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Issues for discussion at the 2005 Meeting of Experts of the Biological and Toxin Weapons Convention

The content, promulgation and adoption of codes of conduct for scientists will be discussed at the Meeting of Experts to be held in Geneva between 13-24 June 2005 in preparation for the December 2005 Annual Meeting of the States Parties of the Biological and Toxin Weapons Convention (BTWC). Both of these Meetings will be chaired by Dr John Freeman, the UK Ambassador to the Conference on Disarmament in Geneva. This paper gives brief answers to a number of issues that Dr Freeman has suggested that the States Parties might address at the Meeting of Experts. The Society has also produced a paper on the role of codes of conduct in preventing the misuse of scientific research (Royal Society 2005). This paper has been produced by the Society's committee on the Scientific Aspects of International Security and has been approved by the Council of the Royal Society.

1 How can we raise awareness of the BTWC provisions in the global scientific community and reinforce the responsibility of scientists?

In the UK, scientists must comply with local and national safety legislation that is related to some of the BTWC provisions. Consequently, by complying with the safety regulations scientists will also be complying with some of the obligations of BTWC or the UK 1974 Biological Weapons Act, which implements the terms of the BTWC in UK national law. It has been suggested that the requirements of the risk assessment process already required by the health and safety regulations could be widened slightly to ensure that the proposed activity does not present a risk to the prohibitions enshrined in the BTWC (Pearson 2005). However, not all BTWC States Parties have national legislation implementing the BTWC or the same level of health and safety regulations as the UK.

Introducing extended codes of conduct or practice based on existing health and safety regulations provides an opportunity for education and training to reinforce these regulations. Such a code would need to be consulted before any new work was conducted and at key stages during the project, and have greater value than a code that is a reference document. This would also reinforce the responsibility of scientists to take into consideration the reasonably foreseeable consequences of their activities.

2 Should undergraduate and postgraduate education programmes address the ethical and practical aspects of preventing the misuse of science? How can we encourage due consideration of the possible consequences of the misuse of science?

Undergraduate and postgraduate education programmes should ensure that students are capable of considering the reasonably foreseeable consequences of their activities, including identifying the possible misuse of science as well as tangible benefits to humanity. These programmes should recognise the potential for later misuse by the trained person of basic skills, technologies or knowledge acquired during the training. Examples of previous misuse of such training could be used where appropriate for the students concerned. When students enter postgraduate training within a research laboratory they are required to read, understand and comply with local and national safety legislation. Codes of conduct or practice provide an opportunity for education and training to reinforce the ethical and practical aspects of preventing the misuse of science.

The Royal Society and Royal Academy of Engineering (RS-RAEng 2004) recommended that the consideration of ethical and social implications of advanced technologies (such as nanotechnology) should form part of the formal training of all research students and staff.

3 How can we encourage universities, industry, research bodies and government to reflect BTWC issues in their own in-house codes of practice and operational frameworks? Might we consider the introduction of guidance or instruction in the existing structures that deal with safety and ethics of individual experiments and research?

In the UK universities, industry, research bodies and government consider the safety and ethical issues associated with their research when complying with safety legislation and in contracts of employment. For example, new employees or students are trained in the required procedures for undertaking work with micro organisms, genetic manipulation of micro organisms or work involving animals. However, individual researchers are unlikely to be aware of the detail of the legislation that applies to their work. Again, codes of conduct or practice would reinforce these issues particularly in regard to risk assessments required to be carried out prior to any new work. The potential for future misuse of basic skills, technologies or knowledge should be considered by those involved in teaching such items.

4 How can we promote the proper use of science-based activities and knowledge and encourage appropriate oversight of such work?

The Society strongly advocates the formation of a properly resourced international scientific advisory panel supporting the BTWC (Royal Society 2002 & 2004). There would be many benefits to forming such a panel including promoting the proper use of scientific advances. Using the relevant international scientific organisations to provide scientific input to the BTWC would be another way of encouraging appropriate oversight, with the International Council for Science (ICSU) and the International Union of Microbiological Societies (IUMS) being well placed to take this forward.

5 Is it necessary to provide guidance on how to deal with research that throws up unexpected or unpredictable results of relevance to BTWC prohibitions?

By the very nature of scientific research unexpected or unpredictable results may be produced. Some UK and US academic publishers have guidelines on dual use issues for authors, editors and peer-reviewers (for example UK Society for General Microbiology 2005 and American Society for Microbiology 2005). An international scientific advisory panel would be able to advise BTWC States Parties on the significance of results that have relevance to the BTWC.

6 How might we promote consideration among research and project funders of BTWC issues when considering proposals, eg whether the research could be misused in the future and what steps might help prevent this?

The purpose and likely outcome of the research will be considered during the peer review of all funding proposals. A proposal should not be funded if it seems to propose making reagents that are hazardous

without justification or proper containment, or the work brings no increase in scientific knowledge. Guidance for referees on dual use issues would be helpful, to ensure that all referees take them into consideration when assessing proposals.

In 2004 the Wellcome Trust, UK Medical Research Council (MRC) and Biotechnology and Biological Sciences Research Council (BBSRC) undertook a consultation on managing the risks of harmful misuse associated with grant funding activities. The three organisations are due to publish a joint statement in 2005 outlining changes to their grant awarding processes based on the consultation results.

7 To whom or to what body might an individual turn if he she suspects that some-one else's conduct is in breach of BTWC prohibitions? What safeguards might there be for such individuals? And how might malign accusations be filtered out?

In UK, an individual could turn to the safety committee of their local institution, or nationally to the Health and Safety Executive. It might be necessary to have a nominated person to deal confidentially with any queries relating to 'dual use' concerns. Internationally, an individual might turn to the International Union of Microbiological Societies, International Council for Science or the International Committee of the Red Cross. A number of issues associated with safeguards and filtering out malign accusations associated with general scientific practice have been discussed by a number of organisations (for example, European Science Foundation 2000 and the National Academy of Sciences 1993).

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