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ESTABLISHING A NATURAL RESOURCES REGIME ON THE MOON

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ABSTRACT

According to Art. 11(5) of the Moon Agreement, an international regime will be established "to govern the exploitation of the natural resources of the moon as such exploitation is about to become feasible." Which natural resources are we contemplating? When will exploitation likely become feasible? Where will natural resources likely be used? What are lessons that can be drawn from the experiences under the Law of the Sea regime, INTELSAT and INMARSAT? How will such a regime be designed, adopted and implemented?

1. Introduction

Why is it that we can land men on the moon but we can't establish a minerals regime there as is contemplated in the 1979 Moon Agreement which was ratified in 1984 and now has thirteen signatories? (1) Certainly, thirty years ago, the prospects for establishing bases on the moon seemed more imminent that it does now. Perhaps it was youthful enthusiasm and the expectations of mankind for the increasing peaceful uses of outer space as enshrined in the outer space treaties and in the national policies of many states. Whatever the sentiments in 1979 – after all the treaty went through COPUOS by consensus – only a few years later the hopes and aspirations of the negotiators had changed. The treaty almost seemed to be stillborn. Still, the Moon Agreement is in force, and, as Prof. Dr. Frans G. von der Dunk wrote in 2006, "The Moon Agreement, it seems, is back in business – at the very least, it is back on the table." (2) This for two reasons: One, the increase in the number of signatories, long stagnant, from nine to twelve and now thirteen, and two, the 2004 New Vision of the Bush Administration, which energized thinking on the moon's natural resources. Perhaps this new look will be stillborn as the Obama Administration has plans to cancel or revamp the Constellation program which was to implement the Bush plan. On the other hand, the Obama initiatives forsee an increasing role for private enterprise and this may revive talks about private property on the moon and, legally speaking, the interpretation of Articles 2 and 6 of the Outer Space Treaty. (3) But, for any new program to have potential there must be resources on the moon (and other celestial bodies) which can be exploited. Let us now turn to this possibility.

2. What Are the Natural Resources of the Moon? Where Will They be Used?

Scientists have indicated that there are several resources that can be mined on the moon. One that is often mentioned is helium-3.(4) This resource covers the surface of the moon and can be used in fusion reactors. Another resource is oxygen which can be extracted from the regolith. Oxygen can be used in a space colony or bases on the moon A third resource is water., which is necessary for humans working on the moon. Helium-3 would be mined on the moon and sent back to the earth for use in nuclear reactors, However, the fusion reactor has not yet been developed . There is research but not development or commercialization. The most readily available elements, oxygen and water, would be used on the moon and not on earth. Thus, as of now, only helium-3 would be used on earth, but not until workable fusion reactors were in use.

3. When will exploitation likely become feasible?

If the Constellation program proceeds as planned, bases could be established on the moon by 2020. These bases would then use the resources of the moon to become partially self-sustaining by using the moon's resources in water and oxygen. But the Obama Administration wants to close down the Constellation program. It wished to encourage private enterprise to take up the job as the public sector's deficit and debt are becoming overwhelming and unsustainable. On the other hand, Congress has added language to the budget prohibiting NASA from canceling the program or starting a new one without Congressional authorization. So the Administration's plans appear to be illegal, and they are, according to that law, but according to another law, the Anti-Deficiency Act, federal agencies are prohibited from spending more money than has been appropriated by Congress, and Constellation has never been fully funded.(5) In any event, American exploitation of the natural resources of the moon does not appear to be imminent.

There are other countries with moon programs – China, India and Japan. Also Canada, Germany, Russia and the United Kingdom. And one international organization, the European Space Agency. (6) These countries programs are scientific exploration programs and thus do not bring into play Article 11(5) of the Moon Agreement.(6) Article 6(1) of the Agreement stipulated that there must be "freedom of scientific investigation of the moon (and other celestial bodies) by all States Parties." Prospecting for resources that may or may not be on the moon would not trigger Art. 11(5).

4. Designing, Adopting and Implementing a Regime

In my opinion, A Common Heritage of Mankind (CHM) regime on the moon would not be called for when one is considering using water or oxygen, or other materials for use on bases on the moon itself. These types of activities would not justify establishing the kind of regime envisaged during the negotiations for the Moon Agreement. (7) A CHM regime would be necessary for helium-3 extraction because this resource would be brought back to the earth to solve our planet's energy problems. But, since as indicated above, this extraction is not now feasible, the issue of establishing a CHM regime at this time is academic.

Houston, we do not have a problem. But it is interesting nonetheless, especially to an academic.

Let us consider three types of CHM regimes that could be established. One , a "capitalist" regime; two a "socialist" regime, and three, a mixed regime. I purposefully use this value-laden language because it is from ideological perspectives that policy initiatives are brought forth either to succeed or to fail. A capitalist regime could be established along the lines of the 1994 Protocol to the 1982 UN Convention on the Law of the Sea. The CHM principle seems to imply that a regime centered in the UN or in an international organization will manage the resources to be extracted from nodules on the seabed. This was anathema to many countries so an agreement was added to UNCLOS in 1994 which stipulated that the regime could be conceived in a free enterprise manner. (8) And in 2008, seven States Parties to the Moon Agreement issued a "Joint Statement on the Benefits of Adhering to the Agreement...," which pointed out that the "Agreement does not pre-exclude any modality of exploitation, by public and/or private entities, nor forbids commercial treatment, as long as such exploitation is compatible with the requirements of the Common Heritage of Mankind regime." (9) A socialist regime would involve an international organization which would be mandated to distribute the profits of the regime according to a formula based perhaps on the populations of the states members of the UN. A capitalist regime would distribute the profits to the shareholders who might be individuals, corporations or state enterprises.. Perhaps there could be royalties paid to the agent of the CHM regime. A mixed regime might be originated according to the Public-Private Partnership (PPP) model. (10) The models for such a regime could be INTELSAT and INMARSAT as they were originally set up by treaty between states and with operating agreements between private companies or state-owned enterprises. There would be weighted voting to recognize differing contributions to the enterprise but every state would be guaranteed a minimum stake in the regime. Eilene Galloway proposed such an approach in 1980.(11) She also indicated that such a regime would be established either by a majority of the States Parties to the Agreement (see Article 18), which, now, would be seven of thirteen states, or by the space powers including the United States, which might have the foresight to begin working in advance on this topic.

In today's political climate, it is unlikely that the U.S. would have such foresight, as it has not even ratified UNCLOS. But academics and space lawyers can lay the ground work, and much of it has already been done if one accepts the pertinence of analogies to INTELSAT and INMARSAT, Perhaps the IISL could draw up a model regime on the basis of such precedents. One must remember Ambassador Arthur Goldberg's 1966 insight "that we have, here and now, the opportunity to establish a regime of law in outer space before national interests develop and freeze positions."(12) Some national interests might now be procrustean but it is good to plan for the day when there will be more consensus, compromise, and international cooperation.

Endnotes

1. Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (hereinafter Moon Agreement); opened for signature 1979; entered into force 1984. 1363 UNTS 3; 18 ILM 1434 (1979). The thirteen states which have ratified the Agreement are Australia, Austria, Chile, Mexico, Morocco, Netherlands, Pakistan, the Philippines, Uruguay, Kazakhstan, Belgium. Peru, and Lebanon. The four states that have signed the Agreement but have not ratified it are France, Guatemala, India, and Romania.
2. Frans G. von der Dunk, "Back in Business? The Moon Agreement, Private Actors and Possible Commercial Exploitation of the Moon and Its Natural Resources," in Workshop Proceedings, An IASL/IISL International and Interdisciplinary Workshop on Policy and Law Relating to Outer Space Resources (hereinafter Workshop): Examples of the Moon, Mars, and Other Celestial Bodies. Montreal; June 28-30, 2006.
3. For the International Institute of Space Law (IISL)'s 2004 statement on this subject, see "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," www.iafastro-iisl.com/additional%20pages/Statement_Moon.htm>
4. For optimistic predictions on mining helium-3, see Ram Jakhu and Maria Buzdugan, "The Role of Private Actors: Commercial Development of the Outer Space Resources, Including Those of the Moon and other Celestial Bodies: Economic and Legal Implications," in Workshop. Op.cit. As there are approximately 150 years left of uranium on, earth, it may be quite a stretch to think of mining helium-3 any time soon.
5. The June 28, 2010 Obama space policy fact sheet can be found at www.whitehouse.gov/the-press-office/fact-sheet-national-space-policy. For continuing up-to-date coverage of this subject see Marcia Smith's www.spacepolicyonline.com
   The Obama administration puts much more emphasis on cooperation and multilateralism than the Bush administration. Nonetheless, it maintains that new agreements have to be verifiable. I would think that trust but verify would be a good approach to national security treaties but the more treaties involve mutual and common interests the more one can count on the Parties to verify their own behavior because it is in their own interest to cooperate and coordinate.
6. Sources on the Moon programs of countries other than the United States may be found in Workshop, op. Cit. All these countries are part of the May, 2007 "Global Exploration Strategy: The Framework for Coordination". For analysis of

the Framework, see C. Contant-Jorgenson and K. Abendschein, "The Global Exploration Strategy: Legal Perspectives," IISL 2008 Proceedings (AIAA, 2009), 389-399.

7. For the Agreement's negotiating history see Eilene Galloway, "History of the Negotiations on the Moon Agreement," in U.S. Senate, Committee on Commerce, Science and Transportation, "Agreement Governing the Activities of States on the Moon and Other Celestial Bodies," Committee Print, Parts 1 and 2, 96th Congress, 2d Session (May, 1980), 7-44. For recent negotiations under Article 18 of the Agreement see Antonella Bini, "The Moon Treaty in the 21st Century," Proceedings of the International Institute of Space Law, 2008. (AIAA, 2009), 331-337.
8. See Jonathan F. Galloway, "Limits to Sovereignty: Antarctica, Outer Space and the Seabed," Proceedings of the Forty-First Colloquium on the Law of Outer Space (Washington, D.C.: AIAA, 1999), 80-86. The Agreement of November 17, 1994, while reaffirming CHM, recognizes "that political and economic changes, including in particular a growing reliance on market principles, have necessitated the re-evaluation of some aspects for the area and its resources."
9. A/AC.105?C.2?L.272
10. For PPP. See Jakhu and Buzdugan, op.cit.
11. Eilene Galloway, testimony and statement on the Moon Agreement, U.S. Senate, Hearings "The Moon Treaty" before the Subcommittee on Science, Technology and Space of the Committee on Commerce, Science and Transportation, 96th Congress, second session July 29 and 31, 1980, 172-182. For a history of INTELSAT's formation see Jonathan F. Galloway, The Politics and Technology of Satellite Communications (Lexington, MA.: Heath Lexington Books, 1972). For Eilene Galloway's INTELSAT model applied to solar power satellites see Peter E. Glaser, et. al., eds., Solar Power Satellites: The Emerging Energy Option (New York: Ellis Harwood, 1993, 183-197. Later on, INTELSAT was privatized. See Jonathan F. Galloway, "Privatizing and International Cooperative? The Case of INTELSAT," Proceedings of the Thirty-Ninth Colloquium on the Law of Outer Space (AIAA, 1997), 144-150. Completely privatizing a CHM enterprise on the Moon would not be appropriate.
12. U.S. Mission to the United Nations. Press Release No. 4914, September 19, 1966.