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**Committee on the Peaceful****Uses of Outer Space**

Legal Subcommittee

Forty-second session

Vienna, 24 March-4 April 2003

Agenda item 5

**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.<sup>1</sup> 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.

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



## Annex

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

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 of preparing 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.<sup>1</sup>
6. In its resolution 56/51 of 10 December 2001, the General Assembly noted that the Committee would 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 at the forty-second session of the Legal Subcommittee

under the agenda item 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 the Committee on the Peaceful Uses of Outer Space 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.<sup>2</sup>

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 the present report (see appendix).

13. The “Recommendations” will be submitted for evaluation and approval to the Director-General of UNESCO, then 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 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. Brünner), 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 to send a representative, but was unable to do so.

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 and the World Intellectual Property Organization, 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 to be 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 text of the report as follows:

### **“Ethical principles governing present and future activities in outer space**

“1. The first assessment on the COMEST Recommendations is that they lead to a revival and re-discovery of the ethical principles of permanent value and relevance in the conduct of any human action, in any location, and in this particular case for the conduct of human activities in the exploration and exploitation of the outer space.

“2. Concerning the definition of the ethics, its meaning and its relation with law, it is generally accepted that any national policy, any human action have to be based on ethical considerations which afterwards are transformed into legal,

mandatory customary or written rules, and that, at their turn, they will be influenced by the implementation of these legal rules.

“3. Ethics, morality, law and justice are always interacting. Ethics is the preliminary ‘must’ (*sollen*) for the foundation of obligations, enshrined in law and regulations and also for accompanying the development of new activities, and for the interpretation and implementation of the current laws and regulations.

“4. The ethical approach is the must for activities performed in areas outside the jurisdiction and control of a single State, like the high seas, the seabed, the arctic zones and outer space, where a single human activity could endanger the whole life on the Earth. The international dimension plays a leading role in the conception, development and utilisation of any human activity in outer space. Ethics has to be considered when deciding on the selection of a new programme in outer space.

“5. All the international society is benefiting since many years of great pieces of public international law -to mention but a few from the post-second world war era, the UN Charter (1945), the UN Declaration of Human Rights (1948), or several other international multilateral treaties on the Environment, the Sea, the Development etc.- which are complemented by numerous pertinent resolutions and declarations adopted by the UN General Assembly, UNESCO and other UN Specialised Agencies. When the outer space law came at the very end of the 50s, the subsoil was already into being and the UN/COPUOS, the UN General Assembly, and the Governments were clever enough to adopt basic principles of space law, often at that time for future activities.

“6. Thus the Humanity takes advantage today of legal masterpieces, like the Treaty on the Principles governing the activities of States in the exploration and use of outer space including the moon and other celestial bodies (Outer space Treaty) (1967) (preceded by the Declaration of Principles of 1963), the Agreement on the rescue of astronauts (1968), the Convention on international liability for damage caused by space objects (1972), the Convention on registration of objects launched into outer space (1975), and the Agreement governing the activities of states on the moon and other celestial bodies (1979), as well as the Principles of major importance on the Direct Broadcasting, the Remote Sensing, the Nuclear Power Sources, and the Space Benefits,<sup>3</sup> not to miss to mention the cooperation for the strengthening of the international security in the post-cold war period,<sup>4</sup> and the ‘Space Millennium Declaration’ of UNISPACE III (1999).<sup>5</sup> All these legally binding instruments and other recommendations have also inspired a lot of international cooperation agreements, bi- and multilateral, up to ‘soft law’ in forms of ‘Code of Conduct’ and ‘Charter’. A particular place has to be given to the Intergovernmental Agreement on the International Space Station.

“7. Therefore it is unfortunate that the COMEST Recommendations do not mention and analyse this notable fact, interrogating on the ethical content of these acts, or to enlarge it, etc. Also it is inconvenient that COMEST work does not demonstrate a sufficient knowledge of the current achievements of the UN/COPUOS and its two standing Subcommittees, concerning for instance

the Scientific and Technical Subcommittee's studies regarding the space debris, the use of the nuclear power sources, the disaster management etc., as well as the Legal Subcommittee's outcome in relation to the definition of the concept of 'launching state', the arrangements made on the delicate issue of the geostationary satellite orbit (GSO), the review of the status and application of the five UN Treaties on outer space, etc.

"8. It seems to be essential to recall that UN/COPUOS, which established 46 years ago by the UN General Assembly as its permanent subsidiary body internationally responsible to monitor the human activities in outer space,<sup>6</sup> was and still remain not only the founder of space law –this very rich new branch of public international law in everlasting evolution– but also the world forum par excellence for the promotion of the international cooperation for the peaceful uses of outer space. This is an undeniable fact of great legal and political value illustrating the evolving role of the UN/COPUOS and its two Subcommittees in the successful development of the space activities in the interest and the benefit of all the Humanity.

"9. Also it is necessary to remind that many ethical principles are already transformed into basic norms and principles of space law regulating a broad range of activities, such as:

"a) the mandatory goal that all State activities in outer space including the moon and other celestial bodies, even from States not yet parties to the Outer Space Treaty (OST) or from private persons '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 (*apanage*) of all mankind' (OST, Preamble and Article I, § 1);<sup>7</sup>

"b) the non-discriminatory access and use of the outer space by all even not-space-faring States under equal conditions –although this right depends on the technical and economic capabilities of the States– that must lead to the conclusion of cooperation agreements for which ethics are there as an objective, a target, even an element to judge their content vis-à-vis the finality of the respective activity (OST, Article I, § 2);

"c) the non-appropriation of the outer space, the moon and other celestial bodies, by any means whatsoever (OST, Article II);

"d) the favouring of international cooperation and the mutual understanding as the leitmotif for every kind of activity of exploration and utilisation of outer space (OST, Articles III, IX, X, XI);

"e) the prohibition of placing around terrestrial orbit nuclear weapons or any other kind of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner, and the exclusively peaceful use of the moon and other celestial bodies (OST, Article IV);

"f) the international responsibility of States, even for activities conducted by private entities, and their individual liability in case of damages caused by space objects (OST, Articles VI and VII).

“10. These entire provisions, complemented by those of the additional specific agreements and conventions, and also principles and declarations, are providing an extraordinary network leading and encouraging to knowledge sharing, based on fundamental ethical principles. They are answering to a lot of new activities in outer space, by giving directions, if needed, by inspiring new provisions at international level in order to protect the fragile human life on the Earth or in outer space etc.

“11. Some examples of them are particularly:

“a) the issues of the environmental protection of the planet Earth, e.g. climate change, disaster management, etc., including the space debris questions, stressing that additional technical and legal texts are needed;

“b) the question of the life and the work of Astronauts in outer space -particularly on board the International Space Station, and future settlements on the moon or mars;

“c) certain new achievements which are calling for more in-depth ethical considerations for some specific activities coming from the commercialisation and privatisation of outer space activities, such as the protection of intellectual property rights acquired or used in the outer space, the protection of astronomical observations, the space tourism, the space advertising or the sending of ashes into orbit etc.;

“d) the better and cheaper access to, and the use of scientific or environmental data, particularly no longer available (archived), together with the access to technical tools and to adequate training (fellowships, etc.);

“e) the need of reinforcing the promotion of the space law, by various means, e.g. international or regional symposia on concrete themes, setting up of appropriate teaching methods in the schools, universities etc., in view of the fact that a better understanding of the space law, its *raison d'être* etc, would facilitate the accession of States to the Treaties on outer space.<sup>8</sup>

“12. A final point concerns the future of the UN/COPUOS.

“a) The view was expressed, that in the light of the relevant provisions of the UN Convention on the Law of the Sea (1982), it may be opportune, at a later stage, to set up a kind of ‘High Authority’ for outer space activities, but it was commented that the way should be long to reach this target, if the international community considers this goal as a valid one.

“b) The role of UN/COPUOS should be reinforced, not only as the guardian of the 5 UN international instruments on outer space in force, but also as the authority par excellence on Space Law, its meaning and its development. That requires an evolved dialogue with all involved governmental and non-governmental actors, mainly the other pertinent UN Specialised Agencies and international bodies, like UNESCO, ITU, WIPO, UNIDROIT, etc. as well as the private sector and the civil society.

“c) Currently, this dialogue is quite weak and should be strengthened. Meetings ad hoc and similar events on specific scientific, technical, legal, socio-economic and even cultural and humanitarian items, e.g. on telecommunications, Internet, environment, telemedicine etc., could be a solid

way of working. A very promising example is the annual Inter-Agency high-level meetings on space activities. The development and the adequacy of the space law should certainly benefit from the pivotal role of UN/COPUOS.

“13. In conclusion the Group of Government Experts recommends the continuation and improvement of close contacts between COPUOS and UNESCO in the preparation by the latter of documents on space activities and space law to be submitted in the next autumn to its General Conference.

“14. Finally, the Group of Experts express its gratitude to Gabriel Lafferranderie, President of the ECSL/ESA, for his constant and invaluable scientific and intellectual contribution to the success of its work, without of course omitting to make a special tribute for their very helpful support to the UN/OOSA, the Division of the Ethics of Science and Technology of UNESCO, and, lastly, to the Executive Secretariat of ECSL/ESA.”

#### Notes

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

<sup>2</sup> *Ibid.*, *Fifty-seventh Session, Supplement No. 20* (A/57/20), paras. 141 and 142.

<sup>3</sup> Cf. A/AC.105/572/Rev.3.

<sup>4</sup> Cf. A/48/221.

<sup>5</sup> Cf. *Report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 19-30 July 1999* (United Nations publication, Sales No. E.00.I.3).

<sup>6</sup> Cf. General Assembly resolutions 1348 (XIII), 1472 A (XIV) and 1721 A (XVI).

<sup>7</sup> It would be avoided the confusion between the concepts of the “*province (apanage) of all mankind*” with the “*common heritage (patrimoine commun) of mankind*”, the latter applying only under the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies of 1979 (cf. arts. 4, para. 1, 11, para. 1, and 5).

<sup>8</sup> Cf. i.a. the recommendations of the United Nations/International Institute of Air and Space Law Workshop on Capacity-Building in Space Law (A/AC.105/802 and Corr.1), paras. 26-33.

## 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  
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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.

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\* The present appendix has been reproduced in the form in which it was received.

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.

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