# SHARING THE HARVEST OF THE SKIES: OUTER SPACE COMMERCIALIZATION AND THIRD WORLD DEVELOPMENT

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This paper will investigate the new ethical challenges to international law and policy-making that the commercialization of outer space activities present to the nations of the world. More specifically, this paper will be examining (1) some of the benefits and problems that space commercialization is creating for both national and international political and economic institutions, (2) the growing controversy between First and Third World nations concerning the regulation of space activities and the allocation of space resources, and (3) whether current principles, policies and procedures of international space law are adequate to meet the new challenges that space commercialization presents.

Little attention has been paid, from an ethical perspective, to the possible influence that the commercialization of space will have on U.S. foreign and economic relations with other nations, particularly in light of the developing nations' movements toward a new international economic order and their affirmation of the "Common Heritage of Mankind" principle in relation to space resources. In addition, when discussion is focused on the ethical issues involved in this debate, it is largely as a by-product of the legal arguments between the two schools of thought that dominate this body of literature: the natural law school championed by Andrew Haley and the positivist school led by Myres McDougal.

The conflicting methodologies of these two schools characterize the debate between First and Third World countries as to whether there is a need to establish the rights and responsibilities of nations and private entities for space commercialization before extensive development of outer space resources has taken place. Within this literature, the debate is focused on the legal status and policy implications concerning the stipulations of the Moon Treaty as they relate to: (1) the geosynchronous orbit; (2) the legal status and commercialization of remote sensing data and mining rights on celestial bodies; and (3) the structure

and function of the international outer space resources regulatory regime mandated by the United nations Moon Treaty.

In both the primary and secondary literature concerning space commercialization, there is discussion of the importance of telecommunications for the global economy via international monetary and data flow systems, as well as the virtually invisible, societal dependence these new satellite systems are creating as they take over one vital service after another. It is this growing dependence on new space technologies that is particularly alarming for Third World countries whose economies have neither the capital nor the industrial infrastructure to support their own satellite systems. This leaves Third World countries vulnerable to First World economic and political power, and raises questions about the developing countries' ability to maintain any semblance of political and economic sovereignty or cultural integrity. As Jürgen Häusler and Georg Simonis point out, Third World countries' failure to adjust to new space technologies will continue the cycle of underdevelopment and political and economic subservience (Häusler and Simonis 1985). Considering these problems further, Marvin Soroos notes that the growing legal, political and economic challenges generated for the global community by new space technologies cannot be solved by the usual policy approaches based purely on technical or engineering models of economics (Soroos 1987, 111).

Yet, in all the above studies mentioned, if ethics is considered at all, it is only as a cursory by-product of the discussion and does not play an active role in the solution. None of these works have analyzed the above problems with an ethical perspective as the primary lens for critical interpretation and adjudication. But much of the debate between First and Third World nations is rooted in different cultural understandings of morality, making the application of ethical methodology and moral understandings of participation and the common good absolutely essential to finding viable solutions to this international debate. In particular, the use of ethics to broaden understandings of the common good and the need for participation by all nations will contribute to a more integrated perspective on outer space as a human domain where cooperation and appropriate resource development can be interconnected and intimately related to parallel developments here on earth.

When discussing the legal problems of space commercialization, First

World nations agree with the stipulations of the 1967 Outer Space Treaty that the moon and other celestial bodies cannot be expropriated exclusively by any one nation. However, space and its resources should, in accordance with free market forces, be open to all nations who wish to develop those resources. Developed countries, such as the U.S., therefore, have pushed for an interpretation of both the Outer Space and Moon Treaties that would allow a proposed international authority to grant, on a non-discriminatory basis, "qualified" nations and private entities the right to "exploit" and maintain ownership control of those space resources they are capable of developing. These nations argue that any other interpretation of an international space agency's regulatory authority would be a disincentive to space exploration and development, making the exploitation of space resources and subsequent technological innovations unprofitable for commercial investment (Dula 1979, 16-17). Their arguments on the legal status of space would resemble those of the "Positivist School" of space law which advocates that the current laws of air or sea cannot be translated to an area of exploration that is still virtually unknown. Consequently, space law must evolve gradually as the facts and needs dictate. The legal status of space most congruent with their arguments would be that of res nullius, i.e., space that belonged to no one (McDougall 1985).

Addressing the issue of allocating space resources, Third World nations have presented to the U.N. General Assembly the "Common Heritage of Mankind" principle, affirming that the natural resources of space are held in common by all nations and should be distributed equitably for the benefit of all humankind, as also stated in the "Common Benefit" principle of the 1967 Outer Space Treaty. Following these principles, Third World nations question whether the allocation of benefits and wealth from a commonly held resource such as space should be determined solely on the basis of a nation's technological capability to exploit that resource. They call not only for an international regulatory structure that would "rationally manage" and "equitably share" the benefits of space resources, but also for the international sharing of appropriate technologies related to their development (United Nations 1979). Their arguments resemble most closely the "Natural Law School" of space law, which argues that law is based on the fundamental principles of morality found in the human community and derived from understandings of the nature of humankind. It is, therefore, important to plan for the future uses of space and its resources in order to insure not only an equitable distribution but also to prevent conflicts among

nations as have occurred during earlier eras of exploration. This group would argue for one of three possibilities for the legal status of space: (1) res communis omnium, that is, space as a common heritage for humankind to be regulated and garnered by all nations; (2) res extra commercium, that is, space as a common heritage governed by an international organization such as the United Nations; or (3) res communis humanitatis, that is, space as a common heritage that is not owned by any nation but from which all nations may garner benefits (McDougall 1985, 7 and Cocca 1973, 174).

Why are the issues of the legal status of space, its resources, and space technology transfers so important? For developed countries such as the U.S., the need to maintain technological leadership is inseparable from national security, making the sharing of technology an untenable demand. They see the commercialization of space as (1) forming the creative frontier of technological research and development; (2) developing those "economies of scale" essential to a country's economic growth on the global level; (3) enhancing industrial and educational capabilities, thus advancing a country's standing on the "learning curve" internationally; (4) enabling nations to acquire "hard currency" on the global market; and (5) promoting national pride and international prestige (Reynolds and Merges 1989, 230).

Third World countries also see the economic importance of space industries. They therefore argue for the implementation of the common heritage principle and an international regulatory agency to (1) enable developing countries to reach economic and political parity with the developed countries, and (2) help establish a new, more stable, international economic order based on cooperation for the mutual benefit of all nations (Reynolds and Merges, 96).

In the area of telecommunications, Third World nations see space technologies as enabling them to create clusters of smaller labor-intensive projects with satellite communications, enhancing the coordination of these projects and thereby improving their efficiency, particularly when these projects are located in isolated rural areas. Satellite telecommunications would also enable Third World nations to increase their domestic communications for the delivery of services such as health care and education to rural areas thus increasing skill formation within the country. In addition, satellite communications would help bridge the gap in service and trade between the domestic and international economy. Finally,

Third World nations need stable industrial infrastructures and the capacity to generate hard currency to service their foreign debt, and, therefore, recognize the potential for large hard currency profits in satellite communications and space technology production.

Two problems created by the ever-expanding use of satellite telecommunications are Transnational Data Flows and the even newer use of Direct Broadcast Satellites, that have the ability to by-pass a nation's ground stations. For Third World nations these innovations in information and communication services raise questions concerning the issues of sovereignty and privacy in relation to freedom of information (i.e., exactly what kinds of information are flowing in and out of the country, to whom, and for what purpose). Also, the fact that a nation's ground stations can be by-passed raises questions for Third World nations as to how to maintain their cultural integrity. A good example of the problems generated by these innovations in telecommunication, can be seen in the controversy between the United States and Cuba concerning the broadcasts of "TV Marti." TV Marti, operated by the U.S. government, broadcasts programs into Cuba against Cuba's wishes, and on the same frequency as one of Cuba's own TV stations. The U.S. government justifies these broadcasts under the freedom of information clauses stipulated in various U.N. declarations, while Cuba opposes these broadcasts as a violation of their national sovereignty (Villalobos 1994, 6-14).

Finally, these new communication technologies raise important questions concerning the powerful centralizing and decentralizing effects that transnational data flows give to multinational corporations in information, employment, natural resources, and intellectual property. These rapid information services allow multinational corporations to control vast amounts of information from a centralized point, while, at the same time, these services allow them to decentralize or disseminate employment (or unemployment) to any nation they choose. A good example would be the new telecommunications system in Haiti that allows U.S. corporations to digitally send their secretarial work to Haitian typists, and back again, for substantially less than it would cost those U.S. companies to employ secretaries on-site.

A number of rights claims are in conflict with one another in this debate between First and Third World nations concerning the allocation of space

resources. If we are going to find some resolution to the international conflicts surrounding commercial space activities and the equitable distribution of outer space resources, we must look more closely at the conflicting rights claims and ethical perspectives employed by First and Third World countries in the debate.

These conflicting claims have their origins in the differing cultural values of First and Third World nations and can be briefly described as follows: (1) Third World demands for equitable sharing and access to a common resource versus First World arguments for efficient usage that may restrict access to the most qualified developers—but which will eventually bring greater benefits to everyone; (2) First World support of private property rights versus Third World needs-based arguments for the equitable sharing of goods and services to meet the social needs of their populations; (3) Third World demands for sovereignty and privacy rights in relation to the access and transmission of important business information and resources data versus First World rights claims for freedom of information; and (4) First World concerns for national security in relation to space technology transfers and their misuse versus Third World desires for greater autonomy, both technically and economically, with the participation rights such autonomy engenders in the global community.

These cultural and moral differences between First and Third World nations revolve around (1) different priorities for various needs, such as the physical needs of Third World nations for basic teleservices for communication, education, and health purposes, versus the ever expanding instrumental needs of First World economies for faster, more efficient services; (2) different understandings of fairness and equity in the distribution of property and entitlement benefits, such as the desire of Third World nations to meet the basic minimal standards of living for their populations by gaining an equitable or equal access to a "commonly held resource," versus a First World understanding of legal acquisition and transfer as the fairest form of property and entitlement distribution; and (3) different understandings of appropriate market systems and of government regulation and involvement in those systems, such as in Third World nations where the government should be involved to "rationally manage and equitably distribute" those resources available in the economy, versus that of First World nations where free-market forces and government non-interference are considered to be the most efficient method for proper resource management and development.

What the above conflicting rights claims and controversies demonstrate is that the international legal system governing outer space, as it now stands, is not adequate for the new ethical and economic dilemmas that space commercialization presents. It is apparent that current regulatory agencies that use efficiency adjudicatory models based on utility can no longer make an accurate assessment of the conflicts occurring between First and Third World nations when the basis for these conflicts is to be found in the ethical and moral priorities of the various countries themselves. A model based solely on efficiency or utility, then, is no longer tenable given that it does not have the evaluative measures needed to appraise ethical conflicts generated by differing values and the needs those values prioritize within the various nations involved in the controversies concerning space commercialization. Consequently, there is a great need for innovative, consensus-based approaches to the development of outer space law and policy that combine ethical values and new understandings of both global interdependence and the common good, with the efficiency models already in use.

In addressing the above conflicts between First and Third World nations, elements of contemporary Roman Catholic human rights theory would be particularly useful in that (1) it has its roots in the same natural law tradition that is used to formulate international law, and that furnish "the theoretical elaboration and underpinning for the political and social judgements of a large international community" (Boyle 1992, 115); (2) it recognizes the importance of participation and access to economic and political institutions if justice is to be achieved and maintained, a claim made by both First and Third World nations in this debate, albeit defined quite differently; (3) it takes seriously the notion of solidarity, co-responsibility and global interdependence, particularly as these influence human social relations and the minimal condition of human dignity within the community (Unites States Catholic Conference Administrative Board 1989, 310, par. 29): and (4) its tripartite understanding of commutative, distributive, and social justice provides a method for adjudicating various rights claims in relation to the common good, important for creating and maintaining international cooperation.

Roman Catholic human rights theory begins its arguments for justice by expanding the understanding of moral membership and interdependence within the human community, holding that all peoples and nations are members of a global community with interdependent political and economic structures and thus all

nations have duties or obligations to one another. This position is an enlarged understanding of agency-relative or relational-obligation. Therefore, because all nations are members of a global community, basic justice requires that all peoples be entitled to participate in the decision-making process of an "increasingly interdependent global economy," and those decisions in turn, … must be judged in light of what they do for the poor, what they do to the poor, and what they enable the poor to do for themselves. The fundamental moral criterion for all economic decisions, policies, and institutions is this. They must be at the service of all people, especially the poor [italics in original] (National Conference of Catholic Bishops 1986, 12).

This means not only that we must take the "transcendental worth of persons" into consideration when investigating the moral nature of global interdependence, but the socio-historical context within society must be examined in order to determine the concrete conditions necessary for human dignity. Both must be examined in order to determine the concrete conditions necessary for human dignity (Hollenbach 1979, 69-70). Hence, the standards by which human dignity and freedom are measured do not arise from some theoretical abstract, but rather are based on human "physical and biological needs realized in social interaction…and structured by the historically changing pattern of…national and international institutions" (Hollenbach, 94). Consequently, human rights are those minimal conditions necessary for creating and preserving human dignity.

Thus, Roman Catholic human rights theory stresses that, in an interdependent world, the first priority of all nations and peoples must be to insure that everyone has "a decent standard of life…before others reap large profits" from society's economic structures (United States Catholic Conference Administrative Board 1989, 308, par.14). Human dignity in an interdependent society, therefore, requires that all social institutions strive toward respecting and meeting those minimal conditions necessary for achieving fundamental personal, political, and economic rights for all people (United States Catholic Conference Administrative Board 1989, 42, par. 80. See also Pope John Paul II, Sollicitudo Rei Socialis 416, 33.4).

Given that the emphasis in Catholic human rights theory focuses on "the dignity of the human person, the unity of the human family," and "the need to pursue the international common good" (National Conference of Catholic Bishops

1986, 121, par. 251) in an interdependent society, the question remains as to how this interdependent society should be shaped to meet the demands of human dignity and human rights. What moral criteria or guidelines are needed to aid in the evaluation of the political and economic institutions that organize the policies and decisions that influence the well-being of peoples and nations throughout the world? Also, how should these economic and political institutions balance the competing rights claims between various groups and individuals within the community? This question is particularly important since societal structures are the "means by which power is distributed and...are highly significant in determining which claims will in fact be supported and which will not" (Hollenbach, 156).

The above questions are answered within Roman Catholic human rights theory by balancing community interactions using the principles of tripartite justice and subsidiarity to form the basis for personal, social and instrumental rights within society. It is from this complex and mutually reinforcing framework of principles, justice norms, and rights that "strategic moral priorities" can be identified. These moral priorities, in turn, provide guidance for the institutionalization of a human rights policy that will promote human dignity within society for all its members.

Therefore, in order to develop such a comprehensive human rights policy within society, the following strategic moral priorities must be taken seriously.

1.The needs of the poor taken priority over the wants of the rich.

2.The freedom of the dominated takes priority over the liberty of the powerful.

3.The participation of marginalized groups takes priority over the preservation of an order which excludes them (Hollenbach, 204).

However, it is important to note here that these priorities are merely "ethical standards" by which policies should be guided and do not provide the specific information necessary (such as historical and cultural context, or social, political and economic demographics, etc.,) to be considered discrete policies for social action in and of themselves (Hollenbach, 204-5).

Therefore, if we are going to take the claims of Catholic human rights theory seriously and hope to apply them justly, it is important to elaborate further on the meaning and characteristics of participation. In addition, we need to articulate a method for identifying the appropriate information for translating ethical priorities and standards into viable policies. Amartya Sen, a political economist whose ethical works focus on the problems of development in the Third World, becomes useful here. Sen's ethical analysis of participation and its relevant characteristics is particularly illuminating for our debate because it promotes the importance of the capability for participation, i.e., the ability or advantage that individuals (or groups) possess for allocating primary goods to the achievement of justice in the distribution of economic resources or political rights. Sen favors the priority of capability or "primary powers" over the Rawlsian priority that takes note of the "most deprived group…in terms of the availability of 'primary goods,'" because the latter does not take into account the variability of people's capabilities. With a priority of capabilities, however, "…a person whose primary powers (or basic abilities) are less for the same level of income is entitled to get more income" (Sen 1984, 281-82). Sen points out that the failure of "traditional development economics" is the result of its focus on GNP and aggregate income as available primary goods to the neglect of the variability of needs in relation to distributed incomes or entitlements, i.e., the capacity or primary powers those entitlements or incomes give to people (Sen 1984, 496-97).

The use of Catholic human rights theory for resolving policy problems such as the allocation of space resources presents an additional problem as it uses ethical categories that are quite distinct from those employed in economic theory and policy formation. These latter rely heavily on an engineering or logistics approach characterized by a concern with finding the appropriate means to serve a given utilitarian or efficiency related end. Again, Sen's analysis is useful. While not a utilitarian, he takes utility seriously as the theoretical basis for most current economic policy. Sen also recognizes the important contributions of the engineering approach to problems of economic development, but he insists on balancing that approach with an ethic-related view of human agency and social achievement that forces means oriented policy development beyond the ends of efficiency or utility to a broader view of what the good is for society (Sen 1987a, 4-7).

Sen points out that within an engineering approach utility or efficiency is

seen as the sole value for evaluating states of affairs and, as a result, limits the types of information it recognizes and characterizes (Sen 1985, 186). According to Sen, such a limitation in the use of information sources, particularly in the area of community values, means that this engineering approach reduces the diverse goods of society and individuals "into a homogeneous descriptive magnitude (as utility is suppose to be) and then the ethical evaluation simply takes the form of a monotonic transformation of that magnitude" (Sen 1987a, 61). The problem with utility, then, is that it oversimplifies human values and motivations to that of self-interest represented in a single numerical value (Sen 1985, 175).

In order to correct this informational deficiency, Sen puts forth his "functioning approach," in which the notion of enhancing people's basic capabilities is seen as the primary goal to be achieved. For Sen, it is arguable that what is missing in all [these evaluative frameworks] is some notion of "basic capabilities": a person being able to do certain basic things…the ability to meet one's nutritional requirements, the wherewithal to be clothed and sheltered, the power to participate in the social life of the community. The notion of urgency related to this is not fully captured by either utility or primary goods, or any combination of the two (Sen 1987b, 160).

The functioning approach that Sen proposes is inherently "information-pluralistic" and requires taking account of the various different aspects of well-being, as well as the plurality of human motivations related to social achievement. In this approach, a "functioning vector" is a set of functions a person actually achieves, and capability is "defined as the set of functioning vectors" within the person's "reach" (or a comparison of actual opportunities available to different people and groups) (Sen 1985, 201). In addition, the main aspect of well-being in this approach is seen as "the ability to achieve valuable functionings" (Sen 1985, 200) (which also can be translated into understandings of national well-being). Therefore, the information pluralism offered by Sen's approach is a more plausible view of well-being than utility, since functioning vectors refined by capability recognizes the variations that exist between groups and contexts and permits at least a partial ranking of states of affairs.

Sen's capability approach also can be used to enhance and make more explicit the Bishops' definition of participation. The Bishops describe "basic justice [as demanding] the establishment of minimum levels of participation in the

life of the human community for all persons" (National Conference of Catholic Bishops 82, #24). This focus by the Bishops on the minimum, while at the same time not defining what that minimum participation level might be, can detract from what really needs to be accomplished to improve both participation and the standard of living in a country, particularly for the most vulnerable members of the community. It also lets policymakers off at just achieving the minimum, without allowing people to gain the capability they actually may need to improve their well-being.

Sen, however, sees the capabilities and functionings of people as the primary goods and the actual ends that policy should attempt to enhance. For Sen, the focus and emphasis of economic development policies should be on the bringing about of capabilities, or the enabling of the individuals to take advantage of those essential items available in society without necessarily referring to minimums at all. In this case, capability becomes absolute, instead of a relative measure of the enhancement of participation and the quality of life in the society at large (Dreze and Sen 1989, 269-70).

In relation to economic development policies, this shift to the functioning approach has several important implications. First, this approach provides a clearer direction for the types of policies necessary to improve the standard of living for large sectors of a country's population (Dreze and Sen, 187-88). Second, examinations of the functioning approach in action have shown that while the fostering of economic growth, in the form of GNP—one prominent aspect of economic development for a nation—true improvements in the standard of living require the comprehensive use of public support and provisioning (through government planning and policies) to enhance the basic capabilities of all its citizens (Dreze and Sen, 268).

Moreover, the functioning approach significantly changes not only the goals to be strived for, but also the means used for economic development policy. For example, if the public policy goal is to provide for basic needs and minimal living conditions, the focus will be oriented toward goods and services as a type of charity, and, therefore, limitations on participation might be imposed. If, however, the policy goal is to improve the capabilities of people (understood as opportunities to entitlements), then policies will be aimed differently and geared for greater participation.

Consequently, using Sen's capability or functioning approach in the case of allocating outer space resources and technologies, the policy goal would be to expand the capabilities of nations to (1) function adequately in an interdependent global economy, (2) create an appropriate standard of living for the population at large, and (3) participate in international affairs without shame. As a result, this approach takes more accurate note of the fact that a capability failure in space technologies and skills means falling behind absolutely in the global economy (Sen 1984, 338 and Sen 1987c, 25).

Finally, Sen's functioning approach may be employed within international regulatory institutions to ascertain the appropriate informational criteria needed for developing public policies, in our case, allocating and distributing outer space resources. In using such criteria, these organizations would need to look at the "capability variables," between the disputing nations involved in relation to the available primary goods (such as the slots in the geosynchronous orbit, or resulting profits from future space mining). Then, a determination would have to be made concerning which capabilities should be considered to have priority in the evaluation process. These important capabilities could be economic and financial, technical, personnel-related, or infrastructure-related. These economic measures, then, would need to be related to other quality of life indicators, such as a national populations' access to education, health care, employment, and nutrition, etc. Finally, the value of the proposed space development projects should be prioritized based on their affects on the above standard of living statistics.

Therefore, in light of both the moral norms found in Catholic human rights theory, and the notions of capability, participation and the standard of living found in Sen's ethical framework, an international space regime would need to (1) design membership and committee procedures that insure the equitable participation of all nations needing or desiring space technologies for peaceful uses; (2) enable communication between concerned nations, intergovernmental organizations, and private entities; (3) encourage international cooperation and joint ventures in the development of space technologies and programs; (4) implement a broad range of policies and programs aimed at promoting the capability of all nations in the research and development of space technology to ensure equitable participation, global economic stability, and a decent standard of living for all people; and (5) develop a fair and feasible mechanism for the allocation and distribution of outer space resources and technologies, including an

international code of ethics for the transfer of technologies by multinational corporations to Third World nations.

Accordingly, membership and participation in these international legal regimes should not be based on the type of weighted vote related to capital investment, as suggested by First World policymakers, but rather on the formula found in the common heritage principle, where a nation's percentage of contribution to space activities and the needs that developing countries have related to building capacities in space technologies are both taken into consideration. I believe such a dual formula for measuring participation would help balance two of the most significant points of contention existing between First and Third World nations (i.e., that of concern for capital investments versus concern over economic underdevelopment). The rights and duties of membership within this organization also should be jointly developed and clearly stated in order to establish and make concrete the obligations that exist between governments and private entities concerning the commercial development of outer space resources.

Finally, I believe these international regulatory institutions would require the power and authority to implement programs that would (1) develop a code of ethics for the transfer of technology and intellectual property to Third World nations; (2) encourage partnerships between Third World nations and multinational corporations on program development around independent satellite use and remote sensing; (3) promote incentives for multinational corporations to develop appropriate technologies (perhaps using the money collected from the rent/tax on space activities); and (4) provide funding for space development projects that guaranteed improvement in the living standards and basic capabilities of people in underdeveloped nations. Such programs would help insure the stable and equitable development of the global economy into outer space.

In short, utilizing selected elements of Sen's ethical work enables Roman Catholic human rights theory to be extended into a realm it might otherwise not reach, thus advancing the development of space policy in a way that is both technically credible and ethically sound. Sen, therefore, provides a bridge between the political, legal, and economic arguments advance by policy-makers concerned with the allocation of space resources and the ethical and distributive justice arguments of Roman Catholic human rights theorists. Since much of this

debate is rooted in the different cultural understandings of morality among the nations involved, an application of ethical methodology and of the moral understandings of participation and the common good is absolutely essential to the development of equitable international policies for the regulation of space. In particular, the use of ethics to broaden understandings of the common good and the need for participation by all nations will contribute to a more integrated perspective on outer space as a human domain where cooperation and appropriate resource development can be interconnected and intimately related to parallel developments on earth.

The results of these current legal and ethical debates will be crucial to the future definitions of outer space law and policy and will have a direct effect on the conduct of nations and private corporations in the use and allocation of resources beyond the confines of this planet. Without changes in current legal and policy structures the possibility of growing instability between nations could inhibit the future peaceful development of space and space resources by both government and private enterprise.

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