security: Prevention of an Arms Race in Outer Space", *Ibid.*

of weapons in outer space since the 1980s at the Conference on Disarmament (CD) and submitted a number of working papers in this regard. After years of consultation and preparation, China, together with Russia, formally submitted the draft “Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects” (PPWT) to the CD in February 2008.⁶⁰ One of the core obligations in this text is not to place or deploy any weapons on celestial bodies, which would strengthen the current legal regime for space demilitarization and cast some light on the interpretation of “peaceful purposes”. Some states and non-governmental groups are deeply concerned about how irresponsible space-faring nations might act in ways that would degrade the space environment for those not engaged in a competition for military advantage.⁶¹ As a response, China explicitly accepted a provision banning anti-satellite weapons as a possible amendment.⁶² This verified China’s sincerity in the negotiation of an international PAROS treaty. Unfortunately, the PPWT failed to gain support from certain States, particularly the U.S.⁶³

⁶⁰ Letter from Permanent Representative of the Russian Federation and the Permanent Representative of China Addressed to the Secretary – General of the Conference on Disarmament, CD/1839, 29 February 2008.

⁶¹ Gallagher, “A Reassurance-based Approach to Space Security”, the International Security Research and Outreach Programme International Security Bureau, October 2009, p. 12.

⁶² Letter from the Permanent Representative of the Russian Federation and the Permanent Representative of China to the Conference on Disarmament, CD/1818, 7 March 2007, p. 23, para. 158. Zero-weapons Outer Space: Foundation for a Safer Space Environment, presentation by Chinese Delegation at the UNIDIR Conference on Space Security 2009, available at <http://www.mfa.gov.cn/eng/wjb/zzjg/jks/kjfywj/t575050.htm>, 7 July 2014.

⁶³ The statements of the delegations to the CD and the annual UNGA resolutions on PAROS since 1981 demonstrate that with the exception of the U.S., all States take the position that concrete multilateral negotiations on the PAROS should start without delay. In May 2014, China and Russia submitted an update version of the draft PPWT with amendments in definition, scope, institutional arrangements and dispute settlement mechanism. See Updated draft Treaty on Prevention of the Placement of Weapons in Outer space and of the Threat, Use of Force Against Outer Space Objects, [http://www.unog.ch/80256EDD006B8954/\(httpAssets\)/C4CD83AD4A8B4797C1257CF3003AC425/\\$file/1319+Russian+Federation+Draft+Updated+PPWT+.pdf](http://www.unog.ch/80256EDD006B8954/(httpAssets)/C4CD83AD4A8B4797C1257CF3003AC425/$file/1319+Russian+Federation+Draft+Updated+PPWT+.pdf), 7 July 2014. However, the U.S. believed that this proposal is not equitable, effectively verifiable and enhance the security of all without addressing the significant flaws in the 2008 PPWT. Rose, Continuing Progress on Ensuring the Long-Term Sustainability and Security of the Space Environment Conference on Disarmament Plenary, p. 5, [http://www.unog.ch/80256EDD006B8954/\(httpAssets\)/1355B2A357725A37C1257CF30053D3D0/\\$file/1319+USA++\(as+delivered\).pdf](http://www.unog.ch/80256EDD006B8954/(httpAssets)/1355B2A357725A37C1257CF30053D3D0/$file/1319+USA++(as+delivered).pdf), 7 July 2014.

Second, the possibility of China's signing the EU Code of Conduct for Outer Space appears slim despite of its soft law nature. Given the deadlock in relevant CD discussion for decades and the renewed focus on transparency and confidence-building measures (TCBMs), the EU's idea of a Code of Conduct (CoC) for Outer Space has been gaining ground to become an international one through bilateral engagement with the third nations with a broad application scope covering both military and civil operations.⁶⁴ As a non-legally binding instrument, it is easier to agree upon and potentially avoids lengthy discussions about definitions. And it is believed to be helpful in creating political barriers to the militarization of outer space and to create favorable conditions for subsequent formal negotiations and agreement.⁶⁵ The Chinese government believes that TCBMs are important efforts to prevent an arms race in outer space, but insisted that a legally binding treaty outlawing the weaponization of space would be more suitable since this is the primary threat to space security instead of space debris or space objects collision. Beijing questioned the appropriateness, legitimacy and necessity of creating a CoC within the EU framework.⁶⁶ China's argu-

⁶⁴ The main purpose of the Code of Conduct is strengthening the existing UN treaties, principles and other arrangements and complementing these rule by codifying new best practices in space operations, including notification and consultation, so as to reinforce confidence and transparency and contribute to developing good faith solutions that allow access to space for all. It aims to outline basic best practices to enhance the security, safety and sustainability of all outer space activities based on three core principles: peaceful use of space for all; the preservation and safety of non-orbit objects and due consideration to the unique needs of the space environment. The text of the original and the revised version of the EU Draft Code of Conduct for Outer Space are available at <http://register.consilium.europa.eu/pdf/en/08/st17/st17175.en08.pdf> and [p://www.consilium.europa.eu/uedocs/cmsUpload/st14455.en10.pdf](http://www.consilium.europa.eu/uedocs/cmsUpload/st14455.en10.pdf), 7 July 2014. For the orientation, initial objectives and evolvement of the EU Code of Conduct, see Logsdon, Moltz, Hinds, *Collective Security in Space: European Perspective*, Washington DC, Space Policy Institute of the George Washington University, January 2007; Rathgeber, Remuss and Schrogl, "Space Security and the European Code of Conduct for Outer Space Activities", in 2009(4) Disarmament Forum: A Safer Space Environment, p. 34; Oznobishchev, "Codes of Conduct for Outer Space", in Arbatov and Dvorkin (eds.), *Outer Space: Weapons, Diplomacy and Security*, Washington-Moscow-Beijing, Carnegie Endowment, 2010, pp. 68-76.

⁶⁵ Oznobishchev, "Codes of Conduct for Outer Space", Ibid, p. 70; Rathgeber, Remuss and Schrogl, "Space Security and the European Code of Conduct for Outer Space Activities", *cit.*, p. 36.

⁶⁶ During several multilateral negotiations during the last years, together with Russia, the Chinese delegation insisted that the topic of EU Code of Conduct overlapped with the official ones in the UN Committee on the Peaceful Uses of Outer Space and the Conference on

ments about the appropriateness and legitimacy are understandable and an effective solution could be incorporating the CoC into the agenda of legal subcommittee of the COPUOS. However, the Chinese government position to challenge its necessity is weak since it has been endorsed by several key space-faring nations, including the U.S., Australia, Canada and Japan.

Third, the Chinese government advocates the voluntary nature of the IADC and UN guidelines on space debris and the common and differentiated responsibility of protecting space environment. "Since space debris mitigation requires necessary technology and financial support, whereas space-faring countries are different in their levels of development, the IADC guidelines are a document of a guiding nature which is to be followed by all space agencies in a voluntary manner".⁶⁷ In other words, the developing countries are not technically or financially capable of carrying out space debris mitigation work and soft law is flexible enough to accommodate this difference. The implicit logic is that the generation of debris primarily attributes to the careless action of the U.S. and the Soviet Union in the early days of their space programs while binding international rules could limit the future capabilities of emerging powers in outer space. Although there is no established convention for the designation of developed and developing countries, the UN, the International Monetary Fund and the World Bank classifies China as a developing country based on varied criteria.⁶⁸ Nonetheless, when it comes to China's responsibility of preserving the outer space environment, the obstacle would be that whether China's status of being a developing country would be a legitimate justification when its contribution to the space debris population has greatly increased and it is more and more capable of protecting the space environment with advanced technologies.

Lastly, China applauds the negotiation for establishing the legal regime on space resources exploitation and has expressed support for the notion

Disarmament, and he countries besides the EU Member States were insufficiently consulted in the document drafting process without dealing the concerns of all the relevant parties in a proper way. Zhang, "Multilateral Negotiation on the EU Code of Conduct for Space Activities", in 31 *Newsletter of Space Law*, China Institute of Space Law, 2013, p. 50.

⁶⁷ Statement of China's Delegation to 526th Meeting of Committee on the Peaceful Uses of Outer Space, 8 June 2004, unedited transcript, COPUOS/T. 526.

⁶⁸ See <http://www.imf.org/external/pubs/ft/weo/2014/01/pdf/text.pdf> and <http://data.worldbank.org/region/ECA>, 25 August 2014.

of the “common heritage of mankind” in the UN COPUOS.⁶⁹ Although these should be regarded rather as a political position than a legal commitment and can hardly be interpreted as a sign that China has the intention to accede to the Moon Agreement, the Chinese government recognized that the commercialization of outer space activities requires the stipulation of new space laws and agrees to establish a regime to regulate commercial space activities.⁷⁰ The moon is seen by China as an area of resources, because mining the moon has the strong potential to yield large returns on investment and to provide innovative solutions to the ever-growing energy needs.⁷¹ The Moon Agreement has provided the major aims that shall be achieved by the design of the international regime for moon exploitation.⁷² Even so, the history of the UN Convention for the Law of the Sea testifies that how differently an international regime can be conceived depending on how the states would build it, particularly how to obtain the support of the developed countries, even though they accepted the basic idea during the negotiations.⁷³ Noticeably, there is an overall worldwide trend of expanding private-sector investment in civil space and space related activi-

⁶⁹ In 1987 during a meeting at the COPUOS Legal Subcommittee, China agreed with the position that the geostationary orbit was a “common heritage of mankind”. UN Doc. A/AC.105/C.2/SR.454, 18th March 1987. In 1988, again the Chinese delegate observed that the geostationary orbit was “a limited natural resource with formed part of the heritage of mankind and should therefore be used for the benefit of the whole of humanity”. UN Doc. A/AC.105/C.2/SR.482, 17th March 1988.

⁷⁰ Jielong Duan (ed.), the former Director – General of the Department of Treaty and Law of Chinese Ministry of Foreign Affairs, *International Law in China: Cases and Practice*, Beijing, China Law Press, 2011, p. 441.

⁷¹ Blair and Chen, “The Space Security Dilemma”, *China Security - China's Space Ambitions*, vol. 2, 2006, p. 4.

⁷² The main purposes shall include the orderly and safe development of the natural resources of the moon; the rational management of those resources; the expansion of the opportunities in the use of these resources and an equitable sharing by all states parties in the be benefits derived from those resources, whereby the interests and needs of the developing countries, as well as the efforts of those countries which have contributed either directly or indirectly to the exploration shall be given special consideration. Article XI (7) of the Moon Agreement.

⁷³ The compromise solution enshrined in Article 136, 137 and 140 of the 1982 Convention on the Law of the Sea was rejected by most western countries, some of which finally decided to ratify the Convention only after a substantial modification of that regime was introduced through the Implementing Agreement of 1994.

ties since the 1990s, among which the U.S. is an exemplary instance. The western space powers would certainly not be interested in a text that is often thought of hindering the development of commercial exploitation. Consequently, the design of this international legal regime should strike a delicate balance between encouragement of exploitation for commercial ends and equitable distribution of benefits derived with special attention to the interests of the developing countries. China has not brought up specific suggestion about how to regulate the utilization of extraterrestrial resources. However, China would probably try to take an active, leading role in the future negotiation with a specific concern for the interest of less-developed States.⁷⁴

IV. CONCLUSIONS

China's lunar exploration and utilization has conformed to the notion of a harmonious outer space, which means a peaceful and sustainable outer space for cooperation and development under the rule of law, and adhered to its international obligations. As its power and influence continue to grow, China is attempting to cultivate a positive image of being a responsible power.⁷⁵ With the expansion of its outer space activities and the advancement of related technologies, China's role in international space law making is rising and there are good reasons to believe that it will become an important pillar on the international stage advocating for the interests of developing countries. China's lunar exploration and utilization has brought and will continue to bring positive energy for international law and international community with regard to this specific field of outer space activities.

⁷⁴ When discussing the necessity of revising the Moon Agreement in the 1990s, China offered the suggestion that any revision should be carried out with prudence and on the basis of wide consultation with all Member States. UN Doc. A/AC.105/PV.401, 15 June 1994 and UN Doc. A/AC.4/49/SR.18, 7 November 1994.

⁷⁵ The 2011 White Paper on China's Peaceful Development stated that China is actively living up to international responsibility and willing to bear increasing international responsibility with its growing power. Information Office of the State Council, People's Republic of China, <http://www.scio.gov.cn/zfbps/ndhf/2011/Document/1000031/1000031.htm>, 7 July 2014.

However, there is space for improvement regarding transparency and confidence-building measures, which could increase understanding and develop trust, and ultimately contribute to the development of international law and shaping a more stable and secure outer space environment. First, the PPWT draft has brought Beijing some political and propaganda dividends through playing a decisive role in the prevention of an arms race in outer space. Nonetheless, its inflexible position on legally non-binding document of the EU CoC has raised doubts regarding its good faith. Instead of questioning it in principle, the Chinese government should have followed the example of the U.S. American government and advocated its own ideas as an active participant during the negotiation.⁷⁶ Second, the doubt and criticism held by part of the international community towards China's Chang'e Program is partially due to the lack of transparency, though incremental improvements have been made and its space activities are not as secret as before.⁷⁷ China should reduce the military involvement and stimulate investment from state- or private-own enterprises to participate in lunar exploration through legislation.⁷⁸ Third, the relatively low level of military value of the lunar exploration and utilizations presents a good chance for China to expand international cooperation. Despite sufficient capabilities, China is not being considered as a key member of the international

⁷⁶ After years of hesitation, on 17 January 2012, the U.S announced that it decided to initiate consultation and negotiations with the EU and other space-faring nations to develop an International Code of Conduct for Outer Space while it is not signing onto the EU's proposal. The announcement emphasized that the US would not enter into a code of conduct that in any way constrains its national security-related activities in outer space or its ability to protect the U.S and its allies. Its commitments are to reserve the troubling trends that are damaging space environment and to preserve the benefits and promise of space for future generations. Available at <http://www.state.gov/secretary/rm/2012/01/180969.htm>, 7 July 2014. This clearly concentrates on the environmental dimension of space security and undermines the military dimension of the EU's proposal. For more information, see F. A. Rose, "Pursuing an International Code of Conduct for the Security and Sustainability of the Space Environment", April 18, 2012, <http://www.state.gov/t/avc/rls/188088.htm>, 7 July 2014.

⁷⁷ Particularly, the 2000, 2006 and 2011 White Papers on China's Aerospace lays out the list of programs underway during the last years, assesses of progress in general terms and identifies development priorities for the next five years. The basic details of most Chinese spacecraft and satellites launching are better known than before.

⁷⁸ After years of discussion, the aerospace law has finally been incorporated into the legislation plan of the National People's Congress for the next ten years, http://news.xinhuanet.com/english/china/2013-06/08/c_132442379.htm, 7 July 2014.

space society and is facing a bottleneck in international space coordination.⁷⁹ China should explore the possibilities for obtaining technical, financial support and from the Russian Federation and the European Space Agency and sharing the platform of lunar exploration with other developing countries.⁸⁰

V. BIBLIOGRAPHY

Primary (official UN documents and China's White Papers)

Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, opened for signature on 27 January 1967 and entered into force on 10 October 1967.

Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, open for signature on 22 April 1968 and entered into force on 3 December 1968.

Convention on Registration of Objects Launched into Outer Space, open for signature on 14 January 1975 and entered into force on 15 September 1976.

⁷⁹ China collaborates with limited countries in finite fields of space exploration and utilization, such as Russia, the European Union (with whom the cooperation has been slow and restricted), Nigeria and some other developing countries mainly by providing assistance. China is absent from major international space projects, such as the International Space Station (ISS), though it clearly expressed interest especially after achieving manned space flights. For instance, in 2007, when responding to an U.S. American report's question whether China in the future would be more likely to compete or cooperate with United States of America in space, the vice Minister of Science and Technology, Li Xueyong indicated that China wanted to cooperate with the United States and hoped to take part in activities related to the International Space Station, especially as a partner. See http://news.xinhuanet.com/video/2007-10/16/content_6890833.htm, 7 July 2014.

⁸⁰ As a result of a decade-old congressional concern about China's space activities, the U.S. Congress passed a bill in April 2011 stipulating that no appropriated funds may be used by the National Aeronautics and Space Administration (NASA) or the White House Office of Science and Technology Policy "to develop, design, plan, promulgate, implement, or execute a bilateral policy, program, order or contract of any kind to participate, collaborate, or coordinate bilaterally in any way with China". Consequently, currently it is impossible for China and the U.S. to put their effort together in exploring the moon.

Agreement Governing the Activities of States on the Moon and other Celestial Bodies, open for signature on 18 December 1979 and entered into force on 11 July 1984.

Treaty Banning Nuclear Weapon Test in the Atmosphere, in Outer Space and under Water, opened for signature on 5 August 1963 and entered into force on 10 October 1963.

2000, 2006 and 2011 White Paper on China's Space Activities issued by the State Council Information Office of the People's Republic of China.

Literature

BLAIR, Bruce, & CHEN, Yali, "Editors' Note: The Space Security Dilemma", *China Security-China's Space Ambitions*, vol. 2, 2006.

CHRISTOL, "Article II of the Outer Space Treaty Revisited", *Annals of Air and Space Law*, vol. 9, 1984.

———, "The 1979 Moon Agreement: Where Is It Today?", *Journal of Space Law*, vol. 27, núm.1, 1999.

DUAN, Jielong (ed.), The former Director – General of the Department of Treaty and Law of Chinese Ministry of Foreign Affairs, *International Law in China: Cases and Practice*, Beijing, China Law Press, 2011.

DUNK, Frans G., "The Moon Agreement and the Prospect of Commercial Exploitation of Lunar Resources", *Annual of Air and Space Law*, vol. 32, 2007.

GABRYNOWICZ, Irene Joanne & ETIL SERRAO, Jacqueline, "An Introduction to Space Law for Decision Makers", *Journal of Space Law*, vol. 30, 2004.

GALLAGHER, Nancy, "A Reassurance-based Approach to Space Security", The International Security Research and Outreach Programme International Security Bureau, October 2009.

GOEDHUIS, "Some Recent Trends in the Interpretation and the Implementation of the Rules of International Space Law", *Columbia Journal of Transnational Law*, vol. 19, 1981.

GOROVE, Stephen, "Limitations on the Principle of Freedom of Exploration and Use in the Outer Space, Benefits and Interests", *Proceedings of the 13th Colloquium on the Law of Outer Space*, 1970.

KERREST, "New Development and the Legal Framework Covering the Exploitation of the Resources of the Moon", *Proceedings of the 47th Colloquium on the Law of Outer Space*, 2005.

- LEE, "Creating An International Regime for Property Rights under the Moon Agreement", *Proceedings of the 42nd Colloquium on the Law of Outer Space*, 2000.
- LEWIS, "China as a Military Space Competitor", en Logsdon, J. M. y Schaffer, A. M. (eds.), *Perspectives on Space Security*, Space Polity Institute of the George Washington University, 2005.
- LOGSDON, John M. *et al.*, *Collective Security in Space: European Perspective*, Washington DC, Space Policy Institute of the George Washington University, January 2007.
- MAIORSKY, "A Few Reflections on the Meaning and the Interpretation of 'Province of All Mankind' and 'Common Heritage of Mankind' Notions", *Proceedings of the 29th Colloquium on the Law of Outer Space*, 1986.
- MOLTZ, James Clay (ed.), *New Challenges in Missile Proliferation, Missile Defense and Space Security*, Monterey, California, Special Joint Series on Missile-Space Issues, Mountbatten Institute of International Studies, University of Southampton, 2003.
- O'DONNELL, Robinson, "This Treaty Needs a Lawsuit", *Proceedings of the 40th Colloquium on the Law of Outer Space*, 1998.
- OZNOBISHCHEV, "Codes of Conduct for Outer Space", in Arbatov and Dvorkin (eds.), *Outer Space: Weapons, Diplomacy and Security*, Washington-Moscow-Beijing, Carnegie Endowment, 2010.
- RATHGEBER & REMUSS *et al.*, "Space Security and the European Code of Conduct for Outer Space Activities", *Disarmament Forum: A Safer Space Environment*, núm. 4, 2009.
- RISLEY, Lawrence, "An Examination of the Need to Amend Space Law to Protect the Private Explorer in Outer Space", *Western State University Law Review*, vol. 26, 1999.
- STERNS, Tennen, "Institutional Approaches to Managing Space Resources", *Proceedings of the 41st Colloquium on the Law of Outer Space*, 1999.
- TENNEN, "Article II of the Outer Space Treaty, the Status of the Moon and Resulting Issues", *Proceedings of the 46th Colloquium on the Law of Outer Space*, 2004.
- TOBIAS, Paul, "Opening the Pandora's Box of Space Law", *Hastings International and Comparative Law Review*, vol. 28, 2005.
- TRONCHETTI, Fabio, "The Non-Appropriation Principle as A Structural Norm of International Law: A New Way of Interpreting Article II of the Outer Space Treaty", *Air and Space Law*, vol. 30, 2008.

- VLASIC, “The Legal Aspects of Peaceful and Non-Peaceful Uses of Outer Space”, in Jasani (ed.), *Peaceful and Non-peaceful Uses of Space: Problems of Definition for the Prevention of An Arms Race*, New York, United Nations Institute for Disarmament Research, Taylor Francis, 1991.
- WORTZEL, *The Chinese People’s Liberation Army and Space Warfare: Emerging United States – China Military Competition*, Washington, DC, American Enterprise Institute, 2007.
- ZHANG, Zhenjun, “Multilateral Negotiation on the EU Code of Conduct for Space Activities”, in 31 *Newsletter of Space Law*, China Institute of Space Law, 2013.