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ON THE ETHICS
OF SCIENTIFIC KNOWLEDGE
AND TECHNOLOGY
(COMEST)

UNESCO House, Paris, France

14–15 May 2004

COMEST MEMBERS, MAY 2004

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Prof. Mohamed BENNOUNA (*Morocco*)

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FOREWORD

The extraordinary session of the World Commission on the Ethics of Scientific Knowledge and Technology, was an opportunity to introduce the new Members to UNESCO and the Commission and to discuss the future work plans of COMEST and the means of implementing these plans.

In this extraordinary session, the Commission was honoured by the presence of the Director-General, Mr Koïchiro Matsuura, underlining UNESCO's recognition for COMEST support for the mission of the Organization. Ethics of science and technology is one of the main priorities of UNESCO, the leading international organization in this field. And the personal involvement of each COMEST Member reaffirms their commitment to the promotion of the international ethical debate.

There is a pressing need, now more than ever, to call worldwide attention to the widening gap between science and its ethical implications. UNESCO aims to meet the moral challenges that are presented by the scientific and technological innovations today. New developments demand that we as human communities are innovative and at the same time take appropriate action to draft normative frameworks for the benefit of humankind. The rapid advancement of science and technology is fascinating but our understanding of the ethical implications must develop alongside.

The mandate of the Commission in this regard is unique, since it is required to be an intellectual forum for the exchange of ideas and experiences, to provide early warning of risk situations, to advise policy makers, and to promote dialogue

among scientists, decision-makers and communities. The Commission has started to fulfill its role by bringing its attention to bear on several diverse fields, which include water, energy and outer space. And more recently it has incorporated new methodologies, such as the Ethics Education Programme, the programme of rotating conferences "Ethics around the World", as well as new themes, such as environmental ethics, nanotechnology and an ethical code of conduct for scientists.

The priority of ethics of science and technology will be visible most notably in the biennium 2004-2005, due to efforts to promote the teaching of ethics. With the support of COMEST, UNESCO will also strengthen its capacity-building role through the construction of ethics databases and their dissemination, and the establishment and reinforcement of ethical networks.

In establishing COMEST, in 1998, UNESCO placed particular emphasis on the role of science, calling attention to the positive attributes and beneficial consequences of scientific research and knowledge. But the Organization also called attention to the risks associated with its misuse. To promote the responsible use of science and technology is thus a major challenge for COMEST. And from this perspective the plans and means of implementation discussed at the extraordinary session were steps in the right direction, reinforcing the mission of UNESCO and its Member States.

Jens Erik Fenstad
Chairperson of COMEST

REPORT OF THE SESSION

Address by the Chairperson of COMEST

The Chairperson of COMEST, Mr **Jens Erik Fenstad**, opened the extraordinary session of COMEST by welcoming the seven new COMEST Members and expressing his satisfaction with the efficiency with which the renewal had taken place. He briefly outlined the purpose of the meeting, which was to introduce the COMEST Members to the new workplans and to identify ways in which individual COMEST Members could become more directly involved in the activities of UNESCO's programme in ethics of science and technology. The Chairperson then invited the Director-General to take the floor.

Opening of the session by the Director-General

The Director-General, Mr **Koïchiro Matsuura**, welcomed those present to the COMEST extraordinary session and thanked the COMEST Members for their willingness to contribute to UNESCO's work in the area of ethics of science and technology. In particular, he thanked the Chairperson of COMEST for his work and for making COMEST more policy and action oriented. The Director-General explained that he had convened the extraordinary session to introduce the new Members to UNESCO and the Commission, as well as to provide an opportunity for consideration of the future work plans and the means of implementing these plans. He mentioned various activities planned for the 2004-2005 biennium, highlighting in particular the importance of teaching of ethics during this period. He conveyed the satisfaction of the Executive Board of UNESCO at COMEST's new and more regional approach. The Director-General also communicated the request of the Executive Board of UNESCO for COMEST to provide recommendations on the advisability of drafting an international declaration on the ethics of outer space; recommendations, based on studies made in cooperation with the International Council for Science (ICSU),

on the advisability of elaborating an ethical code of conduct for scientists; and a report on studies examining the principles of environmental ethics, which also identifies possible international actions in this area. He stressed that the role of COMEST in giving guidance in the area of ethics of science and technology was of the utmost importance and ended by thanking the members of COMEST once again for their commitment to this work.

Presentation of COMEST Members

Mr **Jens Erik Fenstad**, Chairperson of COMEST, introduced himself and said that he was committed to COMEST in order to help shift the focus towards responsibility for science and technology. He then invited the COMEST Members to introduce themselves and to state what aims and aspirations they had for COMEST and for their participation in the Commission.

Ms **Leila Seth**, Vice-Chairperson of COMEST, described herself as a lawyer from India. Some time back she retired from her position as Chief Justice of a state in India. She expressed particular interest in the environment, education and human rights, demonstrated by her involvement in a human rights NGO and as the former vice-president of the World Wide Fund for Nature, India, an environmental NGO. Ms Seth said that COMEST should be involved in the promotion of teaching scientific and environmental ethics to school children from an early age.

Mr **Cheick Modibo Diarra** introduced himself as being on sabbatical from the Jet Propulsion Laboratory, USA, where he was Director of the Mars exploration programme. He is concerned at the tendency of countries that have developed new technologies at the expense of the global environment to restrict access by developing countries to such technologies. Mr Diarra also bemoaned the debilitating lack of resources provided for the operation of COMEST and its activities and called for an increase in funding.

Mr **Song Sang-yong** introduced himself as having a background in history of philosophy and evolutionary biology. He mentioned his involvement in bioethics at an earlier stage. He had also been involved in work on a charter for scientists and engineers. He therefore expressed a wish to contribute to UNESCO's activity on an international code of conduct for scientists.

Mr **Johan Hattingh** introduced himself as being trained in philosophy of technology. He is a professor in applied, environmental and development ethics. He is particularly interested in the potential of technology to promote equitable human development and moral foundations in the practice of science. He hopes to bring to COMEST the perspective of a developing and democratizing country.

Mr **Diego Gracia** introduced himself as a specialist in psychiatry and a professor of history of medicine and bioethics. He works in the area of ethics of responsibility and the ethics of scientific research. He is interested in teaching bioethics around the world, particularly in developing countries, and in the protection of humans in clinical research.

Ms **Jaroslava Moserová** introduced herself as a surgeon by training and a senator in the Czech Senate. She is concerned with ethics in general, not only scientific ethics. She expressed great interest in the code of conduct for scientists.

Mr **Carthage Smith**, representative of the Chairperson of the International Council for Science (ICSU), introduced himself as a biochemist and described ICSU as an NGO representing scientists the world over, mainly in the natural sciences. ICSU is currently examining how it, as representative of the independent scientific community, may fruitfully collaborate with UNESCO, as an intergovernmental organization, on ethical issues in science and society. The representative from ICSU felt that ICSU, UNESCO and COMEST could work together to defuse the tension between independent scientists and policy makers on specific issues, mentioning in particular environmen-

tal ethics and studying the feasibility of a code of conduct for scientists. ICSU is currently reviewing its role as regards ethical issues for science and society and will submit the final report to COMEST for consideration on possible areas of cooperation.

Ms **Michèle Jean**, Chairperson of the International Bioethics Committee (IBC), introduced herself as the former chairperson of several committees dealing with ethical and bioethical issues in Canada. As a historian and an adult educator, she is particularly interested in knowledge dissemination. She mentioned that the IBC is currently drafting an international declaration on bioethics.

Mr **Kazancigil**, representative of the Chairperson of the International Social Science Council (ISSC), felt that there was a distinct lack of interdisciplinary approach in UNESCO. He pointed out that ethics of science and technology are related to the economy, the 'market', and politics, and thus questioned the absence of economists and political scientists in COMEST. He also questioned why the Executive Board document on COMEST had mentioned cooperation with ICSU but not with the ISSC or the International Council for Philosophy and Human Science (ICPHS). The representative from ISSC said that the issue of ethics of scientific research was also highly relevant for many areas in social science. He said that the disharmony between science and technology on one hand and society on the other is a consequence of the current world structure, societal values and the focus on profit making. He therefore suggested the initiation of a project whereby the ISSC, ICSU and the ICPHS would work with COMEST to introduce such issues into the debate.

The Chairperson noted that cooperation not only with other institutions but also within UNESCO itself was an extremely important issue. Nevertheless, he said that ex-officio membership of COMEST was in itself an invitation to cooperate with COMEST and that the subject of cooperation with other institutions would be discussed in greater detail on the second day of the session.

Mr **David Pugh**, Chairperson of the International Oceanographic Commission (IOC), introduced himself as a physicist by training with a particular interest in marine physics. He then introduced the IOC as concerned with ocean science, its applications, and technology transfer, particularly to developing countries. He said that marine scientists did not explicitly discuss ethics but that they too were faced with ethical challenges in the course of their work. He cited sustainability as a particularly challenging concept and fishing, disposal of waste, and climate change as areas where ethical considerations were directly relevant. He also expressed his interest in the work to be done on the precautionary principle.

Mr **Lu Yongxiang** introduced himself as having a background in mechanical and control engineering. He is President of the Chinese Academy of Sciences and Vice-President of the Third World Academy of Sciences (TWAS). He said that there should be an emphasis not only on ethics of outer space but also on eco-development, biotechnology, nano- and meso-technologies, and the challenges of science and technology in the future. Mr Lu said that biodiversity is an important resource, and that its protection, not simply that of the human environment, should be a priority.

Mr **Ruben Apressyan** introduced himself as a philosopher working in the Institute of Philosophy in Moscow, Russia, a part of the Russian Academy of Sciences. He teaches at various universities in Russia. He is primarily involved in moral philosophy and ethics applied to areas such as medicine, space and to social and political issues. He recently developed a programme on teaching ethics targeting university ethics teachers and hopes to work with COMEST in this area. He said that ethics, not just in science but also in humanities, should be taught at all levels. He also said that teachers are in need of resources.

Mr **Mohamed Bennouna** described himself as an international lawyer. He said that trying to reconcile different values is most important, especially since certain imperative norms enshrined within national and international laws conflict with each

other. His fields of interest are peace and security as well as law of development and globalization. He felt that the Commission should be involved in addressing inequity between nations through the promotion of ethics of science and technology. He also expressed interest in the work on the precautionary principle.

Ms **Nadja Tollemache** introduced herself as a lawyer and has dealt with ethics of conflict resolution as an ombudsman. She has served on a number of ethics committees in New Zealand. She has also been involved in promoting ethics among young university-level scientists in conducting their research. She stressed the importance of considering future generations in policy decisions today.

Mr **Luiz Hildebrando Pereira da Silva** is a medical doctor, specialist in molecular biology and molecular genetics. He has dealt with ethics concerning issues such as the exploitation of natural resources and indigenous people. He is particularly interested in the impact engendered by the application of new knowledge and technologies, especially biotechnology, to sustainable development. He believes that science should be made into a cultural tool for society in order to establish an equilibrium between human societies and the local environments to be protected.

Mr **Alain Pompidou** described himself as a professor of biology and a doctor of medicine. He has been involved in policy making, in promoting science and technology in biomedicine, and in intellectual property rights. He has been involved in the COMEST sub-commissions on the ethics of energy and the ethics of outer space. Mr Pompidou said that the purpose of COMEST should be to give guidance on coping with freedom of choice by addressing morals for action and, more importantly, developing a sense of accountability to safeguard the individual, humanity and cultural heritage.

Mr **Henk ten Have** introduced himself as Director of the Division of Ethics of Science and Technology since September 2003. The Division

is composed of a Section for Bioethics and a Section for Ethics of Science and Technology. He is trained as a medical doctor and a philosopher from the Netherlands. He practised medicine for several years. He became a professor of ethics, philosophy, and the history of medicine and then a professor of bioethics.

Mr **Pierre Sané** introduced himself as the Assistant Director-General of the Sector for Social and Human Sciences which is responsible for the programme of ethics of science and technology, the priority programme of the Sector. The four other programmes are: human rights, with an emphasis on research and policy advice, women and gender, racism and discrimination; philosophy and human sciences, human security and anticipation, and democracy; social sciences, with a focus on understanding and fostering better linkages between the social science research community and policy makers; and poverty, an intersectoral programme which approaches poverty from a human rights perspective. Mr Sané described his background as being in political science. He served as Secretary-General of Amnesty International before joining UNESCO three years ago.

The Chairperson briefly described the five absent Members of COMEST: Ms Pilar Armanet Armanet from Chile, Director of Higher Education for the Ministry of Education of Chile; Ms M.R.C. Greenwood, recently retired from her Chancellorship at the University of California, Santa Cruz; Mr J.P. Kimmins, Professor of Forest Ecology at the University of Columbia; Ms Suzanne Mubarak, first lady of Egypt; and Mr Yoichiro Paul Murakami, Professor of the International Christian University of Tokyo.

Rapporteur

The meeting designated Ms Leila Seth as temporary Rapporteur of the Bureau of COMEST as, in accordance with COMEST Statutes, the official Rapporteur shall be elected at the next ordinary session of COMEST (Bangkok, March 2005).

Presentation of COMEST workplans 2004-2005 and working methods

The Executive Secretary then presented the background of UNESCO's work in ethics of science and technology and the working methods for the future. He gave an overview of UNESCO and the Social and Human Sciences Sector, responsible for the programme on ethics of science and technology. He briefly described the history of ethics of science and technology, explaining that the programme began with bioethics and was gradually broadened. For the purposes of explaining the programme activities, he distinguished four main areas in ethics of science and technology: bioethics, environmental ethics, science ethics, and space ethics. He identified three types of actions: standard-setting, capacity-building, and awareness raising. He suggested that COMEST could propose to UNESCO other areas of contemporary science and technological advancement in which to pursue standard-setting action. At the time, drafting had just begun on a universal declaration on norms on bioethics. At the 169th session of the Executive Board, Member States had also requested feasibility studies on elaborating a code of conduct for scientists as well as declarations on environmental ethics and space ethics. He stressed teaching as an important way to implement such declarations. He explained the various stages involved in producing a declaration. For capacity-building, he described the ongoing project of creating a database with names of experts and institutions in the area of ethics, sample legislation implementing declarations in ethics, and examples of ethics teaching programmes. He described the planned ethics education activity that, for the present biennium, would prioritize East and Central Europe and Latin America. The focus would be on university-level teaching, with a view to expanding to all levels of education in the longer term. He said that, in order to find the necessary resources to support potential participants in the programme, drafting was underway for a proposal for the creation of a fellowship fund.

He mentioned the establishment of documentation centres as well as UNESCO Chairs. However, he said that a concrete procedure for working with the Chairs would be needed before new ones were established. For awareness raising, an ongoing series of rotating conferences had been launched to publicize UNESCO's activities, to establish contact and network with national experts, and to discuss ethics issues that are relevant to the country or region. Production of publications and informational materials are another activity. Concerning working methods, the Executive Secretary expressed the wish to involve COMEST Members more intensively in UNESCO's activities. He also envisioned a more active role for the Secretariat, which could propose topics of discussion to COMEST and conduct preliminary research in particular areas. He stressed the need to generate tangible products, such as standard-setting policy documents and very specific implementation activities. He identified two separate mechanisms in policy making. First is an analysis of the state of the art and consensus building within a group of experts; second is consensus building at the political level, based on the opinion of the experts. The role of COMEST Members is to advise UNESCO at all stages on the correct approach to take: based on the expert analysis, COMEST is to formulate advice addressed to UNESCO about what policies could be taken; COMEST could help in the political process to find a suitable common ground.

Referring to the history of the International Bioethics Committee (IBC), one member requested information on the first activities undertaken by UNESCO for ethics in the life sciences and asked what source of funding was provided for UNESCO Chairs. The Executive Secretary replied that he would provide this information and that UNESCO Chairs are established at the request of Member States. The Chair is set up with seed money from UNESCO only once assurances of continued funding from other sources is secured. He suggested that one possible reason for the absence of reporting from the previously established Chairs was that no funding was provided after

UNESCO seed money had been spent. Another possibility was that the Chairs were reporting to the UNESCO Sector for Education but that no evaluation of the reports had been carried out. Given the number of Chairs, a system of evaluation should be established.

The Chairperson pointed out that the Division's activities in bioethics are intense and the bioethics programme is traditional in the UNESCO framework. He expressed the wish to develop similar activities in ethics of science and technology and to establish Chairs, such as in environmental ethics. He said that the ethics of science and technology programme has collaborated actively with other international organizations, giving the example of ethics of outer space which was an enterprise undertaken upon the request of the European Space Agency (ESA).

Concerning the working methods, the feeling was expressed that it would be easier for COMEST Members to make recommendations based on the work of the expert groups if COMEST Members could interact with the members of the expert groups. The Executive Secretary replied that during COMEST ordinary sessions, held once every two years, there would be the opportunity to involve members of the expert groups. As an example, he mentioned that at the third ordinary session of COMEST the Chair of the expert group on the teaching of ethics was in attendance. The Chair of the expert group had presented the Report on the Teaching of Ethics to the participants, including national and regional experts, and engaged them in debate on the topic. The Chairperson added that COMEST Members could also be involved individually in the expert groups creating a portfolio system whereby each COMEST Member would be involved in certain activities in which they have specific expertise and interest.

One member replied that designating a rapporteur to each subject would be better than giving the responsibility of producing a report to a group for two reasons: an individual is more responsible and therefore more likely to do the job than a group; meetings, which are often difficult to schedule, can be avoided. In this scheme, the rapporteur would make an initial draft, then

solicit comments on it and input from other members of the group, and finally incorporate the inputs into the final report. With regard to the possible declarations in the workplans, it was pointed out that COMEST should play a role by deciding what subject areas would be ready for instruments that are more binding than a declaration and then making decision-makers aware of such potential. In response, the Executive Secretary said that, given that COMEST Members have many commitments, the idea was to utilize outside experts who would be able to commit adequate time to the work of the expert group. COMEST Members can be involved individually in the work of the group, depending on their interest and expertise. The final report of the expert group then goes to COMEST, at which point COMEST is entrusted with deciding if the subject is sufficiently mature for normative action and can advise accordingly.

The Chairperson added that the expert group for the teaching of ethics had produced its work efficiently and that the expert group for the precautionary principle was also working well.

A question was asked if it would be possible to propose new initiatives and programmes. The Executive Secretary clarified that the programme and outline of the activities of UNESCO is determined by the General Conference and that proposals for new actions and activities could only be implemented if approved by the next General Conference to be held in October 2005.

A query was raised regarding inclusion of cyberspace ethics. The Chairperson suggested that the issue be discussed further during the second day of the session but pointed out that COMEST had previously worked on the issue of ethics of the information society and that there were other Sectors within UNESCO working on the issue. He also stressed that UNESCO's

system of allocating funds for new proposed activities was complex. Other suggestions for issues to explore were cognitive science and brain and neural research.

Another question raised was why there should not be teaching programmes in ethics of science in North America. New activities in Africa were also requested. The approach to be taken with regard to the possible declaration on the use of the environment was also discussed: should the goal be a weak declaration that would be acceptable to all or a strong declaration for which broad consensus would be difficult to obtain. The Executive Secretary said that, due to limited resources, the focus of ethics teaching activities in the current biennium was Latin America and Eastern Europe but that in the next biennium the focus would be on Africa or Asia. Based on the assumption that Western Europe and North America already have more ethics teaching programmes than in other parts of the world, no teaching programmes are planned for these geographical areas.

With regard to the strategy for arriving at a declaration, the Executive Secretary said that first, the relevant ethical principles to be included in the declaration should be identified and, second, the level of Member States' support for these principles should be determined. The ultimate goal is to produce a declaration that Member States can agree upon and support. The task of COMEST in this enterprise is to advise on the way forward at every stage.

It was clarified that COMEST could discuss and initiate any new idea or project regardless of the scheduling of UNESCO's governing bodies, and that only the funding aspect would be dependent on approval by the governing bodies. The Executive Secretary remarked that discussion should eventually produce results in order to increase the relevance of COMEST.

DISCUSSION OF THE ACTIVITIES

The Chairperson of COMEST emphasized that the documents discussed were working documents or, in UNESCO language, “non-documents”.

Precautionary principle working group

The Executive Secretary introduced the issue by specifying the aim of the group as mandated by the Executive Board, namely to clarify the definition of the precautionary principle and to show how it can be applied. The draft report of the group, he stated, would be ready for consideration at the next COMEST ordinary session. Members of the group would use information technology to work together between sessions. The document produced is intended to be a consensual study. The Chairperson of the IOC said that his Commission had a strong interest in the topic and would also be willing to discuss this document. The Chairperson of COMEST responded by highlighting the expertise of the expert group’s Chairperson in marine issues, notably in relation to fish farming.

The President of the Chinese Academy of Sciences took this opportunity to express his general view on ethics of science and the precautionary principle. Ethics of science, he stated, should be based on human rights first and foremost. It should also take into account the needs of future generations and reflect the intention that scientific progress benefit all nations. Finally, it should take into account the protection and preservation of the environment. Among the issues that he felt may require consideration, the following were mentioned: energy and fresh water; food; biodiversity; outer space and oceans; techno science and information technology with the related

issues of privacy and safety; common housing; the rational application of biotechnology, especially gene technology; nano- and meso-technology; and cognitive science. He also mentioned actors with whom cooperation was needed: legal authorities, governments and decision-makers, scientific and technological organizations, social scientists, teachers, public media, scientific communities and civil society. The interest of the Chinese Academy of Science in these issues was highlighted, as was its willingness to host COMEST meetings.

“Ethics around the World” programme

The Executive Secretary introduced the subject, explaining in particular the two aims of the “Ethics around the World” rotating conferences: to inform experts from Member States about the activities of UNESCO, and the Division of Ethics of Science and Technology in particular, and to involve them in these activities. In addition, in some countries the conferences also provide an opportunity to identify experts involved in ethics of science and technology. He invited COMEST Members to initiate such conferences.

A suggestion was made that conferences be organized on a regional rather than national scale, to which the Chairperson and the Executive Secretary answered that this possibility was to be explored. Another suggestion made was that reasons for giving priority to particular regions be stated more explicitly in order to avoid any misunderstanding and undue criticism. Furthermore, it was suggested that participation in other conferences on ethics also be considered, to which the Chairperson responded by emphasizing the

relationship of COMEST with other organizations. The resource issue had been raised again and it was pointed out that no strategic approach should be ruled out because of budgetary constraints. Extrabudgetary funding must preserve the accountability and independence of COMEST and, accordingly, funds should be raised with precaution, and not from industries or non-Member States. The representative of ICSU asked about consultations with parties to the World Conference on Science. The Chairperson answered that the Science Sector of UNESCO was primarily in charge of these relationships and that COMEST, with the Report on the Teaching of Ethics, was one of the only organizations that had started to implement the Budapest recommendations. The view was expressed that the exigencies of improving access by least favoured countries to science and technology was not reflected properly and that this topic should feature among the proposed possible themes for the conferences. The Executive Secretary emphasized that these conferences seek to present the results of past work and that there was no significant work to be presented on this issue. The Chairperson of the IBC emphasized that, in Canada at least, a conference was an opportunity to learn about activities in the field of ethics in the host country.

Ethics Education Programme

The Executive Secretary introduced the subject. The aim of this activity was to implement the Report on the Teaching of Ethics. He stressed in particular the importance of the initiation of international programmes through collaborative networks. This activity was a direct response to the World Conference on Science. The Chairperson stated that the report had been prepared in an exemplary and very efficient manner, with only two meetings of the expert group. One Member insisted that teachers, not only students, should receive funding to benefit from the programme. An error in the Report was pointed out, where "South East Asia" should have read "Asia". This was duly noted.

Regarding UNESCO Chairs, the Executive Secretary reaffirmed the need to reevaluate

all Chairs and establish a procedure of follow-up. One member highlighted the importance of developing and acknowledging national standards as well as international standards (referring to the recommendations of the report). He also raised the idea of using information technology for this activity but insisted that in some countries, Russia for example, English skills were so limited that translation of the teaching material would be unavoidable. The issue was raised of the standards of teaching programmes and of their implementation. A query was also raised as to the role the IBC would play in this activity.

Environmental ethics

In his introduction to the topic, the Executive Secretary presented the objectives of the group of experts on environmental ethics. He stated that, 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 had elaborated a three phase strategy, involving firstly top environmental ethicists, followed by the scientific community as a whole, and finally policy makers. The first phase of this work on environmental ethics will take place in 2004. UNESCO has set up a working group of 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.

COMEST members expressed the view that environmental ethics is not only a philosophical

problem but would also be defined by common sense and requires urgent action and international cooperation in order to solve very practical problems. The profile of the group should therefore be expanded to include experts with a more scientific background. The Executive Secretary explained that it was helpful to identify the ethical framework first, if any, and that ethical problems tend to disappear under policy making and scientific decision-making if all issues are discussed together. He highlighted that serious academic controversies exist in environmental ethics. One Member recommended that dialogue be maintained across the three stages, as stated in the working document. It was agreed that the name of a specific company be erased from the document. However, it was also agreed that it is important to have exchanges with economic actors in the field of ethics, to inform them of UNESCO's activities and to encourage their participation in the international debate.

Some Members recommended the participation of experts with scientific and legal backgrounds and the broadening of consultations. The Chairperson and Executive Secretary clarified that deeper discussions on this document would take place in Bangkok and recalled that the Member States had requested clarification of the principles. Reference has been made to the success of the Seminary on Outer Space in which the work of experts in ethics preceded consultation with space actors. The representative of the IOC expressed the view that the real issue was the way in which the consultation would take place. Finally, the Assistant Director-General suggested that legal and scientific experts be added to the working group, while recalling that Member States and the Weinstock Report both called for a larger philosophical dimension of COMEST's work.

Ethics of outer space

Mr Pompidou introduced this subject, emphasizing some of the main ethical issues to be raised in outer space, such as sample returns, space debris, freedom and protection of citizens in the framework of electronic surveillance, crisis management, and data access.

A few points were raised: the common ownership and common benefit of space and space technologies; the necessity that space technologies benefit all countries; and the issue of space debris. On all these subjects international cooperation was needed. Mr Pompidou was congratulated for his previous contribution in this matter. It was also suggested that a letter be sent to NASA and other space agencies before constituting any group, thus involving them in the process from the early stages and avoiding any sense of "conspiracy". The main concern was the barriers to entry to space and to space technology placed by space faring nations upon non-space faring nations. Mr Pompidou recalled that ESA was the stimulus for UNESCO's initiative in the area of the ethics of outer space. The need to promote ethical issues was highlighted as well as the resistance of some members of the space community to consider them. Therefore, it was important to involve the space community in this work. The view was also expressed that space tourism should urgently be regulated. However, the positive outcome of the past experiences of space tourism for awareness raising should be underlined. Mr Pompidou referred to the proposition of an international authority in space, which had not been well accepted by the legal space community in particular. One member took the example of a space station on the moon, and asked how this would be made compatible with the principle of non-appropriation. Regarding the risk of contamination, he insisted that the probability of contaminating outer space by manmade vehicles was below 1/1,000,000, but that there was a higher risk of contamination of the terrestrial environment by space objects, returned samples in particular. Mr Pompidou added that there was a possibility of finding fossilized genes on Mars, and that their potential use would raise ethical issues. The risks here were unknown, he said.

The Chairperson emphasized again that the ethics of outer space was explored at ESA's initiative, and that strengthening of intersectorial cooperation, in particular with the Science Sector, was to be explored as well. One member opposed the two principles of non-appropriation and freedom of research, therefore raising

the issue of intellectual property. Mr Pompidou stressed the awareness of some countries' decision-makers of ethical issues, notably the Chinese authorities. The Chairperson finally suggested that the United States' authorities be informed as well, notably the relevant White House counselors.

Ethical code of conduct for scientists

The Executive Secretary introduced the subject, its history and in particular the recent developments since the World Conference for Science and the Inter-Agency Committee meeting. A small group of experts would first explore this issue, which is contentious as some segments of the scientific community (such as the Royal Society) are completely opposed to any such code.

One Member shared his national experience and emphasized his government's lack of interest in the matter. He asked how support for such a charter would be garnered, who would initiate it, and if it would be a governmental enterprise. The representative of ICSU insisted on the sensitivity of the issue. A very detailed code, he said, would not be acceptable by scientists, but he emphasized that a framework for those who do not have guidelines would be useful. The Chairperson recalled his experience at the World Conference on Science, and the reluctance of states to make reference to any code or oath at the time. It was claimed that a distinction should be made between engineers and scientists as they may require different kinds of regulation. Different branches of ethics also need to be distinguished. The Chairperson of the IBC asked if bioresearch would be covered by this activity, and claimed that there was an opportunity for the IBC to be involved. She also referred to the Canadian example in which two draft codes had been rejected, and a policy statement adopted instead. The Chairperson recalled the issues raised by the International Labor Organization's representative during the third ordinary session of COMEST,

and said that such a code would not simply constrain scientist and engineers, but would protect them as well. The question asked was if the code would be concerned only with research or whether it would also cover technological applications. The border line between the two was unclear, the Chairperson said; the exact scope and application of the code has still to be discussed.

Some Members questioned the advisability of the approach. They favoured an educational approach towards science ethics and doubted the effectiveness of such a code, saying it would be "meaningless". They requested that this view also be conveyed to the Executive Board. The Executive Secretary recalled that the mandate given by the Executive Board was to study this possibility. The Chairperson also emphasized that more care was needed in drawing a conclusion to be presented to the Executive Board.

Avicenna Prize 2004-2005

The next jury will meet during the COMEST session in Bangkok. The Executive Secretary urged Members to encourage their countries to submit applications. The Members of COMEST interested in being part of this jury were invited to contact the Secretariat.

New initiatives

The Chairperson stated that a discussion during a COMEST session would be a good way to introduce new topics, as was the case at the third ordinary session of COMEST. Regarding nanotechnology, he said that work would commence once the report on nanotechnology by the Royal Society has been published. It was also mentioned that the Chinese Academy of Science was preparing a report on the subject. A question was raised about formal communication between UNESCO Divisions, to which the Chairperson and Executive Secretary responded by emphasizing the interest of the Information Society Division in nanotechnology.

NEXT MEETINGS

The Executive Secretary and Chairperson announced that the next ordinary session of COMEST would take place in Bangkok, Thailand, from 23 to 25 March 2005. The reports on the precautionary principle, environmental ethics, and possible other issues would be presented. The jury of the Avicenna Prize for Ethics in Science would meet. A youth forum was required. There would hopefully also be a ministerial meeting. The COMEST Members congratulated the Secretariat on its work and entrusted the Secretariat with the preparation of the agenda for the Bangkok meeting. The Chairperson expressed his satisfaction at the level of attendance at the present meeting and promised a very fruitful meeting in Bangkok. It was asked whether the participation of the Nobel Laureate Amartya Sen as keynote speaker had been confirmed, to which the Executive Secretary replied that it had not yet been confirmed, but there was a likely chance of his coming.

Closing remarks by the Assistant Director-General

After presenting briefly the activities of the Sector for Social and Human Sciences, and recalling the priority status of ethics in UNESCO, the Assistant Director-General, Mr Pierre Sané, stated that, to a certain extent, ethicists were lagging behind the development of science. But this, he said, was all the more reason to take the lead.

He then drew attention to the Statutes of COMEST that specify the Commission's role

very clearly as an advisory body. The Executive Board, he said, was expecting guidance from COMEST toward normative action.

He thanked the Chairperson and welcomed the new Members. He then referred to Prof. Weinstock's study as a useful document, and took it as a reason for a larger involvement of ethicists and philosophers in COMEST.

UNESCO had identified aspects which would require consideration by COMEST prior to the next General Conference in Fall 2005 so that these matters could be submitted for consideration by the General Conference. In a way, a moral declaration on ethical principles in outer space would be stronger than an international binding instrument. The request for a code of conduct, he added, had been made by the United Nations Security Council, and could not therefore be ignored. Though the governing body of UNESCO sets priorities, there is still room for initiative, in line with article 2 of the Statutes which states that COMEST is mandated to "detect early signs of risk situations". With its new Members, he claimed, COMEST now covered the whole range of disciplines UNESCO had intended.

The Assistant Director-General then expressed his understanding of the concerns related to resources. UNESCO, he stated, was a small organization with a limited budget. Sources of extrabudgetary funds would be explored while maintaining independence. He applauded the moving of COMEST meetings from continent to continent, from South America in 2003 to Asia in 2005 and Africa in 2006 or 2007. Referring to UNESCO Chairs,

he acknowledged that this was a concern, and that ways had to be explored to better integrate the Chairs and to follow up on their performance.

Finally, he chose to emphasize four keywords. Firstly: Participation. COMEST would involve civil society, economic actors, religious groups, etc., thus matching notably UNESCO's engagement toward cultural diversity. Secondly: Human rights. Norms must be founded upon them, and they are challenged everywhere by poverty, globalization, and other threats. Thirdly: Partnerships. Fourthly: Attendance – of COMEST Members in particular.

Mr Song then announced that an Ethics around the World conference was being held in Korea on World Science Day (November 10, 2004). The morning session would comprise presentations by Mr Fenstad, Ms Jean and Mr ten Have, followed by a discussion with 5 panelists. In the afternoon session there would be discussion with local speakers on four themes: bioethics, sustainable development, a code of ethics and ethics education.

In conclusion, the Assistant Director-General said that he was very encouraged by this meeting, which was taking place after what had been a few difficult years for COMEST.

Division of Ethics of Science and Technology of UNESCO

The Division of Ethics of Science and Technology reflects the priority UNESCO gives to ethics of science and technology, with emphasis on bioethics. One objective of the medium-term strategy of the Organization is to "promote principles and ethical norms to guide scientific and technological development and social transformation".

Activities of the Division include providing support for Member States of UNESCO that are planning to develop activities in the field of ethics of science and technology, such as teaching programmes, national ethics committees, conferences and UNESCO Chairs.

The Division also ensures the executive secretariat for four international ethics bodies, namely the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST), the International Bioethics Committee (IBC), the Intergovernmental Bioethics Committee (IGBC), and the United Nations Inter-Agency Committee on Bioethics.

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