

**PAPER BY THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND FOR THE SECOND REVIEW CONFERENCE WORKING GROUP**

**THE COMPREHENSIVE NATURE OF THE CHEMICAL WEAPONS CONVENTION AND SCIENTIFIC AND TECHNOLOGICAL CHANGE: “*THE GENERAL PURPOSE CRITERION*”**

Introduction

1. As part of its contribution to the work of the First Review Conference, the UK submitted a national paper entitled *The Comprehensive Nature of the Chemical Weapons Convention with respect to Verification and National Implementation Measures*.<sup>1</sup> This paper emphasised the fundamental importance of what is known colloquially to some as “*the general purpose criterion*” to the Convention’s relevance in the face of scientific and technological change, and its continued effectiveness as a disarmament agreement.

2. The First Review Conference reflected this point in its Report. Specifically, this stated that the continued relevance of the definitions contained in the Convention’s Article II ensured the comprehensive nature of the prohibition of chemical weapons. Furthermore, it also noted that the definitions in Article II, in particular of “*chemical weapons*”, covered adequately the impact of developments in science and technology on the Convention’s prohibitions, and provided for the application of the Convention’s prohibitions to any toxic chemical, except where such a chemical is intended for purposes not prohibited by the Convention, and as long as the types and quantities involved are consistent with such purposes.<sup>2</sup>

3. The advance of time has not diminished the importance of restating and reinforcing the comprehensive nature of the Convention’s prohibitions. On the contrary: developments in science and technology, such as synthetic biology, proteomics, genomics, toxicogenomics, growing therapeutic uses of bioactive molecules and solid phase combinatorial chemistry underscore the fundamental importance of these prohibitions. This paper restates the arguments for including similar clear statements to those agreed in 2003, in the Second Review Conference’s Report in 2008.

The Chemical Weapons Convention’s comprehensive nature

4. The “*general purpose criterion*” is a convenient shorthand phrase used to describe the approach adopted in the Convention to ensure that its prohibitions extend to all toxic chemicals and their precursors, both those currently known *and* those yet to be synthesised. The negotiators wanted to ensure that the Convention should not become an “*historical graveyard*,” covering only those toxic chemicals that had been used or stockpiled as chemical weapons in the past or currently. Instead, it had to be forward

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<sup>1</sup> RC-1/NAT.16 29 April 2003

<sup>2</sup> RC-1/5 Report of the First Special Session of the Conference of the States Parties to Review the Operation of the Chemical Weapons Convention (First Review Conference) 28 April – 9 May 2003 paragraphs. 7.21 and 7.23 9 May 2003

looking and take into account that new toxic chemicals would be developed or identified that might have applications as chemical warfare agents. A way also had to be found of ensuring that such chemicals were subject to the prohibitions on development, production, acquisition or stockpiling of chemical weapons. However, it was equally imperative that these prohibitions should not interfere with legitimate uses of such chemicals for industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes. Dual-use chemicals had therefore to be accommodated within the Convention.

5. Consequently, the Convention defined the chemical weapons that it prohibits, not in terms of chemical structure or through toxicity levels, *but in terms of the intended purpose of use*. Thus all toxic chemicals and their precursors become proscribed, *unless* they are intended for permitted purposes *and* provided they are of a type and in a quantity consistent with such purposes. The Schedules of chemicals do not limit the scope of the Convention's prohibitions, they only provide a framework for the application of verification measures, as specified in the Verification Annex Parts VI, VII and VIII.

#### Scientific and technological developments: two examples

6. Our growing understanding of life processes at the molecular level is leading to an erosion of the traditional distinctions between chemistry and biology. Developments here provide a compelling example of the importance of the comprehensive nature of the Convention's prohibitions as a safeguard against unforeseen discoveries. Let us look at two areas to help illustrate the point: the therapeutic use of novel bioactive molecules, and combinatorial chemistry.<sup>3</sup>

7. The therapeutic use of novel bioactive molecules, particularly peptides, is a major interest for the pharmaceutical industry.<sup>4</sup> In general, biologically active peptides are highly specific for a particular cell surface receptor and bring about an intracellular effect on a target cell and/or a physiological change in the target organism. Commercial peptide synthesis has revolutionised research in this field. Peptide synthesis services are increasingly available, ranging from small scale synthesis at the milligram scale for laboratory use, up to the hundreds of kilograms scale produced to Good Manufacturing Practice standards. A recent example of a licensed bioactive peptide is a synthetic conotoxin compound used in the treatment of severe chronic pain. Other compounds produced by cone snails may also have therapeutic applications.

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<sup>3</sup> Bioactive molecules are chemicals produced by living organisms or synthesised artificially that may have direct biological effects, which may be beneficial as when they are used in treatment for disease or infections; combinatorial chemistry is the systematic creation of very large numbers of small molecules in "libraries" that can be screened – high throughput screening - in parallel *in vitro* for their potential as drugs.

<sup>4</sup> Scientific and Technological Developments relevant to the Biological Weapons Convention Submitted by the United Kingdom page 13 October 2006  
[http://www.unog.ch/80256EDD006B8954/\(httpAssets\)/5B93AF9D015AD633C12571FE0049ADAF/\\$file/BWC-6RC-S&T-UK.pdf](http://www.unog.ch/80256EDD006B8954/(httpAssets)/5B93AF9D015AD633C12571FE0049ADAF/$file/BWC-6RC-S&T-UK.pdf)

8. The use of combinatorial chemistry, molecular modelling and high throughput screens will facilitate the discovery and design of potential therapeutic peptides. Such methods could also result in the intentional or unexpected discovery of compounds with potential for misuse. In its efforts to find new drugs, the pharmaceutical industry has developed syntheses and screening techniques where several million new compounds of interest are identified annually. Although most companies have little use for the tens of thousands of these that are identified each year as toxic, some of these compounds might have potential for misuse as noted in 2006 in the US National Research Council's *Globalization, Biosecurity, and the Future of the Life Sciences Committee on Advances in Technology and the Prevention of Their Application to Next Generation Biowarfare Threats*. Combinatorial chemistry is also being used in the search for better superconductors, better phosphors for use in video monitors, better materials for use in computer magnetic and other storage devices, and better biosensors for detection of medically important molecules and environmental toxins.<sup>5</sup> The comprehensive nature of the Convention's prohibitions provides both a safeguard against potential misuse, as well as allowing these developments to be harnessed for their undoubted beneficial medical purposes.

### Conclusion

9. In light of these and other developments, the UK believes that it is essential that the Second Review Conference reiterate the importance of the comprehensive nature of the Convention's prohibitions and definitions, in terms no less definitive than those used at the First Review Conference. The Second Review Conference should also consider how States Parties and the Secretariat can improve their ability to deter and detect non-compliance with the Convention's comprehensive prohibitions, especially in light of the scientific and technological changes described above. The Director-General may wish to consult the Scientific Advisory Board on this point.

10. In addition, the Second Review Conference must make clear that national implementing legislation may not be limited to addressing the misuse of scheduled chemicals, or restricted to activities at facilities producing, processing or consuming such chemicals. The Second Review Conference should stipulate that such legislation must apply to *all* activities prohibited by the Convention involving use of any toxic chemicals or their precursors. This includes prohibited activities undertaken anywhere by the citizens of the State Party (i.e. including outside its territory), in line with Article VII.

### **UK Delegation to the OPCW**

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<sup>5</sup> *Globalization, Biosecurity, and the Future of the Life Sciences Committee on Advances in Technology and the Prevention of Their Application to Next Generation Biowarfare Threats*, National Research Council 2006 Section on Combinatorial Chemistry: Generating Chemical Diversity