Abstract

The issue of outer space is a pertinent topic for many disciplines, specially the sociology, economics, uranography, and cosmonautics. The demand of exploration and exploitation of the outer space makes the legal research become a very important subject of outer space study. There are three significant issues which require close attention need to be discussed completely which involved in the regulation of outer space: the issues of space commercial exploration, space environmental pollution and space militarized utilization. The three issues are some of the core issues facing international outer space law as well as the domestic space legislations. At the same time, the challenges arising from these issues are difficult to handle with, and to some extent, these challenges may decide where the international outer space law is going to be in the future. Hence, this thesis is aimed to examine the legal issues and challenges relating to the exploration and exploitation of the outer space that face international community as well as developing countries like China.

The historical development of outer space activities started with the launch of *Sputnik I* and it points out the three main legal issues of the exploration and exploitation of the outer space, which are space commercial exploration, space environmental pollution and space militarized utilization. Research indicates the limitations of international space law and the challenges towards above three main legal issues. Specifically speaking, in the issue of space commercial exploration: (a) there are no effective approaches to ensure that the subject who takes part in space commercial exploration to assume the corresponding responsibilities; (b) there is lack of provisions to regulate the liability of space products and ensure the equality of the competition in international space commercial market;(c) the existing international outer space law has no good way to ensure that the launching states have the jurisdiction and control power on the space objects launched by the private enterprises;(d) the international

community has no uniform provisions to solve the international legal disputes between the states and private enterprises arising from the commercialization of outer space activities. In the issue of space environmental pollution: (a) none of the international treaties or conventions provides the issue of space environmental protection in the explicit and appropriate form; (b) the international space law relating to the issue of space debris is still in its infancy and it is a critical weakness in the international space law on the control and limitation of space debris. In the issue of space militarized utilization: (a) the existing international legal regulations relating to prohibiting the space militarization are not very specific, clear and sufficient; (b) the definition of the key word "peaceful purposes" is ambiguous; (c) practices of space militarized utilization pose a big challenge to the existing international law which prohibits the militarization of outer space. An overview of the legislation of main space-faring countries, such as USA, Russia, Canada, UK etc., reveals the differences and problems of domestic practice among the main space-faring countries. First, one difference arises from the technical issues of the legislation, and it mainly focuses on the definition and delimitation of outer space. Therefore, a lot of countries did not establish the regime applicable to the flight of aerospace objects in accordance with the definition and delimitation of airspace and outer space. Second, the other difference stems from the policy issues of the legislation, and it mainly focuses on the authorization of the non-governmental entities, that is to say, there is still difference on how to specially authorize the non-governmental entities to engage in outer space activities between the countries. So, when the countries establish the domestic outer space legislation, they not only need to appropriately take into account both the international norms and the current trend of the countries' space legislation, but also need to fully protect their basic position and the legitimate interests of the space exploitation and exploration and rationally establish and improve the national space legal system. The examination of the three important legal issues in the context of China reveals important implications for this country. First, issue of space commercial exploration in China, there are no specific laws or comprehensive sets of legal norms

to fix how the national supervision works, or how to share international responsibility, or how the insurance industry to participate in the outer space business to promote the commercialization of outer space smoothly. Second, issue of space environmental pollution, although the White Paper of China's Space Activities emphasizes that "the issue of space debris is a big challenge to further expansion of space activities", but China did not formulate the legislative provisions on it. Third, issue of space militarized utilization, China only regulates it by the relevant international treaties and instruments, and does not formulate any domestic provisions on it. Thus, the implications for China's legislation on outer space law are as follows: (a) the legislative model should break the limitations of the normative documents respectively formulated by the competent departments; (b) the country should assigns the competent department of China's space activities and clearly defines the limits of authority of the relevant functional department and the relationship between them in the matter of management of outer space activities; (c) China's space legislation should focus on the establishment of management system; (d) China should also establish and improve the legal systems directly related to the outer space activities, such as system of registration, responsibility for damage, encouraging and promoting the outer space activities, and so on. Based on the findings on various issues the work reaches relevant conclusions and makes pertinent recommendations.

Key Words: space commercial exploration, space environmental pollution, space militarized utilization, international space law, domestic space law legislative practice of China