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**Meeting of Experts**  
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Item 5 of the provisional agenda

**Consideration of the content, promulgation, and adoption of codes of conduct for scientists**

## **Review and Analysis of Relevant Elements of Existing Codes of Conduct in Other Fields**

Background Paper prepared by the Secretariat<sup>1</sup>

### **INTRODUCTION**

1. The Secretariat has examined codes of conduct from a variety of different fields, including the nuclear industry, engineering, pharmacology, business and professional personnel management, at the international, national and sub-national levels, in an attempt to identify elements which may facilitate States Parties' consideration of *the content, promulgation, and adoption of codes of conduct for scientists*.

2. Identifying and summarising these codes has highlighted a number of principles and resulting obligations which may be of relevance to the Meeting of Experts. For the purposes of this paper, these elements have been grouped into five general areas:

- (i) The global public good;
- (ii) Respect for governance measures;
- (iii) Scientific integrity
- (iv) Scientific stewardship; and
- (v) Scientific obligations.

The global public good: the codes identified in this paper contain certain ethical principles and associated obligations relating to a wider social responsibility to a global public good. In other

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<sup>1</sup>/ This background paper has been prepared at the request of the Chairman. The contents of the paper are intended to be indicative rather than exhaustive, and to provide an overview and starting point for States Parties who may wish to conduct further research. Comments, additions and corrections from States Parties are welcome.

words, those adopting the codes are indicating that they have responsibilities in a broader context than just to themselves. This appears to stem from a belief in a duty owed to society to act to protect, promote and further the welfare of humanity and the environment. These principles and objectives establish the framework for addressing the balance of scientific rights against scientific obligations and underpins any condemnation of the misuse of science for hostile purposes. In the context of the Biological Weapons Convention, they could be considered as being analogous to the principle enshrined in the Preamble to the Convention, which states that States Parties are [d]etermined for the sake of all mankind, to exclude completely the possibility of bacteriological (biological) agents and toxins being used as weapons, and that they are [c]onvinced that such use would be repugnant to the conscience of mankind and that no effort should be spared to minimize this risk.

Respect for governance measures: many of the codes identified in this paper also contained principles and associated obligations relating to existing legislation, regulations and guidelines which also regulate the actions of those bound by the codes. Several codes discussed in more detail their relationship to such governance measures. It would appear that such measures are rarely identified by name but the references to their existence are an acknowledgement that the codes do not operate in a governance vacuum.

Scientific integrity: other codes identified refer to a duty held by members of a field towards upholding the good name of that discipline. This takes two forms. The first, scientific (or professional) integrity is based around the ethical conduct of the individual at all times and in such a manner as to further the aims and objectives of both the field and the professional body. The second form is scientific (or professional) stewardship. The difference from the scientific integrity form is that the ethical obligations of scientific stewardship are collective as opposed to individual, and aim to ensure that the highest levels of professionalism, safety and security, including through the use of best practices, are employed to further the good name of the discipline and the aims of the code. To distinguish further between scientific integrity and scientific stewardship, the latter generally involves more active steps.

Scientific obligation: the codes identified also commonly incorporated certain elements facilitating the successful implementation of the aims of the code and the upholding of the good name of the discipline. These elements are termed scientific obligation, and include mechanisms to deal with allegations of breaches of the code, sanctions for non-compliance, and elements to protect those whose adherence to the principles and obligations of the code leave them in positions of vulnerability.

## INTERGOVERNMENTAL AND INTERNATIONAL ORGANIZATIONS

### International Atomic Energy Agency

3. In 2003 the International Atomic Energy Agency (IAEA) endorsed a *Code of Conduct on the Safety of Radioactive Sources* following a declaration of an Action Plan at the G8 Summit at Evian. This code replaces an earlier version dating from 2001. The Code is aimed at states rather than individuals, but nevertheless contains elements of interest. The IAEA indicates that the implementation of this Code of Conduct will help national authorities to ensure that radioactive sources are used within an appropriate framework of radiation safety and security. It has been

noted that radioactive sources are used throughout the world for a variety of beneficial purposes, such as in industry, medicine, research, agriculture and education. The importance of fostering a safety and security culture in all organizations and among all individuals engaged in the regulatory control or the management of radioactive sources has also been recognised. This has prompted the IAEA to decide that a Code of Conduct should serve as guidance to States for the development and harmonisation of policies, laws and regulations on the safety and security of radioactive sources.

4. Through the development, harmonization and implementation of national policies, laws and regulations, and through the fostering of international co-operation, the objectives of the Code are to:

- (i) achieve and maintain a high level of safety and security of radioactive sources;
- (ii) prevent unauthorized access or damage to, and loss, theft or unauthorized transfer of, radioactive sources; and
- (iii) reduce the likelihood of accidental harmful exposure to such sources or the malicious use of such sources to cause harm to individuals, society or the environment.

5. This Code relies on existing international standards relating to nuclear, radiation, radioactive waste and transport safety and to the control of radioactive sources. It is intended to complement existing international standards in these areas. The Code supports efforts to ensure that every state should have in place an effective national legislative and regulatory system of control over the management and protection of radioactive sources.

6. States are also encouraged to promote awareness among industry, health professionals, the public, and government bodies of the safety and security hazards associated with orphan sources, and encourage bodies and persons likely to encounter orphan sources during the course of their operations (such as scrap metal recyclers and customs posts) to implement appropriate monitoring programmes to detect such sources. There is a strong emphasis on securing the supply chain.

7. The provisions of the code can be grouped into the five general areas discussed in the introduction above:

### **The Global Public Good**

*Every State should, in order to protect individuals, society and the environment, take the appropriate measures necessary to ensure:*

- (i) *that the radioactive sources within its territory, or under its jurisdiction or control, are safely managed and securely protected during their useful lives and at the end of their useful lives; and*
- (ii) *the promotion of safety culture and of security culture with respect to radioactive sources.*

## **Respect for Governance Measures**

*Every State should have in place an effective national legislative and regulatory system of control over the management and protection of radioactive sources. Such a system should:*

- (i) place the prime responsibility for the safe management of, and the security of, radioactive sources on the persons being granted the relevant authorizations;*
- (ii) minimize the likelihood of a loss of control;*
- (iii) include national strategies for gaining or regaining control over orphan sources;*
- (iv) provide for rapid response for the purpose of regaining control over orphan sources;*
- (v) foster ongoing communication between the regulatory body and users;*
- (vi) provide for measures to reduce the likelihood of malicious acts, including sabotage, consistent with the threat defined by the State;*
- (vii) mitigate or minimize the radiological consequences of accidents or malicious acts involving radioactive sources; and*
- (viii) provide for its own continuous improvement.*

## **Scientific Integrity**

*Every State should, in implementing this Code, emphasize to designers, manufacturers (both manufacturers of radioactive sources and manufacturers of devices in which radioactive sources are incorporated), suppliers and users and those managing disused sources their responsibilities for the safety and security of radioactive sources.*

## **Scientific Stewardship**

*Every State should ensure that appropriate facilities and services for radiation protection, safety and security are available to, and used by, the persons who are authorized to manage radioactive sources. Such facilities and services should include, but are not limited to, those needed for:*

- (i) searching for missing sources and securing found sources;*
- (ii) intervention in the event of an accident or malicious act involving a radioactive source;*
- (iii) personal dosimetry and environmental monitoring; and*
- (iv) the calibration of radiation monitoring equipment.*

*Every State should ensure that adequate arrangements are in place for the appropriate training of the staff of its regulatory body, its law enforcement agencies and its emergency services organizations.*

*Every State should establish a national register of radioactive sources. This register should, as a minimum, include Category 1 and 2 radioactive sources as described in Annex 1 to this Code. The information contained in that register should be appropriately protected. For the purpose of introducing efficiency in the exchange of radioactive source information between States, States should endeavour to harmonize the formats of their registers.*

*Every State should:*

- (i) *promote awareness among industry, health professionals, the public, and government bodies of the safety and security hazards associated with orphan sources; and*
- (ii) *encourage bodies and persons likely to encounter orphan sources during the course of their operations (such as scrap metal recyclers and customs posts) to implement appropriate monitoring programmes to detect such sources.*

*Every State should encourage the reuse or recycling of radioactive sources, when practicable and consistent with considerations of safety and security.*

### **Scientific Obligations**

*Every State should define its domestic threat, and assess its vulnerability with respect to this threat for the variety of sources used within its territory, based on the potential for loss of control and malicious acts involving one or more radioactive sources.*

*Each State should take appropriate measures consistent with its national law to protect the confidentiality of any information that it receives in confidence under this Code of Conduct from another State or through participation in an activity carried out for the implementation of this Code of Conduct. If any State provides information to international organizations in confidence, steps should be taken to ensure that the confidentiality of such information is protected. A State that has received information in confidence from another State should only provide this information to third parties with the consent of that other State. A State is not expected to provide any information that it is not permitted to communicate pursuant to its national law or which would jeopardize the security of that State.*

*Every State should ensure that information concerning any loss of control over radioactive sources, or any incidents, with potential transboundary effects involving radioactive sources, is provided promptly to potentially affected States through established IAEA or other mechanisms.*

### **The Organization for the Prohibition of Chemical Weapons**

8. The Organization for the Prohibition of Chemical Weapons (OPCW) has begun the process to develop a formal Code of Conduct to address the ethical considerations of those involved with the peaceful use of chemistry. To date this has yet to yield a formal Code but the activities undertaken so far may be of interest to the 2005 Meeting of States Parties and Meeting of Experts of the Biological Weapons Convention.

9. As a result of a series of action plans adopted at the First Review Conference of the Chemical Weapons Convention (CWC), the OPCW established its Ethics Project. The Ethics Project is seeking to develop links with academic research centres, educational and other relevant institutions and organisations, as well as entities affected by the Chemical Weapons Convention to promote an awareness of the ethical dimensions of the Convention. The project is in its preliminary stage, that of exploring avenues for dialogue and cooperation. The Scientific

Advisory Board (SAB) is currently preparing an assessment of existing codes in an effort to work towards the development of an OPCW Code of Conduct.

10. Ethical issues derived from the CWC and its prohibition of chemical weapons concern, among others, chemists, chemical engineers and biomedical scientists carrying out their professional activities, as well as students of chemistry, chemical engineering and the life sciences. As part of their efforts to develop public awareness of these ethical issues, the OPCW has contacted relevant professional organisations and societies. Preliminary surveys of these stakeholders indicate that very few educational institutions incorporate ethical issues into their curricula, indicating that the OPCW still has significant work to do before it can begin a formal codification process.

### **PROFESSIONAL ORGANISATIONS, ASSOCIATIONS, BODIES AND INSTITUTIONS**

11. Of particular note are the codes of conduct of engineering organizations. In contrast to some of the other fields examined in this paper, engineering appears to have a number of fundamental principles and canons which reappear in various forms in the codes of individual organizations. They appear to have evolved during the first half of the twentieth century and are very general in nature. This has led to a number of engineering organizations, associations, bodies and institutions to append more detailed guidelines on the implementation of the principles.

12. The Fundamental Principles include the requirement:

*Engineers uphold and advance the integrity, honour and dignity of the engineering profession by:*

- (i) Using their knowledge and skill for the enhancement of human welfare;*
- (ii) Being honest and impartial, and serving with fidelity the public, their employers and clients; and*
- (iii) Striving to increase the competence and prestige of the engineering profession.*

The Fundamental Canon states:

- (i) Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.*
- (ii) Engineers shall perform services only in the areas of their competence.*
- (iii) Engineers shall continue their professional development throughout their careers and shall provide opportunities for the professional and ethical development of those engineers under their supervision.*
- (iv) Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest or the appearance of conflicts of interest.*
- (v) Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.*
- (vi) Engineers shall associate only with reputable persons or organizations.*
- (vii) Engineers shall issue public statements only in an objective and truthful manner.*

13. Although the content of these principles and the canon may not translate directly to the issues under consideration at the Meeting of Experts, their existence may be of interest to States Parties when considering how to go about the adoption and promulgation of codes of conduct. As a result, they will be dealt with under the five general areas discussed below, and appear in the format adopted by the individual organizations.

#### Global Public Good

14. Codes at the professional level demonstrate a range of different approaches to the codification process. One, as adopted by the Pharmaceutical Society of Australia in its *Code of Professional Conduct* begins by asserting a principle enshrined within the code and then places a series of obligations on its members. This code asserts:

*The primary concern of the pharmacist must be the health and wellbeing of both clients and the community.*

Associated obligations include:

- (i) *A pharmacist must at all times act in a manner which promotes and safeguards the interests and welfare of clients and the community.*
- (ii) *A pharmacist must not purchase, sell or supply any medicinal product where there is reason to doubt its safety, quality or efficacy or where there is clear, new evidence that demonstrates or places doubt on previously established product safety or where a product may impose a hazard to the patient's health or condition.*
- (iii) *A pharmacist must exercise professional judgment to prevent the supply of products likely to constitute an unacceptable hazard to health or the supply of unnecessary and/or excessive quantities of medicines and other products, particularly those which have a potential for abuse or dependency.*
- (iv) *A pharmacist must ensure that all reasonable care is taken when disposing of medicinal products and chemicals.*
- (v) *A pharmacist shall accept responsibility for their own professional activities and for all activities undertaken under their direct supervision.*

15. Another example of this approach can be found in the *Code of Ethics* of the World Federation of Engineering Organizations, which states:

*Professional Engineers shall conduct themselves in an honourable and ethical manner. Professional Engineers shall uphold the values of truth, honesty and trustworthiness and safeguard human life and welfare and the environment. In keeping with these basic tenets, Professional Engineers shall:*

- (i) *hold paramount the safety, health and welfare of the public and the protection of the environment and promote health and safety within the workplace...*
- (ii) *be aware of and ensure that clients and employers are made aware of societal and environmental consequences of actions or projects and endeavour to interpret engineering issues to the public in an objective and truthful manner.*

16. A similar approach is adopted by the American Institute of Chemical Engineers in its *Code of Ethics* which states:

*The Engineer, to uphold and advance the honour and dignity of the engineering profession and in keeping with high standards of ethical conduct... Will use his knowledge and skill for the advancement of human welfare.*

*The Engineer will have proper regard for the safety, health and welfare of the public in the performance of his professional duties.*

17. As discussed above, it is also possible to take this concept one step further and to add a number of more detailed guidelines describing the implementation of the code. The *Code of Ethics of Engineers* as adopted by the American Society of Agricultural Engineers contains principles, canons and guidelines:

*The Fundamental Principles*

*Engineers uphold and advance the integrity, honour and dignity of the engineering profession by:*

- (i) *using their knowledge and skill for the enhancement of human welfare;*
- (ii) *being honest and impartial, and serving with fidelity the public, their employers and clients;*

*The Fundamental Canons*

*Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.*

*Suggested Guidelines for Use With the Fundamental Canons of Ethics*

*Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.*

(i) *Engineers shall recognize that the lives, safety, health and welfare of the general public are dependent upon engineering judgments, decisions and practices incorporated into structures, machines, products, processes and devices.*

(ii) *Engineers shall not approve nor seal plans and/or specifications that are not of a design safe to the public health and welfare and in conformity with accepted engineering standards.*

(iii) *Should the Engineers' professional judgement be overruled under circumstances where the safety, health, and welfare of the public are endangered, the Engineers shall inform their clients or employers of the possible consequences and notify other proper authority of the situation, as may be appropriate...*

(iv) *Should Engineers have knowledge or reason to believe that another person or firm may be in violation of any of the provisions of these Guidelines, they shall present such information to the proper authority in writing and shall cooperate with the proper authority in furnishing such further information or assistance as may be required...*

*(v) Engineers should seek opportunities to be of constructive service in civic affairs and work for the advancement of the safety, health and well-being of their communities.*

*(vi) Engineers should be committed to improving the environment to enhance the quality of life.*

18. Another permutation of this approach, one which more closely resembles international instruments governing the activities of states (such as the Biological Weapons Convention), is comprised of a limited number of articles, each of which details both a core belief (or principle) shared by the members of the organization, as well as a specific undertaking to modulate their behaviour accordingly. Such an approach was adopted in the *Code of Professional, Social and Ethical Responsibility* of the International Federation of Commercial, Clerical, Professional and Technical Employees:

*Article I*

*In the pursuit of their professional activities, professional and managerial staff shall take into account not merely the scientific, technical and economic considerations, but also the social, environmental and ethical implications of their work. The responsibility of professional and managerial staff for the sustainable welfare of the community is an integral part of their professional responsibility.*

*Professional and managerial staff shall ensure that their activity contributes to an equitable distribution of world resources.*

*Article II*

*Professional and managerial staff shall take all steps to maintain sustainable systems of work and to avoid dangers which may cause death, injury or ill-health to any person. They shall also avoid damage to nature and goods by any act or omission as a consequence of the execution of their duties.*

*Professional and managerial staff shall take all steps to safeguard public interest in matters of health and safety.*

19. Alternatively, it is possible to forgo an explicit mention of underlying principles and a number of codes are comprised solely of lists of measures directing the activities of the associated members. This approach was adopted by the Institute of Electrical and Electronics Engineers in its *Code of Ethics*:

*We, the members of the IEEE, in recognition of the importance of our technologies in affecting the quality of life throughout the world, and in accepting a personal obligation to our profession, its members and the communities we serve, do hereby commit ourselves to the highest ethical and professional conduct and agree... to accept responsibility in making engineering decisions consistent with the safety, health and welfare of the public, and to disclose promptly factors that might endanger the public or the environment.*

20. Another example of this approach can be found in the *Code of Ethics* of the Association of Engineering Technicians and Technologists of Newfoundland which states:

*The certified technician or technologist recognizes the precepts of personal integrity and professional competence as fundamental ethics and as such he/she:*

- (i) *Shall have proper regard for the physical environment and the safety, health and well-being of the public...*
- (ii) *Shall protect to the fullest extent possible, consistent with the well-being of the public, any information given him/her in confidence by an employer, colleague or member of the public.*

#### Respect for Governance Measures

21. Many of the professional codes contained reference to existing legislation, regulations and guidelines which complement their principles and objectives. One example can be found in the *Code of Professional Conduct* of the Pharmaceutical Society of Australia which contains the principle:

*A pharmacist must at all times uphold the reputation of the profession and adhere to the legislation applicable to the practice of pharmacy.*

Associated obligations include:

- (i) *A pharmacist must act according to the laws and regulations governing the profession and adhere to the code of professional conduct.*
- (ii) *A pharmacist must act with honesty and integrity having due regard for standards of behaviour accepted within the profession and reasonably expected by the community and other health professionals.*

22. Similar provisions can be found in the *Code of Professional, Social and Ethical Responsibility* of the International Federation of Commercial, Clerical, Professional and Technical Employees which states:

*Professional and managerial staff shall familiarise themselves with the culture, economic and social background, laws and regulations appropriate to the country in which their work is being undertaken.*

23. One code, the *Principles* of the International Chamber of Commerce discussed how existing legislation, regulations and guidelines formed the starting point for any attempt to improve the governance of their field. This code places an obligation:

*To continue to improve corporate policies, programmes and environmental performance, taking into account technical developments, scientific understanding, consumer needs and community expectations, with legal regulations as a starting point; and to apply the same environmental criteria internationally*

24. Another code discussed in more detail the relationship between the code and other governance measures. The *Code of Practice and Ethics* of the Internet Service Providers Association of Ireland (ISPAI) states:

*ISPAI acknowledges that it is the role of the State to make and to enforce the law. Members of ISPAI must observe their legal obligations to remove Illegal content when informed by organs of the State or as otherwise required by law. It should not, however, be the responsibility of a Member to determine the legality or suitability or to filter or otherwise restrict reception of or access to content material save where such action is taken following an identified breach (or anticipated breach) of the Code.*

The code continues by considering specific legal ramifications of the code:

*Compliance with the Code does not guarantee that a Member is acting within the law. Any principles set out or established under this Code do not represent any legal grounds for liability.*

*This Code does not purport to cover any violations or alleged violations pertaining to competition law or to copyright law.*

*ISPAI supports its Members in any independent decision taken by the Member to proactively limit the accessibility of Illegal material via its Services, but strongly believes that no greater responsibility, standard of care or obligation should be placed on a Member who takes such action, than is placed upon those Members who do not take such proactive action.*

#### Scientific Integrity

25. Codes which incorporated principles and obligations relating to ensuring the integrity of scientific and professional conduct included the *Code of Ethics* of the Institute of Electrical and Electronics Engineers which states:

*We, the members of the IEEE, in recognition of the importance of our technologies in affecting the quality of life throughout the world, and in accepting a personal obligation to our profession, its members and the communities we serve, do hereby commit ourselves to the highest ethical and professional conduct and agree... to improve the understanding of technology, its appropriate application, and potential consequences*

26. The *Code of Ethics* of the World Federation of Engineering Organizations states:

*Professional Engineers shall conduct themselves in an honourable and ethical manner. Professional Engineers shall uphold the values of truth, honesty and trustworthiness and safeguard human life and welfare and the environment. In keeping with these basic tenets, Professional Engineers shall:*

- (i) *offer services, advise on or undertake engineering assignments only in areas of their competence and practise in a careful and diligent manner;*

- (ii) *conduct themselves with fairness. and good faith towards clients, colleagues and others, give credit where it is due and accept, as well as give, honest and fair professional criticism;*

27. Other codes identify this duty explicitly as a need to ensure professional integrity. The *Code of Professional, Social and Ethical Responsibility* of the International Federation of Commercial, Clerical, Professional and Technical Employees states:

*Professional and managerial staff shall act in a manner which neither compromises nor impairs, nor is likely to compromise or impair, their professional integrity in the performance of their duties. In particular they shall take all steps to make business agreements clear and fair, including the social clauses... Professional and managerial staff shall uphold equity and dignity and conduct their affairs faithfully.*

28. Certain codes, such as the *Code of Ethics* of the Association of Engineering Technicians and Technologists of Newfoundland go on to outline specific obligations derived from the necessity of upholding professional integrity:

*The certified technician or technologist recognizes the precepts of personal integrity and professional competence as fundamental ethics and as such he/she:*

- (i) *Shall undertake only those assignments for which he/she is competent by virtue of his/her training and experience, and where warranted, engage or advise the engagement of such specialists as are required to enable him/her to properly complete assignments;*
- (ii) *Shall refrain from making unjustified statements or from performing unethical acts which would discredit the Association or any of its members.*

#### Scientific Stewardship

29. Several of the codes identified for this paper included reference to the use of best practices, the adoption of continuing training and other activities necessary to ensure the highest possible professional standards. For example, the *Code of Professional Conduct* of the Pharmaceutical Society of Australia establishes the principle:

*A pharmacist must maintain a contemporary knowledge of pharmacy practice issues and professional knowledge in order to ensure a high standard of professional competence.*

This code, as previously noted, goes on to outline obligations derived from such principles. In this case these obligations include:

- (i) *A pharmacist must continually review and maintain their level of professional knowledge and expertise with a view to improving the quality and standard of pharmaceutical services available to members of the community.*
- (ii) *When a pharmaceutical service is provided, a pharmacist shall ensure that it is provided efficiently, is tailored to the needs of the client and is delivered in a manner consistent with relevant standards.*

- (iii) *A pharmacist shall provide professional advice and counselling at every appropriate opportunity to ensure the patient and/or carer are sufficiently informed about the safe and effective use of their medications and to achieve optimal outcomes.*

30. The same is true for codes from other disciplines as can be seen from the *Code of Professional, Social and Ethical Responsibility* of the International Federation of Commercial, Clerical, Professional and Technical Employees. This code asserts:

*Professional and managerial staff shall take steps both to maintain and develop their professional competence and knowledge within their special fields and to keep abreast of developments in economic, scientific, technical, social or other related disciplines relevant to their field of professional activity.*

*Professional and managerial staff shall take steps to further the information education and training facilities of their subordinates and to encourage their employers to allow appropriate facilities for their staff so that they can participate in continuing professional development courses and seminars.*

*Professional and managerial staff shall familiarise themselves with the systems applications in the workplace and display an understanding of their implications for employees and a willingness and understanding to respect the needs and interests of all interested parties...*

31. Similar commitments are undertaken in the engineering fields, such as illustrated in the *Code of Ethics* of the Institute of Electrical and Electronics Engineers which states:

*We, the members of the IEEE, in recognition of the importance of our technologies in affecting the quality of life throughout the world, and in accepting a personal obligation to our profession, its members and the communities we serve, do hereby commit ourselves to the highest ethical and professional conduct and agree:*

- (i) *to maintain and improve our technical competence and to undertake technological tasks for others only if qualified by training or experience, or after full disclosure of pertinent limitations; and*
- (ii) *to assist colleagues and co-workers in their professional development and to support them in following this code of ethics.*

32. These obligations can also be found in the *Code of Ethics* of the World Federation of Engineering Organizations which states:

*Professional Engineers shall conduct themselves in an honourable and ethical manner. Professional Engineers shall uphold the values of truth, honesty and trustworthiness and safeguard human life and welfare and the environment. In keeping with these basic tenets, Professional Engineers shall... keep themselves informed in order to maintain their competence, strive to advance the body of knowledge within which they practice and provide opportunities for the professional development of their subordinates.*

33. The implementation of these obligations are developed even further by other engineering bodies, such as in the *Code of Ethics of Engineers* of the American Society of Agricultural Engineers:

- (i) *Engineers shall not knowingly associate with nor permit the use of their names nor firm names in business ventures by any person or firm which they know, or have reason to believe, are engaging in business or professional practices of a fraudulent or dishonest nature.*
- (ii) *Engineers shall not use association with non-engineers, corporations, nor partnerships as 'cloaks' for unethical acts.*
- (ii) *Engineers shall encourage their engineering employees to further their education.*
- (iii) *Engineers should encourage their engineering employees to become registered at the earliest possible date.*
- (iv) *Engineers should encourage engineering employees to attend and present papers at professional and technical society meetings.*
- (v) *Engineers should support the professional and technical societies of their disciplines.*
- (vi) *Engineers shall give proper credit for engineering work to those to whom credit is due, and recognize the proprietary interests of others. Whenever possible, they shall name the person or persons who may be responsible for designs, inventions, writings or other accomplishments.*
- (vii) *Engineers shall endeavour to extend the public knowledge of engineering, and shall not participate in the dissemination of untrue, unfair or exaggerated statements regarding engineering.*

34. Some of the codes identified also incorporate more practically-oriented obligations relating to the conduct of professional activities, including specific reference to the precautionary principle. For example, the *Principles* of the International Chamber of Commerce obligates its members:

*To assess environmental impacts before starting a new activity or project and before decommissioning a facility or leaving a site...*

*It continues by propounding the precautionary approach... To modify the manufacture, marketing or use of products or services or the conduct of activities, consistent with scientific and technical understanding, to prevent serious or irreversible environmental degradation.*

#### Scientific Obligations

35. The complexity of the arrangements for scientific obligations differ from code to code. Some are comparatively simple, such as that found in the *Code of Ethics* of the World Federation of Engineering Organizations which states:

*Professional Engineers shall conduct themselves in an honourable and ethical manner. Professional Engineers shall uphold the values of truth, honesty and trustworthiness and safeguard human life and welfare and the environment. In keeping with these basic tenets, Professional Engineers shall report to their association and/or appropriate*

*agencies any illegal or unethical engineering decisions or practices by engineers or others.*

36. Other codes, such as the *Code of Professional Conduct* of the Pharmaceutical Society of Australia provide a clear-cut principle of scientific (or professional) obligations. In this case:

*A pharmacist must neither agree to practise under conditions which compromise their professional independence, judgment or integrity, nor impose such conditions on other pharmacists.*

The obligations derived from this principle include:

- (i) *A pharmacist must freely exercise professional judgment when carrying out the duties of a pharmacist and should not accept employment in which this freedom may be compromised.*
- (ii) *A pharmacist managing an environment in which other pharmacists are employed must ensure the professional autonomy of those pharmacists is preserved.*
- (iii) *A pharmacist must avoid situations likely to present a conflict of interest or compromise the objectivity of their professional practice.*

37. A few codes provide simplistic mechanisms for reporting suspected occurrences of non-compliance, such as the one found in the *Code of Ethics* of the Association of Engineering Technicians and Technologists of Newfoundland. This code obliges those covered by it to:

*...uphold the provisions of the Code of Ethics, and without fear or favour report in the proper manner unethical or incompetent conduct of any other member to the President of the Association.*

38. Other codes focus primarily on protecting the interests of those who uphold their effective implementation. One such example can be found in the *Code of Professional, Social and Ethical Responsibility* of the International Federation of Commercial, Clerical, Professional and Technical Employees which states:

*Those who inform the public in accordance with previous articles, or refuse to work on projects which violate previous articles, shall be protected from dismissal and shall not incur other disadvantages in the work place.*

39. At the opposite end of the complexity spectrum are codes which provide exhaustively detailed complaints procedures and sanctions for non-compliance, such as the *Code of Practice and Ethics* of the Internet Service Providers Association of Ireland (ISPAI). This is too long to be quoted here, but can be downloaded from the ISPAI website: [www.ispai.ie/docs/cope.pdf](http://www.ispai.ie/docs/cope.pdf).

## **COMMERCIAL AND INDUSTRIAL ORGANISATIONS, ASSOCIATIONS, BODIES AND INSTITUTIONS**

40. Four of the five general areas used to analyse the intergovernmental and professional codes also correspond with the efforts made by commercial and industry bodies at the

international and national or sub-national levels under their corporate social responsibility (CSR) programmes. The nuclear industry provides a suitable example. Unfortunately, nuclear codes contain little information which relates to scientific obligations, but due to the nature of the field and the stringent regulation of the nuclear industry, similar functions have been accomplished through legislation, regulations and guidelines.

### Global Public Good

41. One example of the commitment of this industry to the global public good at the international level can be found in the *Charter of Ethics* of the global organisation for nuclear industry bodies, the World Nuclear Association. The *Charter* states a commitment:

- (i) *to ensuring that nuclear technology is used safely and peacefully;*
- (ii) *to prevent and expose unsafe or illicit practices regarding nuclear material and to use all necessary precautions to protect individuals, society and the environment from any harmful radiological effects arising from nuclear material during use, storage, transport and waste disposal;*

42. The industry, at the national level, also states a commitment to the global public good. In the case of the *Code of Ethics* of the American Nuclear Society (ANS) there is a fundamental principle, which states:

*ANS members as professionals are dedicated to improving the understanding of nuclear science and technology, appropriate applications, and potential consequences of their use.*

*To that end, ANS members uphold and advance the integrity and honour of their professions by... using their knowledge and skill for the enhancement of human welfare and the environment.*

This principle is elaborated through practices of professional conduct which include the following:

*We hold paramount the safety, health, and welfare of the public and fellow workers, work to protect the environment, and strive to comply with the principles of sustainable development in the performance of our professional duties.*

*We will formally advise our employers, clients, or any appropriate authority and, if warranted, consider further disclosure, if and when we perceive that pursuit of our professional duties might have adverse consequences for the present or future public and fellow worker health and safety or the environment.*

43. At the sub-national level the actors are individual nuclear industry businesses, and the amount of information available regarding the commitment to the global public good becomes more restricted. For example, the *Values* of British Nuclear Fuels (BNFL) are comprised of single sentence statements of principles. These include an obligation to *be safe and environmentally responsible*.

### Respect for Governance Measures

44. An example of the respect for governance measures of this industry at the international level can be found in the *Charter of Ethics* of the World Nuclear Association which states a commitment:

*...to uphold respective international legal commitments embodied in:*

- (i) *The IAEA statute; safeguards agreements concluded pursuant to the Treaty on the Non-Proliferation of Nuclear Weapons; and regional and bilateral accords providing for IAEA verification;*
- (ii) *The Convention on Nuclear Safety; the Convention on the Physical Protection of Nuclear Material; the Convention on Early Notification of a Nuclear Accident; the Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency; the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter; and the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management; and*
- (iii) *Other international treaties and conventions that contribute to ensuring the safe and peaceful use of nuclear technology throughout the world;*

45. The industry, at the national level, also states a respect for governance measures. In the case of the *Code of Ethics* of the American Nuclear Society there is a fundamental principle, which states:

*ANS members as professionals are dedicated to improving the understanding of nuclear science and technology, appropriate applications, and potential consequences of their use.*

*To that end, ANS members uphold and advance the integrity and honour of their professions by... serving with fidelity the public, their employers, and their clients.*

Again, this principle is elaborated through practices of professional conduct which include the following statement:

*We act in accordance with all applicable laws and these Practices, lend support to others who strive to do likewise, and report violations to appropriate authorities.*

### Scientific Integrity

46. Again, the *Charter of Ethics* of the World Nuclear Association states a commitment:

- (i) *to cooperate, in a spirit of partnership, with those engaged in the research, development and operation of other technologies that yield energy without adverse effect on the biosphere; and*
- (ii) *to promote, as a matter of ethical principle and urgent public need, an ongoing debate on energy resources that focuses citizens and governments alike on the real choices facing humankind and on the severe dangers – for the prospects of global*

*development and for the biosphere – if decision-making on this fundamental policy is shaped by ideology and myth rather than by science and facts.*

47. At the national level, in the *Code of Ethics* of the American Nuclear Society there is a fundamental principle which states:

*ANS members as professionals are dedicated to improving the understanding of nuclear science and technology, appropriate applications, and potential consequences of their use.*

*To that end, ANS members uphold and advance the integrity and honour of their professions by... being honest and impartial.*

The corresponding practices of professional conduct include the following:

- (i) *We present all data and claims, with their bases, truthfully, and are honest and truthful in all aspects of our professional activities. We issue public statements and make presentations on professional matters in an objective and truthful manner.*
- (ii) *We act in a professional and ethical manner towards each employer or client and act as faithful agents or trustees, disclosing nothing of a proprietary nature concerning the business affairs or technical processes of any present or former client or employer without specific consent, unless necessary to abide by other provisions of this Code or applicable laws.*
- (iii) *We disclose to affected parties, known or potential conflicts of interest or other circumstances, which might influence, or appear to influence, our judgment or impair the fairness or quality of our performance.*
- (iv) *We treat all persons fairly.*
- (v) *We build our professional reputation on the merit of our services, do not compete unfairly with others, and avoid injuring others, their property, reputation, or employment.*
- (vi) *We reject bribery and coercion in all their forms.*
- (vii) *We accept responsibility for our actions; are open to and acknowledge criticism of our work; offer honest criticism of the work of others; properly credit the contributions of others; and do not accept credit for work not our own.*

48. At the sub-national level, the *Values* of British Nuclear Fuels include an obligation to *act with integrity and respect for others*, which corresponds with the concept of scientific (or professional) integrity.

#### Scientific Stewardship

49. In the *Charter of Ethics* of the World Nuclear Association there is a commitment:

*...to the principle and practice of transparency regarding all types of civil nuclear activity, insofar as there exists a demonstrable public interest in the availability of such information and consistent with the public interest in protecting:*

- (i) *Commercially valuable knowledge; and*
- (ii) *The confidentiality integral to full and candid participation in voluntary systems of review and exchange designed to enhance and maintain nuclear safety*

50. At the national level, the *Code of Ethics* of the American Nuclear Society has a fundamental principle, which states:

*ANS members as professionals are dedicated to improving the understanding of nuclear science and technology, appropriate applications, and potential consequences of their use.*

*To that end, ANS members uphold and advance the integrity and honour of their professions by... striving to continuously improve the competence and prestige of their various professions.*

This principle is operationalised through practices of professional conduct which include:

- (i) *We perform only those services that we are qualified by training or experience to perform, and provide full disclosure of our qualifications.*
- (ii) *We continue our professional development and maintain an ethical commitment throughout our careers, encourage similar actions by our colleagues, and provide opportunities for the professional and ethical training of those persons under our supervision.*

51. At the sub-national level, the *Values* of British Nuclear Fuels include an obligation to *excel in our operations*, which relates to the continuing improvement of standards and practices, thereby relating to the concept of scientific (or professional) stewardship.

### **CODES OF CONDUCT REFERENCED IN THE PAPER**

American Institute of Chemical Engineers

*Code of Ethics*

[http://www.iit.edu/departments/csep/codes/coe/American%20Institute%20of%20Chemical%20Engineers%20Code%20of%20Ethics\(Main\).html](http://www.iit.edu/departments/csep/codes/coe/American%20Institute%20of%20Chemical%20Engineers%20Code%20of%20Ethics(Main).html)

American Nuclear Society

*Code of Ethics*

<http://www.ans.org/about/coe/>

American Society of Agricultural Engineers

*Code of Ethics of Engineers*

<http://www.iit.edu/departments/csep/codes/coe/American%20Society%20of%20Agricultural%20Engineers.html>

Association of Engineering Technicians and Technologists of Newfoundland  
*Code of Ethics*

<http://www.iit.edu/departments/csep/codes/coe/AETTN-CoE.html>

British Nuclear Fuels

*Values*

<http://www.bnfl.com/CSR2005/01gcr/gcr6.htm>

Institute of Electrical and Electronics Engineers

*Code of Ethics*

[http://www.ieee.org/portal/site/mainsite/menuitem.818c0c39e85ef176fb2275875bac26c8/index.jsp?&pName=corp\\_level1&path=about/whatis&file=code.xml&xsl=generic.xsl](http://www.ieee.org/portal/site/mainsite/menuitem.818c0c39e85ef176fb2275875bac26c8/index.jsp?&pName=corp_level1&path=about/whatis&file=code.xml&xsl=generic.xsl)

International Atomic Energy Agency

*Code of Conduct on the Safety of Radioactive Sources*

<http://www.iaea.org/Publications/Standards/>

International Chamber of Commerce

*Principles*

[http://www.iit.edu/departments/csep/codes/coe/International Chamber of Commerce practice.html](http://www.iit.edu/departments/csep/codes/coe/International_Chamber_of_Commerce_practice.html)

International Federation of Commercial, Clerical, Professional and Technical Employees

*Code of Professional, Social and Ethical Responsibility*

<http://www.itcilo.it/english/actrav/telearn/global/ilo/guide/fietcode.htm>

Internet Service Providers Association of Ireland

*Code of Practice and Ethics*

[www.ispai.ie/docs/cope.pdf](http://www.ispai.ie/docs/cope.pdf)

Pharmaceutical Society of Australia

*Code of Professional Conduct*

<http://www.psa.org.au/ecms.cfm?id=45>

World Federation of Engineering Organizations

*Code of Ethics*

<http://www.iit.edu/departments/csep/codes/coe/wfeo-coe.html>

World Nuclear Association

*Charter of Ethics*

<http://world-nuclear.org/aboutwna/charter.htm>

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