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**REPORT BY THE DIRECTOR-GENERAL ON THE EVALUATION
OF THE IMPACT OF THE WORLD COMMISSION ON THE ETHICS
OF SCIENTIFIC KNOWLEDGE AND TECHNOLOGY (COMEST)**

SUMMARY

The present report, prepared in conformity with 32 C/Resolution 26 inviting the Director-General to submit to the Executive Board at its 169th session a study on the evaluation of the impact of COMEST, also reviews the activities undertaken by COMEST since the 32nd session of the General Conference and presents COMEST's activities for the 2004-2005 biennium.

Decision proposed: paragraph 18.

1. In 165 EX/Decision 3.4.3, the Executive Board invited the Director-General to submit to the General Conference at its 32nd session a report on the work done by the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) since its second session and proposals for evaluating the impact of the activities of COMEST. Consequently, at its 32nd session, the General Conference (32 C/Resolution 26) invited the Director-General to submit to the Executive Board at its 169th session a study on the evaluation of the impact of COMEST, in accordance with the proposal made in document 32 C/18. Furthermore, in consistency with Article 9, paragraph 3, of the Statutes of COMEST, adopted by the Executive Board at its 154th session (154 EX/Decision 3.4.2), and with the priorities set out in documents 31 C/4, 31 C/5 and 32 C/Resolution 26, this report also reviews the activities undertaken by COMEST since the 32nd session of the General Conference and presents the Commission's activities for the 2004-2005 biennium.

2. The World Commission on the Ethics of Scientific Knowledge and Technology (COMEST), an independent and pluralist advisory body to UNESCO, was established in 1998 in response to the growing ethical challenges posed by scientific and technological progress. With respect for the

rights, freedoms and responsibilities of the human individual, it sets out ethical principles and formulates recommendations for the international community. It has held three ordinary sessions: in Oslo (Norway) in April 1999, in Berlin (Germany) in December 2001 and, subsequently, in Rio de Janeiro (Brazil) from 1 to 4 December 2003.

I. WORK OF COMEST SINCE THE 32nd SESSION OF THE GENERAL CONFERENCE

A. Third ordinary session of COMEST

3. The third ordinary session of COMEST took place in Rio de Janeiro (Brazil) from 1 to 4 December 2003, at the invitation of the Brazilian authorities, and brought together more than 600 participants, including students, policy-makers, members of the scientific community, IGOs and NGOs. This session was characterized by a great number of scientific debates and high-level political presence, and gave the opportunity to examine the work carried out by COMEST during the last biennium. It also provided the Latin America and the Caribbean region with a privileged forum to discuss issues at stake in the earlier areas of activity of the Commission, namely: the ethics of outer space, the ethics of fresh water, the ethics of energy, the ethics of the environment and sustainability and the ethics of the information society. New themes were also analysed such as the ethics of nanotechnology, ethics in scientific education, an ethical code of conduct for scientists, the ethical implications of research with human beings in developing countries, and the relationships between the development of science and technology and sustainability.

4. The session also constituted an important international platform to hold two other important political events: the first regional ministerial meeting of South American science and technology ministers and high officials; and the second ministerial meeting of science and technology of the community of Portuguese-speaking countries (CPLP). The regional meeting led to the adoption of the ministerial declaration on ethics of science and technology, an instrument that will strengthen the active collaboration of governments in the region. The declaration, also fully endorsed by the ministers of science and technology of the CPLP, carries an important message of commitment from the interested countries to ethical considerations in science and technology, also calling upon UNESCO and COMEST to take an active role in the promotion of awareness about these issues.

5. As is the case in all sessions of COMEST, half a day was devoted to a youth forum on the ethics of science and technology, which gave the opportunity to young scientists of the region, representatives of several international students associations, to share their views, debate and challenge the audience on three key issues: “Young Scientists, Ethics and New Technologies”, “The Ethics of Sustainable Development” and “Youth Perception of Ethics of Science and Technology”.

6. Apart from the public meetings, during the third ordinary session, COMEST also held two closed meetings to examine procedural issues and its advisory activities in regard to the UNESCO programme of ethics of science and technology for the 2004-2005 biennium. Concerning the Commission’s activities during the new biennium, it was suggested that it would be more effective to focus on specific deliverables, with preparatory studies and consultations, in conformity with the priorities of UNESCO. It was agreed that the Commission would focus on three major issues related to the Organization’s normative role: the possibility of elaborating an international instrument on the ethics of outer space, the feasibility of an ethical code of conduct for scientists, as well as a declaration of principles in environmental ethics. It was also decided that two particular activities from the COMEST agenda – the ethics of fresh water and the ethics of information society – should be dealt with in closer cooperation with the Natural Science Sector and the Communication and Information Sector, respectively, making full use of UNESCO’s intersectoral potential.

7. Having accomplished their mandates, the Commission also decided to dissolve all sub-commissions and working groups and to reorganize the working methods according to the recommendations that emerged from the 32nd session of the General Conference and the work plans for the new biennium. UNESCO will initiate studies and projects, set up expert groups and submit policy proposals to the Commission. The forthcoming renewal of almost half of its membership will provide an opportunity to strengthen the legal, philosophical and ethical capacities of the Commission as well as to match the specializations of its members more closely to UNESCO's new areas of activity in the field of ethics of science and technology. In accordance with Article 5 of the COMEST Statutes and with the new members appointed, an extraordinary session is convened by the Director-General to take place at UNESCO Headquarters in Paris, on 14 and 15 May 2004, so that new working methods and future work plans can be further discussed.

8. In accordance with its Statutes, COMEST also elected its new Bureau and discussed the renewal of its members. The elections were held in open ballot and according to the simple majority of voting members. Professor Jens Erik Fenstad (Norway) was confirmed as Chairperson for another biennium. H. E. Mrs. Suzanne Mubarak (Egypt) and Mrs Leila Seth (India) were also confirmed as Vice-Chairpersons. Mr José Sarukhan Kermez (Mexico) ended his term as Rapporteur. A new Rapporteur will be chosen at the next extraordinary session.

B. COMEST activities, recommendations and publications

9. In line with the principle of “Building a new ethic of global stewardship”, as evoked in the United Nations Millennium Declaration (2000) and taking into account the results of the Budapest World Conference on Science and the Johannesburg World Summit on Sustainable Development, UNESCO decided to enhance its activities in the promotion of ethics education and training of scientists, encouraging respect for and adherence to the basic ethical principles and responsibility of science. In order to respond to this growing demand to strengthen the teaching of ethics, COMEST approved the report on teaching ethics, that proposes, in particular, the implementation of a specially adapted set of programmes, subjects of study (concepts, issues, theories), teaching methodologies and university courses in the ethics of science. This report is available at the Secretariat. Following the report on teaching ethics, activities will be undertaken to establish and stimulate ethics teaching programmes in the Member States, with a priority for the next biennium in East and Central Europe and Latin America.

10. As regards the subject of fresh water, a new manuscript has been developed in cooperation with the COMEST Sub-Commission on the Ethics of Fresh Water. This manuscript is about to be published as a book (Fresh Water and Ethics), in cooperation with the Science Sector. The book will disseminate the recommendations of COMEST, and draw attention to the ethical principles guiding water resources management. These principles will also be elaborated and incorporated into forthcoming activities in environmental ethics.

11. At the initiative of the Islamic Republic of Iran and following the decisions of the Executive Board at its 165th and 166th sessions, UNESCO launched in 2003 the Avicenna Prize for Ethics in Science. The Prize rewards the activities of individuals and groups in the field of ethics in science with a view to promoting ethical principles in the area of science and technology and is awarded biennially. Following deliberations by an international jury, the first winner of the Avicenna Prize was announced in 2003: Dr Margaret Somerville, Professor of Law at the Faculty of Medicine of McGill University in Montreal, Canada. The award ceremony will be held on the occasion of the 169th session of the Executive Board and will be followed by an academic visit of the laureate to Iran.

II. EVALUATION OF COMEST ACTIVITIES

12. Pursuant to 165 EX/Decision 3.4.3 of the Executive Board, the COMEST report, together with its recommendations, was the subject of an in-depth study, entrusted to Professor Weinstock, from the University of Montreal (Canada). A consultation of Member States and international organizations on the recommendations was also undertaken by the Secretariat. Member States showed significant interest in supporting UNESCO's work in ethics of science and technology and, to this end, called for greater streamlining of COMEST's strategy and working methods. The evaluation also reveals a need to streamline COMEST by emphasizing, in consistency with the criteria proposed, its influence and impact, multidisciplinary and intersectoral approaches, as well as its role in advising UNESCO to provide information, training and universal norms in ethics of science and technology.

13. Therefore, UNESCO will continue to strengthen its leading role as an intellectual and ethical forum according to the work plan approved for 2004-2005. Through the active involvement of COMEST, the Organization will articulate and reinforce ethical principles and develop legal instruments, underlining its standard-setting role. UNESCO will also, at their request, assist the Member States in developing national capacities in the ethics of science and technology, particularly in the area of ethics teaching. UNESCO will finally increase the visibility and effectiveness of COMEST in raising public awareness on the ethical implications of scientific knowledge and technology, as well as on the responsibility of professionals in the field of science and technology. To achieve these objectives, activities in the area of ethics of science and technology planned for 2004-2005 include the following.

A. Research in ethics of science and technology

14. UNESCO will support and strengthen international intellectual cooperation, in close collaboration with other United Nations bodies and specialized agencies, as well as with relevant IGOs and NGOs. With a view to supporting Member States interested in the development of specific initiatives and resources, the Organization will contribute to the development of national and regional capacities by undertaking studies and research on key areas of ethics. In particular three areas of ethics provide the scientific basis for activities: environmental ethics, science ethics and ethics of outer space. Research in these scientific areas also aims at identifying topics for future international cooperation and standard-setting as well as capacity-building action (for example, the moral aspects of nanotechnology, and genetically modified organisms).

B. Ethics of science and technology education and capacity-building

15. On the basis of the results already achieved in the previous biennium, UNESCO will reinforce its educational role by fostering and implementing ethical principles and guidelines, elaborating educational tools, dissemination of publications, and also developing Internet-based tools, in order to effectively reach society at large.

- (a) **Ethics around the world** – is a programme of rotating conferences on the ethics of science and technology intended to provide information about the activities of UNESCO and COMEST in this area as well as to interact with professionals, policy-makers and experts from the country for information exchange, for input into UNESCO's activities, and to create a network with interested target audiences.
- (b) **Ethics Education Programme** – aims at initiating and reinforcing educational activities for the teaching of ethics to scientists and the development of a quality assessment and certification system. A Latin American School of Ethics will be

established with pilot-programmes in teaching of ethics of science and technology, in order to promote education and to serve as a forum for the exchange of ideas between specialists, as well as to encourage studies, research projects and diffusion of information on the social, ethical and legal implications related to the advancement of science and technology. The development of these activities can also be supported through the establishment of UNESCO Chairs in this field.

- (c) **Global ethics observatory** – databases will be established to provide examples of national and international legislation and regulations, data on experts, organizations, institutions and academic centres, links to other relevant databases as well as examples of teaching programmes. This infrastructure, aiming to be a useful tool for governments, practitioners, non-governmental organizations and scholars, will enable UNESCO to support ethics activities in Member States by providing them with materials suitable to create virtual networks, to establish and improve teaching programmes and to initiate normative actions.

C. Standard-setting activities in ethics of science and technology

16. The main role of COMEST is to formulate ethical principles and guidelines to guarantee that technological progress and the sharing of scientific knowledge are fully consistent with respect for human rights and fundamental freedoms. In this biennium, through joint efforts carried out with UNESCO sectors, COMEST and relevant international bodies will particularly address a number of thematic areas with a view to playing an advisory and standard-setting role. This will benefit the Member States, also allow UNESCO to reinforce its normative mission through the promotion of ethical principles and guidelines, eventually facilitating international agreements pertaining to the regulation of scientific and technological progress.

- (a) **Studies on the ethics of outer space.** The recommendations of COMEST and the report of its Sub-Commission on the ethics of outer space have laid the foundations for a broad ethical debate on the ethics of outer space. They contain a number of propositions of international actions and of relevant principles. These propositions now need to be discussed within the space community, before being opened to international consultations. A task force has been created, involving the most significant actors of the space community, and in particular the long-term partners of COMEST in outer space, European Space Agency (ESA) and UN-COPUOS. The task force will channel COMEST propositions towards international action. Subject to the agreement by Member States, it would also carry out a study on the feasibility of an international declaration on the ethics of outer space. This study would be submitted for consideration by Member States at the 33rd session of the General Conference. At the same time, there is a need to promote reflection on the ethics of outer space, and to involve philosophers, policy-makers and the space community in this new reflection. On the basis of the work of COMEST, UNESCO will promote this new field of research and debate, notably by organizing an international conference in Summer 2005. International cooperation will also be a way to promote ethics of space as a new branch of ethics. In this regard, UNESCO and COMEST will continue to cooperate with UN-COPUOS in order to specifically promote the ethical viewpoint, particularly in the law-making process. UNESCO and COMEST are also involved in several joint activities with ESA, notably regarding Earth observation and remote sensing, a legal and ethical framework for astronauts, exobiology and planetary protection.
- (b) **Studies on environmental ethics.** UNESCO took an active part in the World Summit on Sustainable Development in Johannesburg (South Africa) and COMEST has been

redirecting its activities towards the development of reflection on the ethics of science and technology for sustainable development. In accordance with the resolution set out at the 32nd session of the General Conference supporting the work of COMEST on the development of a more global approach to ethics of the environment, UNESCO and COMEST elaborated a three-phase strategy, involving firstly top environmental ethicists; followed by the scientific community as a whole; and finally the policy-makers. The first phase of this work on environmental ethics will take place in 2004. UNESCO has set up a working group of 10 experts at the forefront of the field of environmental ethics, mandated to conduct a state-of-the-art study on environmental ethics to produce a policy document identifying possible opportunities for international action. This report will then be submitted to the fourth ordinary session of COMEST and to the Director-General. In the second phase, the scientific community would be consulted on the relevance of the various international actions proposed. In this phase, representatives of the various sciences with a bearing on the environment will examine the strategies and options proposed. Cooperation with the Science Sector of UNESCO will be reinforced. Once the views of the scientific community have been incorporated, in the final phase policy-makers would be invited to give feedback on the proposed action.

- (c) **Studies on the possibility of an ethical code of conduct for scientists.** The 1999 World Conference on Science, jointly organized by UNESCO and the International Council for Science (ICSU) in Budapest (Hungary), devoted special attention to the issue of ethical principles and responsibilities in the practice of science. This concern was carefully taken into account in the conference document “Science Agenda – A Framework for Action” which emphasizes the need for ethics in science education and practice. This document attributed to COMEST, in cooperation with ICSU, a special responsibility to follow up on this issue. This task was fully endorsed by the 30th session of the General Conference in 1999. In October 2001, the United Nations Secretary-General established a policy working group on the United Nations and terrorism that produced a report including 31 recommendations. The United Nations General Assembly and the United Nations Security Council endorsed the report and its recommendations, transmitting it to all the organizations and specialized agencies of the United Nations system. At the invitation of the Director-General of UNESCO, a United Nations inter-agency consultative meeting was held at UNESCO Headquarters in Paris, on 26 February 2003. One of the outcomes of this United Nations inter-agency meeting was a general recommendation to encourage ethical codes of conduct for scientists and engineers and promote ethics of science education and awareness. The task given by the World Conference on Science to COMEST and ICSU regarding ethics was recalled and reinforced. One of the final recommendations of this meeting was that “existing relevant bodies such as COMEST could in particular play a decisive role in fostering a continued dialogue on education and ethics of science”, also calling for the “specific involvement of the COMEST together with ICSU” promoting ethical responsibility in science. A primary reason for developing an ethical code is to restore society’s trust in scientists by explicitly connecting the basic values of science to the notion of social responsibility and accountability. In order to explore the wider field of science ethics and relevant topics for future international action, UNESCO set up an expert group of prominent scientists and experts to examine this matter. The expert group will organize a provisional consultation with relevant organizations and stakeholders in order to investigate the feasibility of an international code of conduct for scientists.

- (d) **Studies on the precautionary principle.** During the working meeting held in December 2003, COMEST decided to explore the kind of actions UNESCO could and should initiate concerning the clarification of the precautionary principle and its applications in diverse fields of science and technology. In a first phase, a group of prominent international experts was set up in order to undertake a study on the precautionary principle, its difficulties and implications. This study primarily aims to clarify the concept of the precautionary principle for decision-makers and scientists in order to achieve a more informed debate and to serve as a reference for applications of the principle. Based on this study, recommendations will be presented to UNESCO Member States on how the precautionary principle can contribute to a sustainable future, probably within the framework of a policy document on environmental ethics.

III. FUTURE ASSESSMENT OF COMEST ACTIVITIES

17. In order to facilitate future assessment of COMEST activities, taking into account 32 C/Resolution 26, the UNESCO work plan in ethics of science and technology for 2004-2005 establishes clear parameters and mechanisms to measure the expected results of COMEST advisory activities at the end of the biennium, as well as performance indicators in each of the areas of activities, allowing evaluation of the impact of COMEST. These criteria include:

(a) Standard-setting action

- (i) **Ethics of outer space.** During the biennium, UNESCO shall set up an expert group on the ethics of outer space with a view to increasing support for debates on ethical dimensions of space science and technology. Preliminary studies on the feasibility of an international instrument on the ethics of space activities shall also be completed.
- (ii) **Ethics of environment.** An expert group on ethics of the environment shall be established and COMEST shall elaborate recommendations in this area. UNESCO shall produce and circulate documents on its strategy in this area and a state-of-the-art report, indicating possibilities for future international actions.
- (iii) **Preliminary evaluation and studies towards the elaboration of an ethical code of conduct for scientists.** UNESCO shall gather and examine materials relating to codes of conduct for scientists, aided by an expert group that shall be established, in cooperation with ICSU. A working document shall be prepared, on the basis of which meetings and consultations shall be held. The preliminary evaluation and studies on the feasibility of an international code of ethical conduct for scientists shall be completed by the close of the biennium.

(b) Capacity-building action

- (i) **Ethics education programme.** A regional pilot programme of ethics education shall be developed based on the mutual interests of UNESCO and the region concerned. The programme shall be developed in cooperation with existing and newly created networks of experts in ethics education, initially in Latin America and Central and Eastern Europe. This programme shall be launched and monitored with a view to its eventual adaptation and implementation in other regions of the world.

- (ii) **Global ethics observatory.** By the end of the biennium the Global Ethics Observatory shall be fully operational. In order to achieve this a database infrastructure shall have been developed, a database established and networking with other sources of information initiated.

(c) **Awareness-raising action**

- (i) **Programme of rotating conferences.** UNESCO's plan of action to promote "Ethics around the World" at both the regional and international level shall be established and implemented by holding informational conferences in interested countries and by working with the Member State to develop key programmes of interest.
- (ii) **Development and implementation of an ethics of science and technology communication strategy.** UNESCO's work in the area of ethics of science and technology shall be communicated through the development of a multilingual website, the publication of materials such as the COMEST brochure and the initiation of a series of books on ethics and science.
- (iii) **Development of an ethics of science and technology research programmes.** The development of an ethics of science and technology research programme shall begin with the setting up of expert groups with plans of action for the various topics of research (environmental ethics, science ethics, ethics and nanotechnology). The groups' work shall culminate in research papers that shall be made available and widely disseminated. By the end of the biennium, the research papers produced shall be compiled into a first volume of a UNESCO series on the ethics of science and technology and made available in all six working languages.

Proposed draft decision

18. The Executive Board may wish to adopt a decision along the following lines:

The Executive Board,

1. Recalling 32 C/Resolution 26,
2. Having examined document 169 EX/15,
3. Appreciates COMEST's role in stimulating reflection on the ethics of science and technology;
4. Welcomes UNESCO's new orientation with regard to the ethics of science and technology;
5. Takes note with interest of the COMEST report on teaching of ethics and encourages the intensification of activities in this field;
6. Requests the Director-General to keep it informed of the action he intends to take on the advice and recommendations of COMEST concerning the advisability of drafting an international instrument on the ethics of outer space, reporting on his consultations with the other specialized agencies within the United Nations system and other competent organizations;

7. Requests the Director-General to prepare a study, in cooperation with the International Council for Science (ICSU), on the advisability of elaborating an international declaration on science ethics to serve as a basis for an ethical code of conduct for scientists;
8. Further invites the Director-General to keep it informed on the studies undertaken to examine the principles of environmental ethics and to identify possible international actions in this field;
9. Also invites the Director-General to convey to the Chairperson of COMEST the terms of this decision.