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Scientific and Cultural Organization

Executive Board ex

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Item **13** of the provisional agenda

REPORT BY THE DIRECTOR-GENERAL ON THE ADVISABILITY OF ELABORATING AN INTERNATIONAL DECLARATION ON SCIENCE ETHICS TO SERVE AS A BASIS FOR AN ETHICAL CODE OF CONDUCT FOR SCIENTISTS

SUMMARY

The present document contains the report by the Director-General informing the Member States on the activities of UNESCO, in cooperation with the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST), in order to pursue reflection on the question of science ethics in conformity with 33 C/Resolution 39 adopted by the General Conference at its 33rd session. The report presents an overview of activities in this field, including the recommendations adopted at the COMEST extraordinary session held on 27 and 28 June 2006 at UNESCO Headquarters.

Decision proposed: paragraph 26.

I. BACKGROUND

1. In 33 C/Resolution 35, the General Conference authorized the Director-General to "pursue reflection on basic ethical questions raised by scientific and technological progress, based on UNESCO's role as an ethical, intellectual, international and interdisciplinary forum, through the work of the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST), in cooperation with UNESCO's intergovernmental and international scientific programmes and benefiting from intersectoral contributions, especially Major Programme II, with respect to outer space, environmental ethics, a code of conduct for scientists, and ethics related to emerging technologies"; and to "reinforce the advisory role of COMEST and the standard-setting action of the Organization by encouraging the elaboration and promotion of principles in the fields of environmental ethics and science ethics". Furthermore in 33 C/Resolution 39(4) regarding the advisability of elaborating an international declaration on science ethics, the General Conference requested the Director-General "to pursue reflection on the question of science ethics, in cooperation with the International Council for Science and the World Commission on the Ethics of Scientific Knowledge and Technology, and to submit a report to the Executive Board at its 175th session".

II. ACTIVITIES UNDERTAKEN IN ORDER TO PURSUE REFLECTION ON THE QUESTION OF SCIENCE ETHICS

2. UNESCO has pursued reflection on ethical questions raised by scientific and technological progress through three ongoing activities:

- Surveying the wider field of science ethics and particularly topics that are relevant from an international perspective by carrying out consultations with individual scientists, philosophers, policy-makers and relevant international and regional organizations and stakeholders in all regions, in order to identify and discuss ethical issues that merit further reflection;

- Making an analysis of existing codes of conduct in various scientific and professional areas, and in different countries and regions; and

- Reviewing previous work of UNESCO in this area, especially regarding the Recommendation on the Status of Scientific Researchers, adopted at the 18th session of the General Conference, in November 1974.

Consultation meetings on science ethics and scientists' responsibility (March-May 2006)

3. A series of consultation meetings was held from March to May 2006 in various regions and countries. Experts, scientists and representatives of regional and international organizations, National Commissions and Permanent Delegations to UNESCO participated in their personal capacities. The meetings were organized in Member States by UNESCO at the invitation of the Member States. Detailed reports of those meetings are available on the UNESCO webpage (http://www.unesco.org/shs/ethics).

- The first occasion to present and discuss activities regarding science ethics and scientists' responsibility was the General Assembly of ALLEA (All European Academies) meeting in Krakow, Poland, from 22 to 24 March 2006. UNESCO presented its activities in science ethics to representatives of ALLEA's 52 member academies of science.

- On 14 April 2006, the first national consultation meeting was held at the Tokyo Campus of the Kanazawa Institute of Technology, Japan. The 55 participants included members of the Science Council of Japan's working group that had released its draft code of conduct on ethics on 11 April 2006.

- The second national consultation meeting with 45 participants took place in New Delhi, India, on 24 and 25 April 2006.

- On 11 and 12 May 2006, at the Palais des Nations in Geneva, Switzerland, the Swiss National Commission hosted a European regional consultation meeting with nearly 40 participants: scientists, academic researchers, government officials, as well as representatives of UNESCO National Commissions and Permanent Delegations, representing 13 European and North American countries. This meeting was combined with consultation of United Nations agencies and international scientific organizations.

- An Asia and Pacific regional meeting in Bangkok, Thailand, on 15 and 16 May 2006, gathered 50 participants from 13 countries.

- Finally, on 30 and 31 May 2006, a Latin America regional consultation meeting in Belo Horizonte, Brazil, was attended by 80 participants from six countries.

4. Further consultation meetings have been planned in Africa and in the Arab region in 2007. The consultation meeting process is not yet completed, and hence the document examined and approved by COMEST at its extraordinary session on 27 and 28 June 2006 only provided an interim analysis. The outcomes and reports of these meetings provided input to the advice provided by COMEST to the Director-General on this issue (see paragraph 24 below).

Results of consultation meetings

5. Strong arguments were made for codes of conduct for scientists, and education and training programmes to help address ethical concerns. Participants agreed that efforts to elaborate ethical rules regarding scientific and technological activities needed to be harmonized internationally, given the global scope of the scientific community.

6. It was generally agreed that codes of conduct, ethics education and training programmes can help inform individual scientists about their ethical and legal responsibilities when conducting research and thus can help promote a culture of responsibility and raise awareness among scientists and students about ethical issues. Universities can play an important role in this regard by requiring that students and professors adhere to relevant codes and by providing mandatory ethics programmes.

7. National and international regulations can also help prevent misuses in applications of research. Requirements for independent peer review of research can help identify, from an ethical perspective, potential benefits and risks, including means of mitigating risk. Independent scrutiny is the standard method of protection against misconduct. Sanctions for breaches of the rules can also help enforce compliance with ethical requirements, standard practice, for example, in the medical profession.

8. On the other hand, participants also agreed on the need for balanced codes of conduct to avoid deterring scientists from continuing to engage in relevant research or undermining public support for cutting-edge research.

9. Furthermore, internationally harmonized rules would be of value in situations where individual scientists were being pressured to undertake work without regard for international standards. They would also help ensure a level of equity for both academic and industrial researchers.

10. It was emphasized that governments and scientists need to work together to develop and apply proposed rules. The rules themselves must result from a process that provides reassurance to the public that precautions are being taken and that risks are being considered and addressed appropriately.

11. Efforts to achieve a harmonized international approach to science ethics and scientists' responsibility would have to overcome diverging perspectives. International organizations can help bridge these differences by providing an international discussion forum. In order for UNESCO to fulfil this role, however, a strong and broad political commitment is required at both the national and international levels.

12. Participants noted that there are differences, often political and cultural rather than technical, in how various countries approach ethical issues. Cultural differences among countries must be taken into account in any efforts to develop and implement international ethical standards for scientific activity and scientists' responsibility.

Analysis of existing codes of conduct for scientists

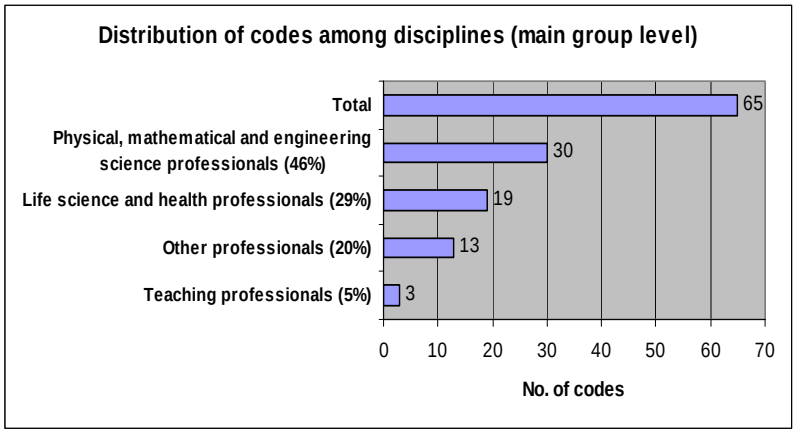
13. UNESCO is currently surveying the field of science ethics, and in particular has initiated a study on existing codes of conduct and codes of ethics for scientists and associated professions, in various scientific and professional areas and in various countries and regions worldwide. The study has three components: building a collection of codes (in different professions, countries and organizations); undertaking a critical, comparative analysis of codes and identifying their strengths and weaknesses; and creating a specialized database of codes in the Global Ethics Observatory (GEObs) that will be developed into GEObs Database 5. This study is an ongoing process. Increasing the collection of codes in different regions of the world in order to cover as many different disciplines as possible would give a more accurate picture of the distribution. The collection of codes to date, as well as the analysis criteria and methodology adopted in this study, can be found on the UNESCO webpage (http://www.unesco.org/shs/ethics).

14. **Geographical coverage**. The geographical focus of this study thus far has been on Asia and the Pacific, and Europe and North America, two of the three UNESCO regions where consultations with scientists, ethicists and policy-makers already have taken place. In the ongoing process, focus will shift to analysing codes from Latin America and the Caribbean, Africa and the Arab States. In total 65 codes have been analysed, minority of which (17%) have global coverage. Two codes have regional coverage (Europe), while the majority of the codes have national coverage, as shown in the table below.

Africa	Arab States	Asia and the Pacific	Europe and North America	Latin America and the Caribbean
South Africa Zimbabwe (4)		Australia (5) China (2) Fiji India (2) Japan (2) New Zealand (5) Republic of Korea (2) Singapore Sri Lanka	Belgium Bulgaria Canada (4) Germany (2) Latvia Netherlands Norway Sweden (4) United Kingdom (2) United States (8)	Argentina

15. **Providers and addressees of the codes**. The overwhelming majority of the codes analysed are provided by organizations (47 national, 2 regional and 8 global codes) with voluntary membership for professionals in a certain discipline. A few codes are issued by companies, non-organizational groups of scientists, universities and governmental advisory commissions. In most cases (80%), a code addresses all members of an organization, regardless of their membership status. Sometimes certified members must abide by a more extensive code than other members, and sometimes sanctions only apply to certified members.

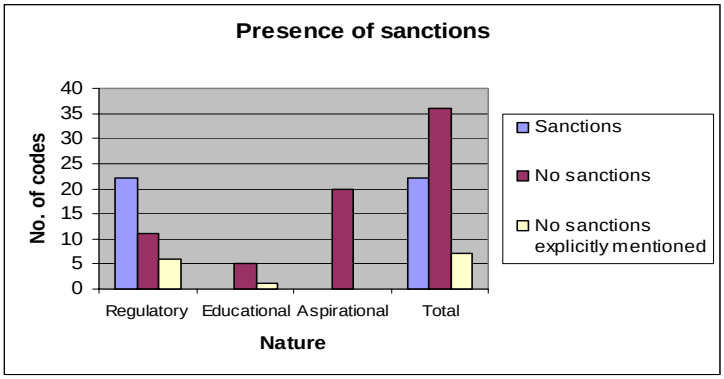
16. **Disciplines**. The codes analysed address many different professions and disciplines, and have been classified according to ISCO-88. From the figure below it can be seen that the most represented group is physical, mathematical and engineering science professionals (46% of all codes). The second largest number of codes is found within the disciplines of life science and health (29% of all codes). Codes from social and human sciences were found to a much lesser extent. This distribution of the analysed codes among different disciplines indicates that there is a higher concern for ethical issues within the disciplines of technology, engineering and computing sciences and within life science and health than within the social and human sciences.



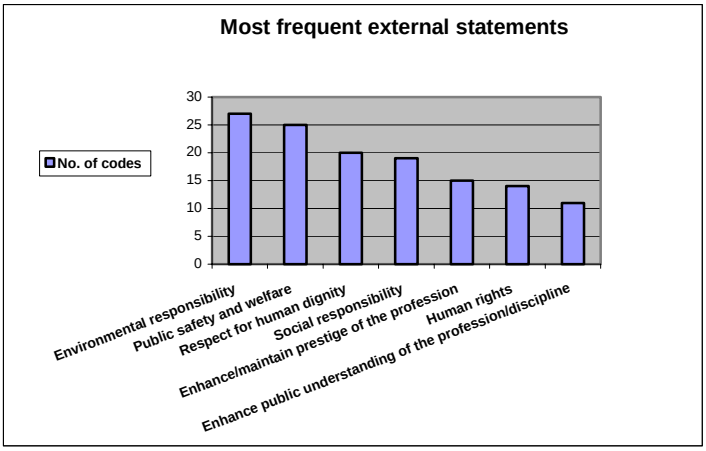
17. **Date of issuance of the codes**. Due to missing information about the dates of issuance, in particular about the date of adoption, it is not yet possible to draw any conclusions about the trends over time. From the addressees' point of view, this lack of information could also be problematic, *a fortiori* in the context of regulatory codes containing sanctions and considering the principle of due

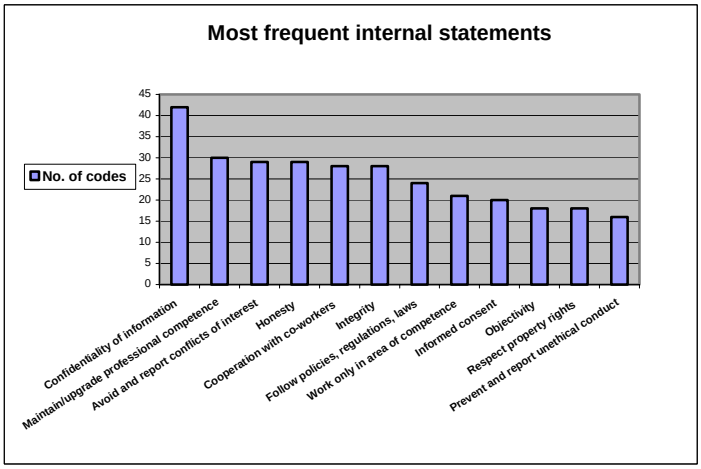
process (the right to defence, the right to know the basis for accusations, etc.). Indeed, to be implemented, a code and its date of issuance must be known to all stakeholders.

18. **Nature and enforcement of the codes**. Ambiguity was found in several codes between the nature of the code and the enforcement mentioned. For example, the fact that only 56% of the regulatory codes provide explicit sanctions in case of breach of the code is quite paradoxical. If provisions are meant to be regulatory, a way of enforcement is needed. Similarly, many of the regulatory codes do not mention any disciplinary body to investigate possible breaches of the code and take decisions on sanctions. Concerning commitment to the code, the majority of the codes of a regulatory nature explicitly require mandatory compliance whereas the majority of the codes of an educational and aspirational nature are of a voluntary character. However, there are exceptions to this logical connection between the commitment and the nature. Some regulatory codes are voluntary and a few of the aspirational codes have mandatory compliance. Both of these combinations are considered as sending contradictory signals. According to the study, many of the existing codes of conduct and codes of ethics have been issued by organizations in which membership is voluntary. Many professionals are not members of any such voluntary organization. The proportion of all professionals in a given geographical area who are members of such organizations is normally not higher than 60%, and often the percentage is much lower. Consequently, a significant number of professionals are not affected by any ethical codes.



19. **Content of the codes**. The result of the analysis regarding this criterion comprises two aspects: first, the most frequent statements referring to moral values and second, the distribution of those statements among four main groups of professions. The latter is important, because a recurring statement may not be well distributed among all areas of science and technology. In fact, this second aspect reveals whether or not a consensus is reached (voluntarily or not, with or without consultation) on one or several statement(s) within the scientific community as a whole. Regarding external statements, it has been observed that the most frequent statement (environmental responsibility) differs from the most equally distributed (public safety and welfare). Concerning internal statements, the most frequent statement (confidentiality of information) happens to be the most widely distributed one but closely followed by the second one (maintain and update competence). The graphs below show the statements more frequently mentioned by codes.





Review of previous work of UNESCO regarding science ethics and scientists' responsibility

20. On 20 November 1974, at its 18th session, the General Conference adopted the Recommendation on the Status of Scientific Researchers. This 1974 Recommendation, as part of the UNESCO normative framework, was used as an important background document during the consultation meetings.

21. The participants of the various consultation meetings were invited to reflect on a list of guiding questions on the relevance of the 1974 Recommendation previously prepared by the Secretariat. This set of questions mainly referred to the scope of its coverage as regards the advancement of science today, and to the application of its principles and norms regarding contemporary advancements in science and technology as well as regarding the mechanisms created to ensure this application.

22. Preliminary conclusions indicate that, taken as a whole, the Recommendation is a relevant and coherent text even nowadays. Most participants agreed with the Recommendation as an important starting point for the debates. Several options were raised and examined: updating the document; making it better known and more effective in practice; or use it as a basis for a new document, explicitly referring to ethical principles. It was a general opinion of the participants that, through its approach of looking at public and ethical aspects of scientific activities, this instrument was significant in combining the idea that individuals practising scientific activities have a personal responsibility and that this responsibility implies certain commitments regarding society.

23. In the consultation meetings, consensus was reached as regards the importance of promoting the Recommendation and evaluating its impact in Member States over time. Many participants also recalled the outcomes of the World Conference on Science, jointly organized by UNESCO and ICSU in Budapest in June 1999, when the debates on the elaboration of an oath or pledge for scientists resulted in the adoption of the Declaration on Science and the Use of Scientific Knowledge and the document *Science Agenda – Framework for Action*. The need for implementing the ethical aspects of this Declaration was also invoked by the participants as a basis for the work of COMEST, mainly regarding the education and training of scientists and codes of conduct for scientists.

III. COMEST EXTRAORDINARY MEETING

24. On 27 and 28 June 2006, COMEST held an extraordinary meeting in order to examine its statutory activities in regard to the UNESCO programme of ethics of science and technology approved for the 2006-2007 biennium, as well as progress reports of the activities carried out in conformity with the mandate received from the UNESCO governing bodies (172 EX/Decision 17, 33 C/Resolution 35 and 33 C/Resolution 39).

25. Having examined the work that has been undertaken by UNESCO and taking into account 33 C/Resolution 39, mandating further reflections on the issue of science ethics and scientists' responsibility, COMEST recommended the following to the Director-General:

1. Member States should be reminded of the principles adopted by them in the 1974 Recommendation on the Status of Scientific Researchers, and this instrument, together with the Declaration on Science and the Use of Scientific Knowledge, should be taken as a general reference for future works;

2. An assessment, from an ethical perspective, of the implementation of previous work of UNESCO in this area was deemed necessary, especially the 1974 Recommendation and the Declaration on Science and the Use of Scientific Knowledge;

3. The work that has been undertaken by UNESCO so far, such as the collection of codes of conduct worldwide, the critical and comparative analysis of existing codes, as well the elaboration of educational tools should be supported and encouraged;

4. Further international reflections and consultations should be carried out and fostered in order to identify a general ethical framework to guide scientific activity that will cover other stakeholders beyond the focus on scientists;

5. UNESCO, with the advice of COMEST, should work out such a general ethical framework;

6. The subsequent elaboration and/or implementation of specific codes of conduct for scientists should rely on Member States and the scientific community;

7. In this regard, it is necessary to set up a wide participatory process, involving all stakeholders as well as the society at large with a view to initiate actions in relevant sectors in the society.

Proposed draft decision

26. Having considered document 175 EX/14, the Executive Board may wish to adopt a decision along the following lines:

The Executive Board,

1. Recalling 29 C/Resolution 13, paragraph 2.C(d), 30 C/Resolution 20, 31 C/Resolution 21.1(a) and 32 C/Resolution 26, calling upon UNESCO to promote ethical reflection associated to the advancements of science and technology, with the advice of COMEST,

2. Considering 169 EX/Decision 3.6.1, 172 EX/Decision 17, as well as 33 C/Resolution 35 and 33 C/Resolution 39 (4), requesting the Director-General "to pursue reflection on the question of science ethics",

3. Taking into account the Recommendation on the Status of Scientific Researchers adopted by the 18th session of the General Conference, as well as the Declaration on Science and the Use of Scientific Knowledge, that resulted from the 1999 World Conference on Science, and the document *Science Agenda – Framework for Action*, both endorsed by UNESCO at the 30th session of the General Conference,

4. Having examined document 175 EX/14,

5. Appreciates and recognizes COMEST's role in UNESCO's reflection on ethics of science and technology;

6. Takes note of the recommendations proposed by COMEST at its extraordinary session (27-28 June 2006) regarding the activities to pursue reflection on science ethics to serve as a basis for an ethical code of conduct for scientists;

7. Expresses its appreciation of the efforts made to involve Member States, intergovernmental and international non-governmental organizations, and relevant national and regional bodies in the process of pursuing reflection on science ethics and scientists' responsibilities through a process of regional consultations, and encourages COMEST to continue this effort;

8. Invites the Director-General to take appropriate action to carry out an overall appraisal of the implementation of the Recommendation on the Status of Scientific Researchers as well as of the ethical aspects of the Declaration on Science and the Use of Scientific Knowledge, in order to assess their impact in Member States;

9. Invites the Director-General to report to the General Conference at its 34th session on the implementation of this decision;

10. Also invites the Director-General to convey to the Chairperson of COMEST the terms of this decision.