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Committee on the Peaceful

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Item 5 of the provisional agenda*

Information on the activities of international organizations relating to space law

Report of the Group of Experts on the Ethics of Outer Space

Note by the Secretariat

1. At its forty-fourth session, held from 6 to 15 June 2001, the Committee on the Peaceful Uses of Outer Space agreed to invite interested member States to designate experts to identify which aspects of the report of the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) of the United Nations Educational, Scientific and Cultural Organization might need to be studied by the Committee and to draft a report in consultation with other international organizations and in close liaison with COMEST.¹ That would be done with a view to a presentation to the Legal Subcommittee at its forty-second session, in 2003, under the agenda item entitled "Information on the activities of international organizations relating to space law".
2. The annex to the present document contains the report of the Group of Experts on the Ethics of Outer Space to the Legal Subcommittee.

* A/AC.105/C.2/L.237.

¹ *Official Records of the General Assembly, Fifty-sixth Session, Supplement No. 20 and corrigendum (A/56/20 and Corr.1)*, para. 225.



Annex

I. Introduction

1. The World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) of the United Nations Educational, Scientific and Cultural Organization (UNESCO) was established in early 1998 following a decision of the General Conference of UNESCO at its twenty-ninth session, held in October-November 1997. The Commission is composed of 18 people of international standing, appointed by the Director-General of UNESCO, and, as at 1 January 2002, is chaired by Jens Erik Fenstad (Norway).

2. In December 1998, following a proposal from the European Space Agency (ESA), COMEST formed a special Working Group on the Ethics of Outer Space and Alain Pompidou (France) was designated its Coordinator and Special Rapporteur. In April 2000, COMEST, in collaboration with ESA, issued a report entitled "The Ethics of Space Policy".

3. At its fortieth session, in 2001, the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space heard a presentation on the report, given by the representatives of UNESCO, Jens Erik Fenstad (Norway) and Juan Manuel de Faramiñán-Gilbert (Spain) (A/AC.105/763 and Corr.1).

4. Following that presentation and on the basis of a document submitted by Greece and co-sponsored by Mexico, Nigeria and Spain, it was agreed that the discussion on the above matter should be continued at the forty-fourth session of the Committee, held in June 2001. In its report on the work of its forty-first session (A/AC.105/787, para. 46), the Legal Subcommittee noted that the view had been expressed that there were numerous issues of ethics and space policy that required consideration, such as the risk of pollution, the exploration of deep space and the increasing commercialization of space activities. The Legal Subcommittee was informed that the representative of Belgium, Jean-François Mayence, would serve as Coordinator of the Group of Experts on the Ethics of Outer Space for the purposes of adjusting the proposed recommendations of COMEST to the already existing rules of international space law and to prepare a plan of action concerning the drafting of the report of the group of experts.

5. At its forty-fourth session, the Committee on the Peaceful Uses of Outer Space agreed to invite interested member States to designate experts (in the broader sense of representatives) to prepare a report containing an assessment of the COMEST recommendations as well as an analysis of the ethical principles governing present and future activities in outer space, to be submitted to the Legal Subcommittee at its forty-second session, in 2003.^a

6. In its resolution 56/51 of 10 December 2001, the General Assembly endorsed the Committee's recommendation to invite interested member States to designate experts to identify which aspects of the report of COMEST might need to be studied by the Committee and to draft a report, in consultation with other international organizations and in close liaison with COMEST, with a view to making a presentation on the matter to the Legal Subcommittee at its forty-second session, in 2003, under agenda item 5 entitled "Information on the activities of international organizations relating to space law".

7. The report on the ethics of space policy was presented by its author at the second session of COMEST, held in Berlin from 17 to 19 December 2001, and was considered and approved by COMEST, together with other reports submitted to it by its subcommissions and working groups, with a view to preparing appropriate recommendations to the Director-General of UNESCO.
8. At the forty-first session of the Legal Subcommittee, two conference room papers were issued, the first containing a list of experts designated for the proposed group of experts on the ethics of space activities (A/AC.105/C.2/2002/CRP.6) and the second presenting some analysis and proposals on methods of working, submitted by Greece and co-sponsored by Belgium, Morocco and Spain (A/AC.105/C.2/2002/CRP.8).
9. On 16 May 2002, an unofficial working meeting took place in Paris at ESA headquarters and the French Ministry of Research. It was attended by representatives of Greece (V. Cassapoglou), UNESCO (Teresa Fuentes-Camacho), COMEST (Alain Pompidou) and the President and the Executive Secretary of the European Centre for Space Law (ECSL) and ESA (Gabriel Lafferranderie and Alberto Marchini, respectively) and was held for the purpose of organizing an informal meeting of the Group of Experts, to be held in June 2002.
10. At the request of the Group of Experts, the Office of Outer Space Affairs again invited member States of COPUOS to consider designating experts before its forty-first session. An updated list of experts was issued on 10 June 2002 (A/AC.105/2002/CRP.9).
11. An informal meeting of the Group of Experts, attended by government experts and others, was held on 13 June 2002, during the forty-fifth session of the Committee on the Peaceful Uses of Outer Space. In its report to the General Assembly, the Committee made special reference to that informal meeting.^b
12. The document entitled "Recommendations on the Ethics of Outer Space", in its final version, was issued after incorporation of oral comments made by members of the Group of Experts. The document was signed by Alain Pompidou on 22 July 2002 and distributed to the experts by ECSL/ESA, which served as secretariat to the Group of Experts. The "Recommendations" was the only official document of UNESCO that the Group of Experts considered for the purposes of this report (see appendix).
13. The "Recommendations" will be submitted for evaluation and approval first, to the Director-General of UNESCO, thereafter to the Executive Board (May 2003), and finally to the thirty-second session of the General Conference of UNESCO, to be held from 29 September to 17 October 2003. Following the General Conference, the recommendations will be transmitted for assessment and appreciation to the General Assembly at its fifty-eighth session.
14. On 4 December 2002, an ad hoc joint meeting, chaired by Jean-François Mayence, was held at ESA headquarters in Paris, attended by government experts from Austria (C. Brunner), Belgium (Jean-François Mayence), Chile (F. García), France (J. Arnould), Greece (V. Cassapoglou) and Italy (C. Zanghi). In addition, representatives of the British National Space Centre (R.-J. Tremayne-Smith), UNESCO (Teresa Fuentes-Camacho), COMEST (Jens Erik Fenstad and Alain Pompidou) and ESA/ECSL (Gabriel Lafferranderie, Alberto Marchini, M. Torrado

and L. Linares Calduch) participated as observers. The Office for Outer Space Affairs was invited, but was unable to attend.

15. The joint meeting reviewed, in particular, the progress made on each side and coming events and stressed the need to maintain cohesion and to work towards the same goal. A plan of action was discussed and it was agreed to hold another organizational meeting in Vienna on 19 February 2003, during the fortieth session of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space. It was agreed that V. Cassapoglou (Greece) would chair the meeting, as Jean-François Mayence (Belgium) would not be able to complete his mandate. The task of that meeting was to review the dossier and approve the draft report of the Group of Experts to the Legal Subcommittee. All documents were continuously communicated to all designated experts and the Office for Outer Space Affairs. It was also decided to inform United Nations specialized agencies and, in particular, the International Telecommunication Union (ITU) and the World Intellectual Property Organization (WIPO), by a letter from the Coordinator.

16. On 5 February 2003, another ad hoc preparatory working meeting, chaired by V. Cassapoglou (Greece), was held at ESA headquarters in Paris and was attended by representatives of UNESCO (Teresa Fuentes-Camacho) and ESA/ECSL (Gabriel Lafferranderie and Alberto Marchini). Alain Pompidou of COMEST was unable to attend and was represented by his personal assistant, V. Zinck. The meeting first reviewed the contributions received from the experts of Belgium, Chile, France, Greece, Spain and ESA/ECSL in response to the recommendations of COMEST, then drafted the final report of the Group of Experts, to be submitted for approval at a meeting held in Vienna on 19 February 2003.

17. The meeting of 19 February 2003 was chaired by V. Cassapoglou and was attended by the designated experts or delegates of Austria (U. Hiebler), France (J. Arnould), Greece (V. Cassapoglou), India (V. Sundararamaiah), Mexico (J. Roch), Sweden (N. Hedman) and the United States of America (Lynn Cline), as well as representatives of UNESCO (R. Missotten), ESA/ECSL (Gabriel Lafferranderie and Alberto Marchini) and the Office for Outer Space Affairs (N. F. Rodrigues). The participants reviewed and discussed the text of the draft report to the Legal Subcommittee as prepared by the Chairman and approved the present report.

II. Ethical principles governing present and future activities in outer space

18. The experts welcomed the fact that the COMEST recommendations had led to a revival and rediscovery of the ethical principles of permanent value and relevance in the conduct of any human activity in any location, in this particular case for the conduct of human activities in the exploration and exploitation of outer space. Several experts questioned the definition of ethics, its meaning and its relation with law. Policies and actions had to be based on ethical considerations, transformed into legal, mandatory rules and subsequently influenced by the implementation of those legal rules. Ethics, morality, law and justice were always interacting. Ethics was the necessary basis for the foundation of obligations enshrined in law and regulations and was also a necessary adjunct to the development of new activities and the interpretation and implementation of current laws and regulations.

19. It was vital to adopt an ethical approach to activities performed in areas outside the jurisdiction and control of a single State, such as the high seas, the seabed, the arctic zones and outer space, where a single human activity could endanger all life on the planet. The international dimension played a leading role in the conception and development of human activity in and utilization of outer space. Ethics had to be considered when deciding on the selection of a new programme in outer space.

20. Humankind was fortunate in having had the benefit, for many years, of major instruments of public international law, such as the Charter of the United Nations, the Universal Declaration of Human Rights and international treaties on the environment, development and the sea. Those have been complemented by numerous resolutions and declarations adopted by the General Assembly, UNESCO and other specialized agencies of the United Nations. When the discussions on the need for laws governing the exploitation of outer space were initiated towards the end of the 1950s, the Committee, the General Assembly and Governments had the foresight to adopt the basic principles of space law that would govern future activities in space.

21. As a result, several legal masterpieces had been brought into existence, such as the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space of 1963 (General Assembly resolution 1962 (XVIII)); the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies of 1967 (resolution 2222 (XXI), annex, the "Outer Space Treaty"); the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space of 1968 (resolution 2345 (XXII), annex, the "Rescue Agreement"); the Convention on International Liability for Damage Caused by Space Objects of 1972 (resolution 2777 (XXVI), annex, the "Liability Convention"); the Convention on Registration of Objects Launched into Outer Space of 1975 (resolution 3235 (XXIX), annex, the "Registration Convention"); the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies of 1979 (resolution 34/68, annex, the "Moon Agreement"); the Principles Relevant to the Use of Nuclear Power Sources in Outer Space of 1992 (resolution 47/68); 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 of 1996 (resolution 51/122, annex); "The Space Millennium: Vienna Declaration on Space and Human Development", adopted by the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space and endorsed by the General Assembly in its resolution 54/68 of 6 December 1999, and the Intergovernmental Agreement for the International Space Station, which entered into force on 27 March 2001. Other agreements currently under negotiation, such as the principles governing the use by States of artificial Earth satellites for international direct television broadcasting and the principles relating to remote sensing of the Earth from outer space, were also to be commended. All those legal instruments had inspired a range of international cooperation agreements, both bilateral and multilateral, and "soft law" instruments in the form of codes of conduct and charters.

22. It was unfortunate that the COMEST recommendations failed to mention or analyse those treaties and neither examined nor expanded upon their ethical content.

It was also regrettable that the work done by COMEST did not demonstrate sufficient knowledge of recent excellent work done by the Committee and its two Subcommittees, such as, for example, the Scientific and Technical Subcommittee's studies on space debris, the use of nuclear power sources in outer space, disaster management and so forth, and the Legal Subcommittee's work on the definition of the concept of "launching State", the arrangements made on the delicate issue of the geostationary orbit and the review of the status and application of the five United Nations treaties on outer space.

23. It was essential to recall that the Committee on the Peaceful Uses of Outer Space, which had been established in 1959 by the General Assembly as its permanent subsidiary body internationally responsible for monitoring human activities in outer space (resolution 1472 A (XIV)), had been and still remained not only the founder of space law, that rich new branch of public international law in constant evolution, but also the major world forum for the promotion of international cooperation for the peaceful uses of outer space. That was an undeniable fact of great legal and political importance and illustrated the evolving role of the Committee and its two Subcommittees in the successful development of space activities in the interest of all humanity.

24. It was also necessary to recall that many ethical principles had already been transformed into the basic norms and principles of space law that regulated a broad range of activities; some of these norms and principles were:

(a) The mandatory goal that "the exploration of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind" (Outer Space Treaty, art. I, para. 1);^c

(b) The non-discriminatory access to and use of outer space on a basis of equality (it was known, of course, that that kind of right depended on the capabilities of States and had to lead to the conclusion of cooperation agreements; nevertheless, ethics were there as an objective, a target, as an element to judge the content of the cooperation agreements vis-à-vis the finality of the activity) (Outer Space Treaty, art. I, para. 2);

(c) The non-appropriation of outer space, the Moon and other celestial bodies, by any means whatsoever (Outer Space Treaty, art. II);

(d) The favouring of international cooperation and mutual understanding as the leitmotif for every kind of activity of exploration and utilization of outer space (Outer Space Treaty, arts. III and IX-XI);

(e) The prohibition on placing in terrestrial orbit nuclear weapons or any other kind of weapons of mass destruction, the installation of such weapons on celestial bodies, or stationing such weapons in outer space in any other manner, and the exclusive peaceful use of the Moon and other celestial bodies (Outer Space Treaty, art. IV);

(f) The international responsibility of States, even for activities conducted by private entities, and their liability in case of damage caused by space objects (Outer Space Treaty, arts. VI and VII).

25. To reiterate, those provisions, complemented by those of additional agreements, conventions, principles and declarations, provided an extraordinary network leading to and encouraging knowledge-sharing, based on fundamental ethical principles. They provided guidance for many new activities in outer space by inspiring new provisions at the international level in order to protect fragile human life on Earth or in outer space. Some examples were:

(a) In particular, issues of environmental protection of planet Earth, such as climate change and disaster management, including space debris questions, for which additional technical and legal texts were needed;

(b) The question of the life and work of astronauts in outer space (in particular on board the International Space Station) and future settlements on the Moon or Mars;

(c) Certain new achievements called for more in-depth ethical consideration of certain activities arising from the commercialization and privatization of outer space, such as the protection of intellectual property rights acquired or used in outer space, the protection of astronomical observations, space tourism, space advertising or the sending of ashes into orbit, and so forth;

(d) One of the areas most urgently requiring consideration at all levels was access to and the use of scientific or environmental data. The question of whether better and cheaper access to data could be provided, in particular data that were no longer available (archived), as well as access to technical tools and adequate training (fellowships and so forth) needed to be studied;

(e) There is also a need to reinforce the promotion of space law, through various means, international or regional colloquiums on concrete themes, the establishment of appropriate teaching methods in schools, universities and other educational institutions. A better understanding of space law and its *raison d'être* would facilitate the accession of States to the outer space treaties.^d

26. A final point concerned the future of the Committee on the Peaceful Uses of Outer Space:

(a) Some experts, inspired by the provisions of the United Nations Convention on the Law of the Sea^e establishing an International Seabed Authority, envisaged, at a later stage, the setting up of an international authority for outer space activities. However, that would require the agreement of the international community and could take some considerable time to be implemented;

(b) The role of the Committee should be reinforced, not only as the guardian of the five United Nations instruments on outer space in force, but also as the major authority on space law, its meaning and its development. That required an evolved dialogue with all the involved government and non-governmental actors, mainly relevant United Nations specialized agencies and international bodies such as UNESCO, ITU, WIPO and the International Institute for the Unification of Private Law, as well as the private sector and civil society;

(c) Currently, that dialogue was weak and had to be strengthened. Ad hoc meetings and similar events on specific scientific, technical, legal, socio-economic and even cultural and humanitarian issues (on telecommunications, the Internet, the environment, telemedicine, for example) could promote dialogue. A very promising

example was the annual Inter-Agency Meeting on Outer Space Activities. The development and adequacy of space law should benefit from the pivotal role of the Committee.

27. In conclusion, the Group of Experts recommended the continuation and improvement of close contacts between the Committee and UNESCO in order to assist the preparation by the latter of documents on space activities and space law, for submission to its General Conference at its thirty-second session, in 2003.

28. Finally, the Group of Experts wished to express its gratitude to Gabriel Laferranderie, President of ECSL/ESA, for his untiring and invaluable scientific and intellectual contribution to the success of its work, and to the Office for Outer Space Affairs for their helpful support, as well as to Teresa Fuentes-Camacho of the UNESCO Division of the Ethics of Science and Technology, Sector of Social and Human Sciences and to Alberto Marchini, Executive Secretary of ECSL/ESA.

Notes

^a*Official Records of the General Assembly, Fifty-sixth Session, Supplement No. 20 and corrigendum (A/56/20 and Corr.1), para. 225.*

^b*Ibid., Fifty-seventh Session, Supplement No. 20 (A/57/20), paras. 141 and 142).*

^cConfusion between the concepts of the “province (*apanage*) of all mankind” and “common heritage (*patrimoine commun*) of mankind” should be avoided (see the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies of 1979).

^dRecommendations of the first United Nations Workshop on Capacity-Building in Space Law (session 3: Education), held in the Hague, 18-21 November 2002.

^eUnited Nations, *Treaty Series*, vols. 1833-1835, No. 31363.

Appendix*

World Commission on the Ethics of Scientific Knowledge and Technology

Recommendations on the ethics of outer space



COMEST

*World Commission on the Ethics
of Scientific Knowledge and Technology*

*Commission mondiale de l'éthique
des connaissances scientifiques et des technologies*

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WORLD COMMISSION ON THE ETHICS OF SCIENTIFIC KNOWLEDGE AND TECHNOLOGY (COMEST)

RECOMMENDATIONS ON THE ETHICS OF OUTER SPACE

Rapporteur : Mr Alain Pompidou

A. INTRODUCTION

1. At present the Ethics of Science and Technology is no longer an option but a necessity. The importance of science and technology for the shaping of society, for the avoidance of environmental damage and for providing realistic options for policy and development is no longer arguable. Nowadays the changes brought about by the fast pace of scientific discoveries and technological progress raise crucial questions that open up new avenues for ethical reflection, to guarantee that humanity could benefit of these extraordinary achievements in a harmonious way.

2. Mindful of this, UNESCO has set up in 1998 the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST), whose main purpose is to highlight values permitting better and broader co-operation in the world, both in science and technology and in the social and cultural spheres, thus ensuring that the advancement and sharing of knowledge are fully consistent with respect for fundamental human rights and freedoms, encouraging the scientific community to examine subjects of prime importance and drawing up action-oriented recommendations for national or regional policy-makers. As an advisory body and forum of reflection, the COMEST has the task to formulate ethical principles that could provide decision-makers, in sensitive areas, with selection criteria other than purely economic.

* The present appendix has been reproduced without formal editing.

3. In accordance with Article 9 of its Statutes, the COMEST submits a set of Recommendations in the field of its activities to the Director-General of UNESCO. The Director-General shall transmit the results of the Commission's work to the Governing Bodies of the Organization and to the bodies concerned by the Commission's proposals. In this respect, Recommendations concerning the implementation of ethical principles in the field of Outer Space set forth by the Commission were adopted by the Members of COMEST at its Second Session, 17-19 December 2001, Berlin, Germany.

B. PREAMBLE

4. The Ethics of Space Policy has the distinctive feature of introducing a relationship between human beings, the planet Earth and the whole Universe. Rather than embarking upon a major philosophical debate, the aim of the COMEST is to consider the facts in an effort to identify equitable principles based on ethical reflection, aimed to ensure respect for human rights, freedoms and responsibilities. These ethical principles must apply at every stage in the development of the use of outer space with a view to developing a new approach founded on a "culture of space".

5. The implementation of an outer space policy must:

- be based on unanimously acknowledged essential principles: respect for dignity and socio-cultural identities; respect for freedom of choice and critical spirit; compliance with the principles of solidarity and precaution;
- ensure free access to outer space, while avoiding, as far as possible, the release of debris, by taking measures equally applicable to all concerned;
- affirm the principle of equitable access to outer space resources, in the fields of both observation and communication, as a corollary to the principle of non-appropriation;
- promote free access to knowledge, while safeguarding protection of intellectual property.

C. PRELIMINARY CONSIDERATIONS

6. COMEST favours the view that thoughts must be given to the notion of outer space regarded as common heritage of mankind and not as a mere "apanage". Outer space must be placed at the service of all humankind. In this regard, COMEST reaffirms the need to develop co-operation among all international and national bodies concerned and, in particular, with the Legal Sub-Committee of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), with a view to define the legal procedures permitting equitable utilization of data produced from the use of outer space technologies and from the discovery of potential resources associated with the inherent nature of outer space objects (e.g. planets).

7. COMEST believes that every space policy must be based on the concept of mutual and reciprocal benefits, while safeguarding fair competition and the principle of return on investment. It emphasizes the importance of the role that ethics must play in the choice of a specific project and its long-term assessment from the viewpoint of human security and economic criteria.

8. Procedures must be defined for the exchange and sharing of environmental data between the populations of the Earth to ensure protection of planetary environment (e.g. against global warming, depletion of the ozone layer, increase of the sea level), develop weather forecasting and ensure prevention of major risks and management of natural disasters. In case of civilian disasters, immediate access to satellite data must be organized and granted by policies founded on the concept of mutual and reciprocal benefits, in order to avoid unequal access to space data and prevent the emergence of coercive economic practices.

9. Development of outer space activities and progress made in the field of outer space industry hold out new prospects for intellectual property law. Inventions, processes and products must be properly protected to provide the required legal assurance essential for a strong commitment from those involved in outer space activities. In this regard, the COMEST specifically focussed on the various aspects bound up with the eligibility of outer space vehicles and all operations in outer space for patenting. The need for ongoing reflection with a view to reach an agreement on the management of intellectual property in inhabited outer space stations must therefore be borne in mind, with particular reference to the possibility of patenting products or processes developed in orbital stations or associated with materials or vehicles carried on board such stations. The development of international patent law involving the outer space industry appears imperative.

10. In the area of electronic surveillance it is essential to protect public freedoms, in particular freedom of expression. It is therewith crucial to safeguard cultural identities and permit the expression of minority cultures; to avoid the standardization of cultures and ensure a sound balance between the upkeep of existing cultural identities and the promotion of new identities (e.g. emerging from electronic forums) fostering global exchanges.

11. In the area of risk management, COMEST embraces the view that every effort to reduce the production of outer space debris must be continued and that such measures must be accepted by all concerned. Unilateral measures would simply create distortions of competition between the traditional or emerging outer space powers. A better definition of the launch State should be drawn up by the authorities concerned, in particular the Inter Agency Space Committee (IASC).

12. There is an urgent need for training in outer space technologies and in the challenges of outer space policy. In the light of its cultural mandate, UNESCO might identify different players involved all over the world in the field of "outer space culture". The ESA example of sponsoring European universities to hold summer courses on outer space policy and law deserves to be followed. With regards to the wide diversity of cultural contexts, outer space agencies should be committed to networking operations based on electronic forums between the originators of outer space policy, political decision-makers and the segments of public opinion, which take an interest in outer space activities. This is a precondition for the development of an effective "pedagogy of mediation" in which ethical reflection will play an important role.

D. RECOMMENDATIONS

COMEST recommends

(a) To explore ways and means: to promote access to geostationary orbits; to prevent electromagnetic pollution; to avoid the proliferation of barriers seeking to limit access to outer space; and to limit outer space debris (which should also be precisely defined) through measures equally applicable to everyone to prevent any distortion of competition in the area of launch vehicles and satellites; to create a global and permanent system for observation and protection of the terrestrial environment (global system for observation shared by all on the basis of open world-wide consultation); and to put in place a system for management of the planet on a horizon which extends beyond market forecasts.

(b) To take all appropriate measures to provide researchers with free access to scientific data in order to guarantee sharing of knowledge with a view to promote scientific progress; to place scientific outer space data at the disposal of the developing countries; to foster the definition of procedures to permit sharing of the resulting benefits, bearing in mind the legitimate interests of these countries and acting in the most equitable and balanced manner possible.

(c) To pursue reflection with a view to reaching an agreement on the management of intellectual property in manned stations and more broadly in the field of outer space industry, notably as to the eligibility for patenting of products or processes produced in orbital stations or associated with on-board materials or vehicles.

(d) To promote pertinent measures: to protect the confidentiality of information exchanges between individuals with a view to ensure individual protection without infringing in collective freedoms, and to prevent the circulation of subversive messages or illicit activities; to protect individual freedoms (because of the risks of excesses in the field of remote surveillance) and cultural identities (having regard to the risks of standardization arising from the use of satellites for the new communication and information technologies).

(e) To examine, in the framework of international co-operation, the possibility of developing a system of "co-regulation" designed to protect individuals, populations and even States.

(f) To promote the precautionary measures needed to prevent accidents, liable to occur upon return of potentially contaminating materials originating from outer space, and long-term consequences of the dissemination of biological products obtained in micro-gravity state and exposed to strong irradiation from electromagnetic fields.

(g) To study the possibility of organizing specialized courses in universities touching upon technology, legislation, insurance and the ethics of outer space; to ask schools of journalism to pay particular attention to training in the field of outer space science and technology so as to develop appropriate techniques of scientific communication and a "pedagogy of mediation".

(h) To ask outer space agencies to look into the possibility of setting up groups to study the ethics of outer space in order to guide their scientific choices.

In conclusion, COMEST asks its Secretariat to submit an interim report on the implementation of these Recommendations to its next informal meeting. It wishes to have a comprehensive report in time for its third session.