

# From Local to Global Commons

## *Applying Ostrom's Key Principles for Sustainable Governance*

Valnora Leister, LL.M. DCL and Mark Frazier<sup>1</sup>

This paper explores a possible new local-to-global system for the equitable governance of the “common pool resources.” As normally understood, the “Commons” refers to resources that are owned or shared among communities. Such resources (forests, fisheries, etc.) when located within national boundaries are subject to that country’s laws. Areas beyond national jurisdiction, including the high-seas, Antarctica, the ocean sea-bed, outer space and the Earth’s environment, are known as “Common Heritage of Mankind” (CHM) and subject to Public International Law (PIL). The object and subject of traditional PIL is the nation-state. However, since the 1972 Conference for the Human Environment, individuals and Non-Governmental Organizations (NGO’s) have been legally recognized under PIL as having direct responsibility for protection of the global environment, by working for transparency and accountability in its management. With this opening for direct participation by individuals and NGOs in working for sustainable management of the global Commons, it may be now feasible to extend the precedents identified by Nobel Laureate Elinor Ostrom for successful economic governance of local common pool resources to wider CHM areas. A recently developed legal concept – nondominion – offers a framework for recognizing user rights toward this end. Combining Ostrom’s principles with this new approach for shared use of the Commons promises to give a more solid legal grounding for the 5 “As” (Architecture, Adaptiveness, Accountability, Allocation and Access) in the governance of the global commons for the benefit of humanity.

## I. INTRODUCTION

Present systems for the governance of Earth’s natural resources are under strain. The current system, with origins in the 1648 Treaty of Westphalia, has the nation state as its object and subject. Yet nations have agreed that areas defined as “Common Heritage of Mankind”

---

<sup>1</sup> Valnora Leister holds a Master of Laws and a Doctor of Civil Law from McGill University, Montreal, Canada, and a Bachelor and Graduate Degrees from the Law School of the University of Sao Paulo, Brazil. She is a fellow of the research group on Global Governance and Human Rights of the Brazilian National Research Council (CNPQ). Dr. Leister was a Guggenheim Fellow at the Smithsonian Institution and a Project attorney at the Inter-American Development Bank. Her professional memberships include the International Institute of Space Law, the International Law Association, the Brazilian Society of Space Law, and International Law Branch of the American Bar Association. Mark Frazier, a graduate of Harvard University and past Visiting Fellow of the Lehrman Institute, is president of Openworld, Inc., a nonprofit research group, and a former publisher of Reason Magazine.

(CHM) – including Antarctica, the high seas, the international sea bed, outer space, and the global environment – are beyond nation-state jurisdiction or ownership claims. Given the absence of effective international governance systems for governance of humanity’s Commons, citizens of the planet have been unable to systematically realize economic gains from their development.

Instead, the common heritage areas are becoming increasingly active arenas for strategic rivalries by nation states, and for adhoc efforts by private ventures – including the “seasteading” initiatives backed by Peter Thiel, the billionaire cofounder of Paypal and original Facebook investor.

This paper suggests new paths for global governance of the Commons, grounded upon legal recognition of individual rights and responsibilities with regard to the global environment, and upon Nobel Laureate Elinor Ostrom’s research into effective practices for managing common pool resources. In conjunction with an innovative legal framework, “nondominion,” these developments create a foundation for accelerating economic development on a basis benefiting humanity, without legally sanctioning national or private ownership or appropriation of humanity’s common resources.

## **II. BACKGROUND ON PRESENT SYSTEMS FOR GOVERNANCE OF THE COMMONS**

The present governance system of the global Commons traces its origins to the 1648 Treaty of Westphalia. The Treaty marked the beginning of an era of international law based upon the concept of sovereign nation states operating under centralized systems of government.

This system has led Public International Law to treat the nation state as its object and subject, and treaties as instruments by which nation states advance their common interests – regardless of whether the interests of humanity as a whole are respected.

## 1. Nation-States

According to traditional positivist doctrine, only states have rights and obligations under public international law. The validity and authority of international law depends to a large extent upon the voluntary participation of states in its formulation, observance, and enforcement.

The best-known formula for setting out the basic characteristics of statehood has been set forth in the Montevideo Convention on the Rights and Duties of States.<sup>2</sup> For any one of the 196 nation-states<sup>3</sup> to have legal personality, it must meet four tests. It must have: i) a defined territory, ii) a population under its control iii) a political structure for government, and iv) the capacity to enter into officially-recognized relations with other states. The Montevideo Convention is seen as reflecting the classical conditions under customary international law that a prospective state must satisfy, including its jurisdiction over the geographical area subject to the sovereign entity (its soil, subsoil, interior waters, territorial sea and aerial space).

## 2. The Commons

Areas that are not part of a state's territory and jurisdiction are defined as the global Commons – also known as the “Common Heritage of Mankind,”<sup>4</sup> “Province of Mankind,” or “*res communis*.”<sup>5</sup> According to most current understandings, the principle of the common heritage of humankind (CHM) entails that all human beings have a stake in resources outside the sovereign territory of states.

Such areas are subject to treaties negotiated between nation states. These agreements reflect a shared aim of holding the resources in trust for future generations, and a corresponding desire to prevent monopolization by individual nation states or corporations.<sup>6</sup> Each one of the realms considered as “*res communis*” has a particular treaty or treaties to define how these areas are going to be used.

---

2 Article 1 of Montevideo Convention on the Rights and Duties of States, Dec. 26, 1934, (1936) 165 L.N.T.S. 19.

3 At present, 193 nation states are members of the United Nations Organization (UN). Nations that are not members of the UN are: Kosovo, The Vatican, and Taiwan.

4 The spaces that were considered *res nullius* under traditional International law are now considered “common heritage of mankind” under post-modern International law: PAULO BORBA CASELLA, DIREITO INTERNACIONAL DOS ESPACOS 564 (2009).

5 The Law of the Sea Convention and the Moon Treaty refer to the areas considered “Common Heritage of Mankind”; the Outer Space is treated as “Province of Mankind” in the Outer Space Treaty.

6 KERNEL BASLAR, THE CONCEPT OF COMMON HERITAGE OF MANKIND IN INTERNATIONAL LAW 13 (1998).

Below is a summary of current governance regimes, as defined by treaties on Antarctica, the High-Seas, the Sea-Bed, Outer Space and the Global Environment. In these CHM areas, the nation-states have no jurisdiction, but individuals willing to carry activities in these areas need to do so under the flag of their respective states and the international treaties and agreements regulating the uses of such realms.

- a. **Antarctica.** The 1959 Antarctica Treaty recognizes a common interest of humanity in maintaining Antarctica as a peaceful area. The treaty established the continent as being beyond national jurisdiction and sovereignty claims. It prohibited military activities, including basing of nuclear weapons.<sup>7</sup> According to its Article 1, “Antarctic shall be used for peaceful uses only,”<sup>8</sup> but scientific research and logistical problems led to a high degree of involvement of armed forces, raising fears of military activities. The 1959 Treaty was complemented by the Wellington Protocol of 1988, which proposed international regulation of mineral resources in Antarctica. After opposition from developed countries blocked this proposal, the Madrid Protocol of 1991 to protect biodiversity was passed,<sup>9</sup> with backing by leading nations including China, the U.K. and the U.S.
- b. **High Seas.** The seas beyond national jurisdiction known as “High-Seas” are also subject to international agreements and treaties. In November of 1967, Malta proposed that the new law of the sea should be based no longer on the notion of “freedom of the seas” but on a new concept, the “Common Heritage of Mankind” principle (CHM).<sup>10</sup> The CHM concept was thereafter given legal status in the 1982 Law of the Sea Convention (LOSC), which entered into force in November 1994, after being signed by 159 countries (the U.S. signed but has not yet ratified this convention). Under the law of the sea, the high seas are defined as, “all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an

---

7 Since its entry into force in 1961, the Antarctic Treaty has expanded in membership from twelve original parties to thirty-nine in early 1989. Of these parties, the designated group of decision makers – the Antarctic Treaty Consultative Parties (ATCPs) – has increased from the original twelve to twenty-two today. Seven of these states – Argentina, Australia, Chile, France, New Zealand, Norway and the United Kingdom – assert claims to pie-shaped portions of territory on the continent. All ATCP states meet biennially to recommend policy for the Antarctic.

8 See GILLIAN D TRIGGS, *THE ANTARCTIC TREATY REGIME, LAW, ENVIRONMENT AND RESOURCES* (2009).

9 It came into force in 1998, with the effect of protecting Antarctica for 50 years from commercial exploitation of its mineral wealth.

10 E.M. Borgese, *Expanding the Common Heritage of Mankind*, in *GLOBAL PLANNING AND RESOURCE MANAGEMENT* (A. Dolman ed., 1980).

archipelagic state” (art.86).<sup>11</sup> In general, the high seas are open to all states. The flag state has the exclusive right to exercise jurisdiction over its vessels on the high seas.

- c. **International Sea-Bed.** The international seabed is subject to international agreements. In 1970, the UN General Assembly adopted Resolution 2749 declaring the CHM as the prime principle governing the exploitation of the international seabed. The international seabed area is defined as an area consisting of the “seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction.” The LOSC recognizes the seabed as a “commons” with rich minerals, which include baseball-size nodules lying on the seabed floor formed by processes of accretion and containing cobalt, copper, iron, manganese and nickel.
- d. **Outer space.** Outer Space, considered part of the “Commons” is also subject to international law agreements. The body of international space law comprises five treaties and five declarations of legal principles applying to outer space.<sup>12</sup> International legal principles in the treaties declare the non-appropriation of outer space by any country, arms control, the freedom of exploration, liability for damage caused by space objects, the safety and rescue of spacecraft and astronauts, the prevention of harmful interference

---

11 □ THOMAS BUERGENTHAL & SEAN D. MURPHY, PUBLIC INTERNATIONAL LAW IN A NUTSHELL 283 (4<sup>th</sup> ed., 2007)

12 The five treaties are:

- Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies", adopted by the General Assembly in its Resolution 2222 (XXI), opened for signature on 27 January 1967, entered into force on 10 October 1967, with 98 ratifications and 27 signatures as of 1 January 2008).
- The Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (the "Rescue Agreement", adopted by the General Assembly in its resolution 2345 (XXII)), opened for signature on 22 April 1968, entered into force on 3 December 1968, 90 ratifications, 24 signatures, and one acceptance of rights and obligations (as of 1 January 2008).
- The Convention on International Liability for Damage Caused by Space Objects (the "Liability Convention", adopted by the General Assembly in its resolution 2777 (XXVI)), opened for signature on 29 March 1972, entered into force on 1 September 1972, with 86 ratifications, 24 signatures, and three acceptances of rights and obligations (as of 1 January 2008).
- The Convention on Registration of Objects Launched into Outer Space (the "Registration Convention", adopted by the General Assembly in its resolution 3235 (XXIX)), opened for signature on 14 January 1975, entered into force on 15 September 1976, 51 ratifications, 4 signatures, and 2 acceptances of rights and obligations (as of 1 January 2008).
- The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (the "Moon Agreement", adopted by the General Assembly in its resolution 34/68), opened for signature on 18 December 1979, entered into force on 11 July 1984, 13 ratifications and four signatures (as of 1 January 2008).
- The Five Declarations on Legal Principles are:
  - The Declaration of Legal Principles Governing the Activities of States in the Exploration and Uses of Outer Space (General Assembly resolution 1962 (XVIII) 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 to 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).

with space activities and the environment, the notification and registration of space activities, scientific investigation, the exploitation of natural resources in outer space and the settlement of disputes. Each of the treaties recognizes that the domain of outer space – including the activities carried out there, and whatever benefits might accrue from them – should be devoted to enhancing the wellbeing of all countries and humankind. Each agreement seeks to promote international cooperation in outer space activities. Article 1 of the 1967 Space Treaty defines outer space as “the province of Mankind,” whereas the Moon Treaty in its article 11 declares that the Moon and its natural resources are CHM, undertaking to establish and international regime to govern the exploitation of its natural resources, which to date has not been created. As with other CHM areas such as the high-seas, military activities are also taking place in outer space. In interpreting the guidelines and principles applied to outer space, leading space powers during and after the Cold War have concluded that outer space can be used for “non-aggressive” military purposes.<sup>13</sup>

Citing the validity of military uses of space so long as they are not aggressive, the U.S., Russia and China have deployed a range of remote sensing, communications and other secret space-based systems. The impacts of such “non-aggressive” secret uses are beginning to be more widely felt. Anti-satellite missile tests by China in 2007 and by the U.S. in 2008 have raised concerns as such use of space can generate large amount of debris and also destroy communications systems dependent on satellites.<sup>14</sup>

- e. **Global environment.** International environmental law, a recent branch of international law, specializes in the preservation and enhancement of the global ecosystems. It addresses problems such as ozone depletion, climate change, and loss of biological diversity. Countries have developed a network of environmental law treaties as well as organizations, and established legal principles and operational guidelines applying to global environment.<sup>15</sup> The environment, like outer space, transcends national boundaries and environmental law is giving legal standing to the rights and obligations of people

---

13 Isabella Diederiks-Verschoor & Vladimir Kopal, *An Introduction to Space Law* 139 (2008).

14 Valnora Leister & Lalin Kovudhikulrungsri, *Outer Space: Of the People, by the People and for the People*, Presented at the IISL Symposium in Korea (2009).

15 *Supra* note 10, at 301.

directly – rather than exclusively through nation states – in issues relating to this CHM area.

Among all of the precedents established to date under Public International Law, those in international environmental law are perhaps the most far-reaching in their implications for governance of the global Commons. They mark the beginnings of a post-Westphalian era in international law, as a result of their legal recognition of the direct rights and responsibilities of individuals with regard to the environment of the planet. The 1972 U.N. Conference for the Human Environment in Stockholm, was well attended and fundamental in calling global attention to environmental issues. Twenty years later, at the Conference on Environment and Development in Rio de Janeiro environmental protection gained recognition as a critical aspect of sustainable development. The principle of citizen participation was endorsed as a preferred way for countries to deal with environmental issues. Citizen participation has been defined to include direct access by individuals and NGOs to global judicial and administrative proceedings that affect the environment. Such citizen engagement has become standard procedure for the environmental projects financed by leading international organizations. In Europe, EU authorities place at the disposal of requesting private citizens of member countries any environmental information that they require.<sup>16</sup> The environment and its protection are recognized as a core interest of every individual, resulting in legal standing for direct access in international proceedings that relate to environmental law.

Globalization of cyberspace technology such as the internet, has also given people around the world access to information and the ability to mobilize on issues of common concern. Some of the most vibrant areas of global debate and action have been in the area of environment. In response to these new international conditions, non-governmental actors are linking and self-organizing on a global basis. Individuals, enterprises and organized civil society groups are today more directly influencing international relationships, and are being recognized as new actors in international law.<sup>17</sup> Non-Governmental

---

16 E. WEISS, IN FAIRNESS TO FUTURE GENERATION: INTERNATIONAL LAW, COMMON PATRIMONY AND INTER-GENERATIONAL EQUITY (1989).

17 U.N. Resolution 96/31 reaffirms the consultative status of the Non-governmental organizations, (NGOs) which are considered nor public, nor private. The New Humanitarian International Order recognizes NGOs as subjects of the Public International order, even if they do not have legal personality.

Organizations (NGOs) have been at the forefront of increasing consciousness of global issues, researching the extent of transnational problems and crises, and mobilizing consensus and action. They have the ability to represent shared interests in ways that transcend the agendas of nation-states.<sup>18</sup>

### III. PROBLEMS WITH EXISTING SYSTEMS GOVERNING THE COMMONS

Current governance systems applying to areas defined as CHM have led to the following problems:

#### a. Military uses of the “res communis”

As previously indicated, the principle of the common heritage of humankind (CHM) entails that all human beings have a stake in resources outside the sovereign territory of states. Such areas are subject to treaties negotiated between nation states. These agreements reflect a shared aim of holding the resources in trust for future generations, and a corresponding desire to prevent monopolization by individual nation states or corporations.<sup>19</sup> Yet the Commons – in particular, outer space and the high-seas – have been militarized.

In outer space, anti-satellite missile tests by China in 2007 and by the U.S. in 2008 have raised concerns as such use of space can generate large amount of debris and also destroy communications systems dependent on satellites.<sup>20</sup> The U.N. has recognized an arms race in outer space as an ongoing risk. A draft treaty on the Prevention of an Arms Race in Outer Space proposed by Russia and China was rejected by the U.S. on grounds that an effective and verifiable ban on space-based weapons or earth-based anti-satellite systems (ASAT) would be impossible. The European Union has proposed bilateral consultations towards amending the project and developing a text that would be acceptable by the greatest number

---

18 Among such initiatives is the U.N Conference on Disarmament for Security and the 62<sup>nd</sup> Annual Public Information Gathering of NGOs, which took place in Mexico in September 2009. Nobel Peace Prize Winner Jody Williams, one of the speakers, pointed out opportunities to apply future savings from a reduction in military spending to benefit Humanity in areas such as education, health and natural disaster prevention. The objective of the gathering that was attended by more than one thousand NGOs was to enforce disarmament and the non-proliferation agenda and expand transparency about the costs of weapons.

19 KERNEL BASLAR, THE CONCEPT OF COMMON HERITAGE OF MANKIND IN INTERNATIONAL LAW 13 (1998).

20 Valnora Leister & Lalin Kovudhikulrungsri, *Outer Space: Of the People, by the People and for the People*, Presented at the IISL Symposium in Korea (2009).

of countries possible. Yet the prospects for such measures apparently remain checked by superpower consideration of national interests.<sup>21</sup>

A similar situation prevails in relation to the high seas and sea-bed, which are to “be reserved for peaceful purposes.”<sup>22</sup> The term “peaceful purposes” has been interpreted by the leading countries as “non-aggressive” purposes and therefore national military uses of the high seas, like in outer space, have been allowed. The major maritime nations have claimed the right to use areas of the high seas for military activities such as the testing of missiles and nuclear weapons. The impact of these activities in “res communis” domains create damages for ocean life, quality of water and environment as well, and are a growing global concern. Measures by the U.N. to stop these activities to date have failed and Non-Governmental Organizations (NGOs) are increasingly vocal about their concerns.

#### **b. Pollution and debris in CHM areas**

*i) Marine pollution.* Ocean shipping activities contribute to oil spills and pollution that can create irreparable damages to the marine environment. Shipping operations are considered to be a “polluting industry.” It is estimated that accidents by oil tankers account for up to 1,750,000 tons of oil into the ocean per year<sup>23</sup>. Oil pollution cannot be contained in territorial seas and in most cases it carries into the high seas, outside national jurisdiction, where it damages fisheries and wildlife including penguins, seals, dolphins, whales and rare sea birds. These oil spills affect not only the ocean around them, but the seabed, shorelines, open waters, wetlands and corals.<sup>24</sup> The best clean-up operation cannot recover the existed ecosystem- so measures have to be taken to prevent these accidents from happening.

Several international agreements have attempted to deal with oil pollution at sea<sup>25</sup> but clear rules have yet to emerge in any particular global environmental convention. Principle 22 of

---

21 *Experts Urge Reformulation of U.S. Space Policy: American Academy Issues Three White Papers* (July 30, 2009), [http://www.eurekalert.org/pub\\_releases/2009-07/aaoa-eur072909.php](http://www.eurekalert.org/pub_releases/2009-07/aaoa-eur072909.php). The Reconsidering the Rules of Space project is supported by a generous grant from the Carnegie Corporation of New York.

22 Article 88 of the LOSC.

23 Brubaker, D., *Marine Pollution and International Law: principles and Practice*, Belhaven, London, 1993.

24 Alisson, Elton, “Oceanos nas Discussoes Ambientais” *Revista Fabesp*, 08/03/12

25 International Convention for the Prevention of Pollution of the Sea by Oil (OILPOL), adopted in London on May 12, 1954; The International Convention relating to the Intervention in the High Seas in Cases of Oil Pollution Casualties, Brussels, November 29, 1969, enables a government to take action, if an accident in international waters threatened its coastline with pollution; The International Convention on Civil Liability for Oil Pollution Damage, 1969 and the International Convention on the Establishment of an International Fund for Compensation for

the Declaration on the Human Environment (Stockholm Declaration)<sup>26</sup> refers to liability and compensation for marine pollution damage requiring further cooperation from states in order to adopt international regulations. Part XII of the 1982 UNCLOS contains only general provisions regarding the protection of the marine environment, stating that specific rules shall be implemented by future international law. Chapter 17 of the United Nations Conference on Environment and Development (UNCED)<sup>27</sup> asks for international cooperation with regional or global international organizations and with industry based organizations to prevent marine pollution. Global rules on prevention of marine pollution, and quick international response to incidents, need to emerge for protecting the interests of future generations.

ii) *Outer space debris*. The problem of outer space debris also is in need of attention. A growing quantity of debris is endangering useful Earth orbits and the long-term sustainability of outer space. Presently, there are 21,000 human made objects larger than 10 centimeters in diameter orbiting the Earth, with an additional 450,000 to 600,000 objects measuring between 1 to 10 centimeters in diameter and millions measuring between 1 millimeter and 1 centimeter. These objects orbit at speeds between 3km/sec and 7.7km/sec. A collision between an uncontrolled object of any size and another space object can have serious consequences.<sup>28</sup>

Initiatives are needed for active debris removal and on-orbit satellites servicing activities, to protect the space environment and protect space assets from damage or destruction by debris. This issue relates not only to use of outer space, but to global safeguards for the environment, since the impact of falling debris can be serious on Earth's oceans, cities and its population, as well as to aircraft. Yet there are no clear rules to date in any particular global environmental convention addressing the growing concern that space debris poses for humanity and the environment.

### c. **Restricted access to technologies**

---

Oil Pollution Damage, 1971- this convention is administered by the International Oil Pollution Compensation Fund Secretariat in London- it introduces a compulsory liability insurance requirement for ship owners.

26 Adopted at the United Nations Conference on the Human Environment held in Stockholm in June 1972.

27 Earth Summit, Rio de Janeiro, Brazil June 3-14, 1992

28 Ibid note 16, *Report of the Interdisciplinary Congress on Space Debris*, preface, page 10

Many countries lack access to the technologies required to explore and develop the “commons.” Technologies used to explore the deep sea-bed and outer space are very advanced and sophisticated and the countries that own these technologies restrict its transfer to 3rd. countries. A key reason for the gap between the declared principle of “common heritage of mankind” and its practice consists of technology export controls erected during the Cold War. Under the export control framework, the U.S. and the Soviet Union – joined by their respective political allies, the NATO alliance and the Warsaw Pact – put in place treaties and national policies to prevent the transfer of advanced technologies to non-aligned countries.<sup>29</sup>

In 1989, with the fall of the Berlin Wall, the East-West confrontation abated. Yet the Cold War restrictions on transfer of space technologies remained in place. In consequence, the North-South gap persisted with regard to access to advanced technologies. After the 9/11 attack on the U.S., export controls became stricter, making it even more difficult for developing countries to obtain technologies for access the Commons. In the United States, for instance, the State Department through its Directorate of Defense Trade Controls (DDTC) is in charge of enforcing the International Traffic in Arms Regulations (ITAR) and the Export Control Act. Although the Munitions List is subject to change, as is the list of countries whose access to technologies is limited or restricted, the ITAR system as a whole has kept global aerospace companies from responding to partnerships opportunities in emerging economies.<sup>30</sup> A newly released U.S. national policy calls for government-to-government agreements for sensitive or advanced spacecraft related exports.<sup>31</sup>

Another factor limiting emergence of peaceful economic outer space activities for the benefit of mankind has been a lack of transparency. Key aspects of national space programs have been cloaked to avoid scrutiny and citizen participation.

#### d. Flaws in mechanisms for accessing CHM resources

---

29 *Supra* note 15, at 138.

30 The U.S. Government views the sale, export, and re-transfers of defense articles and defense services as an integral part of safeguarding U.S. national security and furthering U.S. foreign policy objectives. The Directorate of Defense Trade Controls (DDTC), in accordance with 22 U.S.C. 2778-2780 of the Arms Export Control Act (AECA) and the International Traffic in Arms Regulations (ITAR) (22 CFR Parts 120-130), is charged with controlling the export and temporary import of defense articles and defense services covered by the United States Munitions List (USML).

31 *US National Space Policy*, June 28, 2010 (White House Press).

When it became clear that developing countries would lag in technologies or financial resources required to explore the sea-bed, support arose among countries in the United Nations for the notion that exploration of the sea-bed should be managed by a global Seabed Authority. Participating private entities would be taxed, and the profits distributed to all states. Moreover, the Seabed Authority, an inter-governmental body, itself would engage in mining through the establishment of a new entity, called the “Enterprise.” A 1994 agreement on Part XI of the Convention agreed on a modified Seabed Authority. The Enterprise was to begin operations only upon decision from the Seabed Authority and it would be required to conduct its initial mining operations through joint ventures rather than operate independently.<sup>32</sup> This system has been only partially implemented, given a consensus that opportunities for economic mining of the ocean depths remain decades away. Moreover, the United States, with some of the most advanced ocean technology in the world, has not yet ratified the LOSC and is thus not a member of the Authority.<sup>33</sup>

Systems for ensuring global access to space resources are effectively absent. The Moon Treaty in its article 11 declares that the Moon and its natural resources are CHM, undertaking to establish an international regime to govern the exploitation of its natural resources, which to date has not been created. Access to and uses of outer space have been controlled by a handful of spacefaring nations, which seek to advance their own military and economic interests. Another factor limiting emergence of peaceful economic outer space activities for the benefit of mankind has been a lack of transparency, as national space programs are based on national security concerns.

---

32 *Report of the ISBA*, April 14, 2008, Doc ISBA/14/2. In recent years, interest in deep-sea mining, especially with regard to ferromanganese crusts and poly metallic sulphides, has picked up among several firms now operating in waters within the national zones of Papua New Guinea, Fiji and Tonga. Papua New Guinea was the first country in the world to grant commercial exploration licenses for seafloor massive sulfide deposits when it granted the initial license to Nautilus Minerals in 1997. Japan’s new ocean policy emphasizes the need to develop methane hydrate and hydrothermal deposits within Japan’s exclusive economic zone and calls for the commercialization of these resources within the next 10 years. Reporting on these developments in his annual report to the Authority in April 2008, Secretary-General Nandan referred also to the upward trend in demand and prices for cobalt, copper, nickel and manganese, the main metals that would be derived from seabed mining, and he noted that technologies being developed for offshore extraction could be adapted for deep sea mining.

33 E.M. BORGESSE, OCEAN MINING AND THE FUTURE OF WORLD ORDER (1990).

Such shortfalls have detrimental consequences for future generations and humanity. New approaches appear needed to ensure more accountable and transparent international monitoring systems for development of the Commons.

#### **IV. NEW APPROACHES TO IMPROVED GOVERNANCE OF THE COMMONS**

A path towards enhanced governance may exist. The insights of Nobel Laureate Elinor Ostrom regarding management of common pool resources, in combination with recently-developed legal innovations to foster transnational economic development partnerships, may be instrumental in improving the governance system of the Commons.

##### **a. Elinor Ostrom's principles of economic governance**

An influential 1968 article by economist Garret Hardin, "The Tragedy of the Commons," noted that reliance on national governments to use and dispose of the common property of humanity would produce unfortunate consequences. In Hardin's view, "they would manage natural resources to satisfy their electors, without being accountable to future generations." Hardin stated as well that, "freedom in a commons brings ruin to all."<sup>34</sup> Hardin's "tragedy of the commons" theory focused the attention of economists and policymakers on the "commons dilemma," in which people's short-term selfish interests are at odds with long term group interests and the common good. In academia, the article prompted research into common pool resources such as the ozone layer, local fish populations, orbital resources and radio frequency.

A far-reaching alternative approach to handling the commons has been developed by Elinor Ostrom, the recipient of the 2009 Nobel Prize in Economics.<sup>35</sup> In her book, *Governing the Commons: The Evolution of Institutions for Collective Action*,<sup>36</sup> she took issue with the premise that common property governance necessarily leads to a "tragedy." She explored how actual

---

34 Garrett Hardin, *The Tragedy of the Commons* 162 SCIENCE 1243, 1244 (1968).

35 Scientific background on the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel compiled by the Economic Sciences Prize Committee of the Royal Swedish Academy of Sciences, 12 October 2009.

36 OSTROM, ELINOR, *GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION* (1990). She was the recipient of the 2009 Nobel Prize in Economic Sciences of the Royal Swedish Academy of Sciences.

communities have created systems to manage communal resources such as fisheries, and found factors that produce successful resource management. Ostrom found that resource users themselves envisage rules and enforcement mechanisms that enable them to sustain tolerable outcomes. She pointed out that government imposed restrictions are often counterproductive, because central authorities lack knowledge about local conditions and have insufficient legitimacy. Moreover, the expectation of governmental imposed restrictions can discourage users from organizing themselves to manage resources.

Ostrom's research found that the motivation to conserve common resources increased when people identified with a user group. In such relationships, individuals tended to abide by agreed restraints in using the common resource. Thus, conditions that foster a “user group” identity may promote long-term management of these resources and increase social inter-dependencies. In fisheries, for example, each individual prefers to maximize their profits by fishing without limits. As a member of a user group, however, individuals recognize the need to avoid over fishing, so that there will be enough fish next year.

In her research findings, Ostrom identified eight design principles associated with the success of user groups in sustainably managing CPRs and gaining compliance over generations to the rules in use.<sup>37</sup> She outlined a “design” process through which transparent, accountable systems of rules can emerge from communities that organize nonprofit systems to manage CPR areas.

Can economic governance as envisaged by Ostrom be applied to “res communis” areas? Is it possible to apply her principles to resources from the high-seas, sea-bed and even outer space, in a way consistent with existing treaties regarding governance of CHM resources? Below is a summary of her principles for “Common Pool Resources” (CPR) management that may provide a foundation for tentative conclusions.

1. *Clearly defined boundaries*

Ostrom notes that boundaries of the CPR as well as the eligibility criteria for individuals

---

37 Ostrom, *supra* note 28, at 90.

to use the resources must be defined. Otherwise, the user group faces the risk that “any benefits they produce by their efforts will be reaped by others who have not contributed to these efforts”.<sup>38</sup> Applied to the “Res Communis” this principle of economic governance presents a challenge. Any principle of CPR management that results in enclosing parts of the domain to “outsiders” is necessarily at odds with the basic precept of CHM areas being open to use by all.

2. *Sensitivity of rules governing the use of the CPR to local needs and conditions of the users.*

Successful CPR associations, Ostrom found, set rules regarding member inputs of labor, material and/or money based on their assessments of local conditions. Thus, members leave if they cannot respect the rules and the decisions on technology and financial resources required to undertake the project.

3. *Collective-choice arrangements*

Ostrom found that effective CPR associations provided internal means for individuals affected by operational rules to participate in modifying such rules, in case where modifications are required.

4. *Monitoring*

Ostrom found that successful CPR groups also created neutral means of monitoring member compliance with the association rules. Thus, association of users of CPR should appoint external monitors to actively audit CPR operational conditions and member behavior and accountability. Such monitoring would help to bring transparency to activities taking place in the “res communis”, perhaps by means of monitors appointed by the United Nations, or the International Maritime Organization.

---

38 Ostrom, *supra* note 28, at 91.

5. *Graduated sanctions*

Ostrom's research discovered that user group members who violate operational rules are likely to be assessed graduated sanctions, depending on the context and seriousness of the offense, by other appropriators, by the officials accountable to these appropriators, or by both.

6. *Conflict resolution mechanisms*

Ostrom further found that successful CPR user associations created systems for rapid low-cost resolution of conflicts among members, or between members and the officials in their associations.

7. *Minimal recognition of rights to organize*

Another finding of Ostrom's research is that the right of resource users to devise their own institutions should not be challenged by external governmental authorities. As Ostrom points out, “if external governmental officials presume that only they have the authority to set rules, then it will be very difficult for local CPR users to sustain a rule-governed CPR over the long run”.<sup>39</sup>

8. *“Nested enterprises” that connect CPR groups to larger systems*

Ostrom found that the functions of appropriation, provision, monitoring, enforcement, conflict resolution and governance activities are best organized in multiple layers, as CPR groups multiply. Over time, networks of “nested enterprises” emerge, in which local associations delegate to trusted solution providers the responsibilities for agreed services.<sup>40</sup> Applying this principle to the “commons”, it is likely that networks of CPR area associations will grow as specializations and trust relationships emerge. As Ostrom

---

39 OSTROM, *supra* note 28, at 101.

40 OSTROM, *supra* note 28, at 214-15.

notes in her research into CPR groups' success hinges on whether the user communities opt to supply their own institutions – or whether they instead look to external authorities to solve their problems. Once responsibility is ceded to states for solving CPR problems, users who do not have local institutions in place will tend to “wait for the government to handle their problems.”<sup>41</sup>

Ostrom's principles appear relevant to economic development of “common pool” resources in a range of natural resource domains, and applicable to ventures at a local, regional, and global scale. One private sector initiative in the high seas may soon provide a new kind of global test case. The Seasteading Institute, a non-profit organization based in San Francisco, USA, is researching ways to empower individuals and nongovernmental organizations to build seasteading communities as floating cities in the high-seas. Boundaries for each community in the high-seas will require definition, including rights of residents to fish in and extract other natural resources from the surrounding ocean. Although the first seasteading pioneers will be entrepreneurs on ships outside the national territorial waters, there is a prospect that they will seek to become sovereign political entities. These entities in some cases may seek to establish measures for inclusion and participation of individuals from different parts of the planet, as a means of strengthening their global support as well as creating precedents to benefit humanity as a whole. Ostrom's principles can provide a practical basis for individual seasteading communities, as well as a possible future association of such communities, to operate on a sustainable basis in the high-seas.

Yet Ostrom's principles may require a new kind of international legal vehicle through which to operate, to be effective in the management of common pool resources located beyond the recognized jurisdiction of nation states.

**b. “NonDominion” – a legal innovation for developing and sharing resources**

A new legal framework – *Nondominium* – offers an approach for sharing revenues from resource

---

41 OSTROM, *supra* note 28, at 213.

development in arenas beyond the effective actual (or de jure) control of national jurisdictions.

Building upon ideas advanced by Chris Cook, a fellow of the Institute for Security and Resilience Studies at the University College of London, the new framework focuses on veto rights – rather than recognized ownership claims – to ensure development of common pool resources (or resources with conflicting national ownership) on a basis of mutual benefit. The nondominium approach may have special applicability as a framework for developing space and ocean sea-bed resources to benefit humanity in the near and far future.

Under a nondominium framework for economic development of CHM resources, each country interested in receiving benefits could appoint a representative to an association of beneficiaries. A trustee (custodian) for the CHM would be elected by the representatives to oversee the legal operation of a collective entity. The representatives would also appoint a Manager, for a parallel partnership venture, to identify opportunities to develop the common pool resource in accord with a transparent revenue-sharing formula. Each representative would have power to exercise a veto with regard to the resource development proposal(s) circulated by the manager.

Once an agreed formula (non-vetoed by the countries) emerged for recognizing needed inputs, and for overall revenue-sharing, the manager of the nondominium partnership would arrange open tenders to seek economic partners to maximize the value of the common pool resources. These tenders would be neutral with regard to the nationality or domicile of service providers and investment partners. Revenues from ensuing activities would be distributed to the association members on the originally-agreed basis. Oversight of compliance would rest with the nondominium's trustee, who could apply Ostrom's key principles of successful collective choice agreements and monitoring by independent auditors.

The nondominium framework, in these ways, would conform with the requirements of international law that no country or combination of countries has the power of dominant control over relevant common pool resources.<sup>42</sup> It seems particularly suited for easing disputes in highly

---

<sup>42</sup> C. Cook, [Nondominium: establishing consensus and collaboration for the Caspian nations](#), The Institute for Security and Resilience, Resiliblog Editor, on October 4, 2011.

polarized or contentious settings.

Since the breakup of the Soviet Union, for example, conflicting claims have arisen among what are now five Caspian-littoral nations (including Azerbaijan, Kazakhstan and Turkmenistan). The Nondominium framework as originally advanced by Cook envisions that the littoral Caspian nations “should form a Caspian Foundation legal entity, and commit to that entity all existing rights in respect of the use, and the fruits of use (usufruct) of the Caspian Sea, and everything on it, in it or under it. The Caspian Foundation would act as custodian or steward and the Caspian nations would have agreed governance rights of veto.”

As Cook has noted, “the proposed negative or passive veto right of stewardship differs fundamentally from conventional property rights of absolute ownership and temporary use under Condominium. Moreover, it does not confer the active power of control held under common law by a Trustee on behalf of beneficiaries, and the legal complexities and management conflicts which accompany that status.”

In parallel with the Foundation’s custodial role, a Caspian Partnership framework agreement would be established by the member countries to maximize the value of developing the resources. It would “simply be an associative framework agreement within which Caspian nations self-organize to the common purpose of the sustainable development of the Caspian Sea,” Cook’s has stated. “The Caspian Partnership agreement would comprise a master framework agreement within which a myriad of associative agreements between the Caspian littoral nations individually or severally would be registered.”

A similar transnational opportunity for application of the nondominium framework exists in the Sudan, with regard to disputed oil reserves between the original country of Sudan and the new breakaway nation of South Sudan. There, a nondominium framework would sidestep the question of ownership of disputed oil resources, in favor of a balanced (i.e. non-vetoed by either side) revenue-sharing system within which private sector investors and partners could then operate.

This legal innovation for development of common pool resources could encourage Ostrom's user association-based systems of economic governance to more rapidly advance in outer space, the oceans, and other Common Heritage of Mankind (CHM) areas.

## **V. Conclusions**

Areas recognized as being the heritage of mankind are defined by treaties as falling outside of nation-state jurisdiction and ownership, and are to be instead developed on a basis that benefits all human beings. Their CHM status reflects a shared aim of holding the resources in trust for future generations, and a corresponding desire to prevent monopolization by individual nation states or corporations.

A balanced approach to developing CHM areas appears needed. As private interest grows in developing outer space resources, and in creating "seasteading" communities on the high seas, the combination of Elinor Ostrom's economic governance strategies with nondominium legal structures can lead to a new basis for common pool resources to be developed on a basis benefiting all of humanity.

Among the open issues to resolve are the following:

- Will countries with an interest in economic development of CHM resources explore user associations and nondominium-inspired legal structures to encourage private sector partnerships for humanities frontiers, on a success-sharing basis?
- Will they be able to find an equitable (non-vetoed) formula for sharing of revenues from economic governance of CHM resources?
- Can some of the revenue-sharing and technology-sharing provisions adopted by the Seabed Authority be a basis for emergent nondominium frameworks?
- Should global NGOs take a lead in organizing nondominium partnerships for the CHM areas, instead of nation states, given that CHM areas are defined as outside state control and jurisdiction?
- How can transparent, internationally-respected systems be established to ensure that the

rights of future generation and Humanity be protected?<sup>43</sup>

Advances in communications and information technologies are bringing new grassroots participants to international decisionmaking, in contrast to patterns established in past centuries. NGOs and civil society are claiming a more active role in international issues. The New Humanitarian International Order recognizes NGO's as subjects of the Public International order, even if they do not have legal personality.<sup>44</sup>

As the Internet and communication technologies spread, and the participation of civil society and NGOs in international matters expands, opportunities are emerging to combine Ostrom's principles with nondominion legal agreements to ensure a more transparent equitable use of common pool resources. Together, they offer new promise for realizing the 5 "As" (Architecture, Adaptiveness, Accountability, Allocation and Access) needed for effective governance of the Commons for the benefit of humanity.

---

<sup>43</sup> "The advances of the international protection of human rights depend nowadays to a large extent, on national measures of implementation"  
Speech by Antonio Augusto Cancado Trindade on the 60th anniversary of the Universal Declaration of Human Rights, United Nations, 2008

<sup>44</sup> U.N. Resolution 96/31 reaffirms the consultative status of NGOs.