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# The Urgency of Establishment International Outer Space Authority as Embodiment of Outer Space Environment Protection

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**Abstract.** The outer space technology nowadays is progressing. In its development, not only the state but also the big companies have interests in outer space and its resources. The fact is followed by the growing number of satellites and other space objects launched into outer space which will be space debris when it is inactive. International law only requires the launching state to register a space object to be launched. That is, there is no filtering system that controls the number of space objects launched. The aim of this study is to find the legal mechanism which can control the number of space debris and so that the outer space environment can be protected. The research method used is normative research method with statute and conceptual approach. The conceptual approach goes from the views and doctrines that develop in the legal studies. The conclusion is it takes an international authority to organize and control exploration activities in outer space as embodiment of outer space environment protection. Later on, this authority will filter which space object can be launched.

## 1. Introduction

Space activities can not be separated from several risks, such as accumulation of space debris and the fall of space debris into the territory of a state. Space debris is a large number of satellites that are inactive satellites or satellite junk [1]. This space debris is not only constantly static at a point, but also moves, thus increasing the possibilities of collision between space debris and active space objects from other countries. Another risk of space debris is the accumulation of debris in the outer space and will make the outer space environment is polluted. The United Nations Office for Outer Space Affairs (hereinafter UNOOSA) notes that of the 19,000 artificial objects recorded in the Earth's orbit, only 1,400 are functional satellite [2]. It means that there are 17,600 is a space debris.

State activities that caused space debris is not limited to satellite launches but also military weapons trials. On January 11, 2007, China conducted an Anti-Satellite System (ASAT) Weapon Trial by shooting its own weather satellite named Fengyun Satellite [3]. The shooting of satellites caused the destruction of the satellites that were targeted and eventually became space debris. Space debris created from ASAT Weapon Trial activity potentially the possibility of collision between space debris with space object from other countries which will create more space debris. On the other hand, China's action trigger weapon test competition in outer space.



This study will examine on the issue formulated the urgency of the establishment International Outer Space Authority as embodiment of outer space environment protection. Environmental protection has two distinct elements, namely environmental conservation by avoiding pollution and other harmful effects of buildings, transportation, etc.; and conservation of natural resources, by avoiding waste and unnecessary use of natural resources [4]. Outer space environment protection in this study is outer space environmental conservation by avoiding pollution and other harmful effect of space objects launched and space debris.

Quite a few experts have been researching about space debris. Research that ever there is more about technical matters such as how to reduce the existing space debris and manage the space debris traffic [5]. In the legal studies, there are studies that examine the absence of international legal rules governing space debris. The solution is to use the mechanism of "Consultation" in Article 9 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies 1967 (hereinafter Space Treaty) [6]. The consultation mechanism is not sufficient to be used as a media for space debris being more controlled because consultation is not mandatory for any state that will launch space object but only for state which has the reason to believe that an activity or experiment planned by it or its nationals in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the Moon and other celestial bodies [7].

The purpose of this study is to find out what kind of mechanisms can actually be used so that the amount of space debris can be controlled not to harm the space environment. This study is limited to a study of the mechanisms that can be created by international law to prevent the accumulation of space debris in outer space.

## **2. Methods**

This study uses the normative research type which that uses an issue approach to examine the concepts and relationships of various provisions that regulate outer space and its environment protection.

This study uses conceptual approach and statute approach. The conceptual approach goes from the views and doctrines that develop in the legal studies. In this approach the authors are expected to find ideas that produce legal meaning, legal concepts, and relevant legal principles [8]. In this approach, an assessment of the concept of the province of all mankind and the common heritage of mankind will then produce what kind of mechanisms can be done in terms of protecting outer space environment. The statute approach is conducted by reviewing provisions of law and regulations pertaining to the legal issues being addressed [9]. In the statute approach, researchers not only look to the form of regulation, but also examine the material content; it is necessary researchers to study the ontological basis of the produce of the law, the philosophical basis of the law, and the ratio legis of the provisions of the law [10].

## **3. Results and discussion**

In article 1 Space Treaty, exploration and use of outer space, including moon and other celestial bodies shall be carried out for the benefit and in the interest of all countries irrespective of their degree of economic or scientific development, and shall be the province of all mankind. Not only in the Space Treaty, in Article 4 (1) Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (hereinafter Moon Agreement) re-emphasized that the exploration and use of the moon is a province of all mankind.

Moon Agreement not only recognizes the province of all mankind but also the common heritage of mankind. Article 11 (1) Moon Agreement regulate that the moon and its natural resources are common heritage of mankind. Although there is no consensus on the scope and definition of the common heritage of mankind, there are generally accepted elements, such as the areas in question which can be used but not owned; an international regime must be established that regulates natural resource management systems; there must be assurance that management is sustainable in the interests of future generations taking into consideration aspects of environmental protection; and there must be assurance that the use

of such resources is exercised for peaceful purposes [11]. There is another element in the implementation of the common heritage of mankind principle that is an equitable benefit sharing derived from exploitation activities [12].

J.I Gabrynowickz distinguishes between the province of all mankind and the common heritage of mankind based on what the two regimes are enacting. Province of all mankind refers to the exploration and use of outer space, moon and other celestial bodies, while the common heritage of mankind refers to the material objects of the moon and its natural resources [13]. Further he mentioned that both the province of all mankind and common heritage of mankind are mankind provisions. Mankind provisions provide a perspective which requires all countries to honestly consider how their position contributes to the progressive damage to what was once the most promising path to peaceful and productive coexistence both on earth and in outer space. This idea originated in the belief of the United States that man must live freely and prosper with integrity. Mankind provisions are used to ensure that the idea will continue to develop [14].

It appears that the United States has the view that exploration and use of outer space can be carried out freely provided that it does not interfere with the right of individuals to live freely and prosperously. It is impressed that the United States does not consider the benefit sharing from the outer space activity necessary, because its argument is that the most important of its activities in outer space does not interfere with the human right to live freely and prosper.

The international law of the sea recognizes the common heritage principle of mankind also. Article 136 of the United Nations Convention on the Law of the Sea 1982 (hereinafter UNCLOS 1982) provides that the area and its natural resources are the common heritage of mankind. No state shall claim or exercise its sovereignty and sovereign rights over any part of the area or its resources. All rights in the resources in area are vested in mankind as a whole, on whose behalf the authority shall act [15]. The authority mentioned is the International Seabed Authority (hereinafter ISA) under article 156 UNCLOS 1982. ISA acts in the name of mankind and is authorized by Article 153 (1) and 157 (1) UNCLOS 1982 to organize, carry out, and control the exploration and exploitation activities in the area.

There are several forms of regulation and supervision of activities in the area by the ISA which regulate in UNCLOS 1982, such as the authorization for state parties or legal entities of the state parties who want to explore and exploit in the area. Mechanisms to be undertaken by the parties prior to undertaking exploration and exploitation activities in the region is to submit a formal written plan of work for approval by council (one of the bodies at ISA). According to Article 153 (3) and Article 158 (1) UNCLOS 1982, the plan of work submitted to the ISA must be a contract. Before approval by the council, the proposed plan of work will be reviewed by legal and technical commissions. The legal and technical commission will review formal plan of work for activities in the area and submit appropriate recommendations to the council [16].

Considering plan of work, the ISA must determine whether it meets the requirements given by Annex III. Basic Conditions of Prospecting, Exploration, and Exploitation (hereinafter Annex III). According to Article 6 (2a) and (3) Annex III, if plan of work is not meet the requirements, then the applicant will be given 45 days to improve it. The proposed plan of work must be in accordance with and governed by relevant provisions including on operational requirements, financial contributions, and undertaking concerning the transfer of technology. If the proposed plan of work conform to this requirement, ISA must approve it.

Launching space object will definitely create space debris. According to Article 1 Space Treaty and Article 4 (1) Moon Agreement, it is allowed to explore and use of outer space, moon, and other celestial bodies where space object launch is also permitted under the two legal instruments. There is no criteria or requirement of what space object can be launched. Article 2 (1) Convention on Registration of Objects Launched into Outer Space 1974 (hereinafter Registration Convention) only give the provision to register the space objects launched to the UNOOSA.

The ISA's work plan applied and authorization mechanism for exploration activities in the area can be applied to the exploration and use of outer space. Exploration and use of outer space is identical to the launch of space objects. The space object registration mechanisms implemented under Registration

Convention are not effective enough to control the amount of space objects launched in outer space. On the other side, control of the amount of space objects launched becomes very important because since 1976 until March 2018 the number of space objects that has been launched into space as many as 8090 objects [17]. It means that there are 237 space objects that are launched every year. It can be imagined how much space object is launched over the next five or ten years. Developing in outer space technology will trigger state to explore outer space and create more space objects to be launched into outer space.

The UN has established UNOOSA as an international organization in outer space affairs. UNOOSA shall promote international cooperation in peaceful use of outer space and perform the duties of the Secretariat General of the United Nations in the Space Treaty and Registration Convention, such as the acceptance of space object launched registration. UNOOSA can also organize international forums on outer space affairs [18]. The authority of UNOOSA concerning activities in outer space is not the same as the ISA's authority in terms of activities in the area. It takes the International Outer Space Authority to oversee activities in outer space so that the space object launched is more controlled than before so that the outer space environment can be protected. The International Outer Space Authority will determine which space object can be launched. This authority will have the authorization to oversee the space object that has been launched and see whether the space object would cause potentially harmful in outer space environment or not.

The establishment of the International Outer Space Authority must go through an international treaty whereby within the treaty also contains the authority of International Outer Space Authority to give the authorization to the space object that will be launched. The treaty may be a new international treaty or through the amendment of the Space Treaty because Article 15 Space Treaty give the possibilities to the state parties propose amendments to this treaty. The establishment of the International Outer Space Authority is not entirely disadvantageous to a space power state because with this authority, not all space objects can be launched. This authority will eliminate the space object that is not in a good quality or function. With the reduced amount of space objects that can be launched then it can also give advantages for space power state because space debris does not accumulate and the risk of active space objects and space debris collision is decrease.

#### 4. Conclusions

It takes an International Outer Space Authority to oversee activities in outer space in the form of authorization mechanisms on which space objects can be launched so that the amount of space objects launched is more controlled and the outer space environment is protected. This authority also oversees activities in outer space. The International Outer Space Authority shall be established immediately and must go through an international treaty. With the use of authorization mechanisms given by this authority then the amount of space objects that are launched into space becomes more controlled. Space debris will decrease and outer space environment be protected.

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