



**OPCW**

**Scientific Advisory Board**

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**REPORT OF THE SECOND MEETING OF THE SAB TEMPORARY WORKING  
GROUP ON EDUCATION AND OUTREACH IN SCIENCE AND TECHNOLOGY  
RELEVANT TO THE CHEMICAL WEAPONS CONVENTION**

1. The Report of the Second Meeting of the Scientific Advisory Board's (SAB) Temporary Working Group on Education and Outreach in Science and Technology Relevant to the Chemical Weapons Convention is hereby circulated to States Parties. The meeting was held in The Hague from 22 to 24 November 2012.
2. The Chairman of the SAB and the Director-General have agreed that this report can be circulated to States Parties in advance of the Twentieth Session of the SAB.
3. In accordance with the Rules of Procedure of the SAB, this report and the recommendations contained therein will be reviewed in detail by the SAB at its Twentieth Session.

Annex (English only): Report of the Second Meeting of the SAB Temporary Working Group on Education and Outreach in Science and Technology Relevant to the Chemical Weapons Convention



## **Annex**

### **REPORT OF THE SECOND MEETING OF THE SAB TEMPORARY WORKING GROUP ON EDUCATION AND OUTREACH IN SCIENCE AND TECHNOLOGY RELEVANT TO THE CHEMICAL WEAPONS CONVENTION**

#### **1. AGENDA ITEM ONE – Opening of the meeting and adoption of the agenda**

1.1 The Temporary Working Group (TWG) on Education and Outreach of the Scientific Advisory Board (SAB) held its second meeting on 22 to 24 November 2012 at OPCW Headquarters in The Hague.

1.2 The meeting was chaired by Professor Djafer Benachour on behalf of the SAB.

1.3 The list of participants in the meeting is given in the Appendix attached hereto.

1.4 The following agenda was adopted:

1. Introduction by TWG chair and adoption of the agenda
2. Reports from members on intersessional work
3. Pilot project to develop educational material: progress report and next steps
4. OPCW activities
5. Interaction with the 14th annual meeting of National Authorities
6. Engaging national entities: a potential model
7. Responsible conduct of research
8. Education and outreach at the Third Review Conference
9. Engagement with other relevant stakeholders
10. Topics for intersessional work and dates of the next meetings
11. Any other business
12. Summary of conclusions and recommendations and elaboration and adoption of the TWG report
13. Closure of the meeting

#### **2. AGENDA ITEM TWO – Reports from members on intersessional work**

2.1 Djafer Benachour briefed the TWG on a meeting in Amman, Jordan which he attended in July 2012. The purpose of the meeting was to elaborate a code of conduct for chemists in the Middle East. Professor Benachour said that the meeting was positive and a draft code of conduct had been produced which was now being

discussed within the chemistry communities in the respective countries. He highlighted the fact that the Chemical Weapons Convention (hereinafter “the Convention”) was specifically referred to in the draft code and that elements of it were based upon the guidelines for codes of conduct prepared earlier by IUPAC.<sup>1</sup>

2.2 Djafer Benachour, Jan Apotheker, Peter Mahaffy and Soon Ting-Kueh reported to the TWG on the 22nd International Conference on Chemistry Education (ICCE) in July 2012 in Rome which they had all attended. The ICCE was attended by over 600 chemistry educators from over 70 countries. Before the conference, Professor Benachour also participated in a meeting of IUPAC’s Committee on Chemistry Education (CCE) and gave a presentation about the work of the TWG. He noted that he received a warm response from the CCE. Jan Apotheker informed the TWG that the CCE has set up a project group on the OPCW. At the CCE meeting, it was suggested that the OPCW should regularly participate in CCE meetings. The members of the TWG endorsed this idea and Mr Apotheker in consultation with the Secretariat will take it up with IUPAC. It was further suggested that the relationship should be mutual and IUPAC should regularly brief the SAB on relevant activities. Furthermore, the TWG recommended that the OPCW should participate in the 23rd ICCE which will take place in Toronto in July 2014.

2.3 Professor Alejandra Suárez reported on her participation in an OPCW workshop on Article XI of the Convention in Montevideo in October 2012. While some good educational materials have been produced, she noted that many National Authorities are not well connected to their domestic education and science communities. Within the Latin American and Caribbean region, Professor Suárez suggested focusing on university students and scientific associations with the aim of creating networks within States Parties.

### **3. AGENDA ITEM THREE – Pilot project to develop educational material: progress report and next steps**

3.1 At its first meeting, the TWG identified a need for educational materials on the multiple uses of chemicals and the role of the Convention. However, such materials need to be targeted and designed differently depending on the level of education. In the context of the multiple uses of chemicals, students should learn about responsible conduct, the use of chemicals in combat and the Convention in ways that are appropriate to their age and educational setting and to their academic and career needs.

3.2 Jan Apotheker updated the TWG on a pilot project to develop educational materials on the OPCW and the Convention for high school students, in response to a recommendation by the TWG at its first meeting. Mr Apotheker had assembled a group of educators in the Netherlands willing to work on the production of educational materials for teachers to use in chemistry lessons. Daniel Feakes of the Technical Secretariat informed the TWG that the United Kingdom of Great Britain

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<sup>1</sup>

Graham S. Pearson,\* Edwin D. Becker, and Leiv K. Sydnes, “Why Codes of Conduct Matter”, *Chemistry International*, Vol. 33 No. 6, November-December 2011, available at [http://www.iupac.org/publications/ci/2011/3306/2\\_pearson.html](http://www.iupac.org/publications/ci/2011/3306/2_pearson.html)

and Northern Ireland had recently made a voluntary contribution to the SAB Trust Fund, part of which is intended to support this project.

- 3.3 TWG members stressed that it is also important to develop educational materials for university students and educators. Professor Suárez reported on a planned initiative in Argentina to develop such materials.

#### **4. AGENDA ITEM FOUR – OPCW activities**

Daniel Feakes gave a short presentation on relevant activities of the Secretariat since the first meeting of the TWG. Such activities included a meeting with think tank experts in June at which education and outreach was discussed, the launch of e-learning modules on the OPCW public website, and events to mark the fifteenth anniversary of the OPCW on 3 September 2012, some of which focused on education and outreach. In addition, Mr Feakes informed the TWG that the Director-General has also raised education and outreach in bilateral meetings and had given a keynote speech at the ICCE in Rome (see paragraph 2.2 above) and he had also given the John Gee Memorial Lecture at Australian National University in Canberra, also in July.

#### **5. AGENDA ITEM FIVE – Interaction with the fourteenth annual meeting of National Authorities**

- 5.1 This meeting of the TWG took place in conjunction with the fourteenth annual meeting of National Authorities (NAs), in response to a recommendation of the first meeting of the TWG that the interaction with NAs be strengthened. Of six breakout groups at the annual meeting, one was on “education and outreach in science and technology”. TWG members Bob Mathews, Alastair Hay and Peter Mahaffy led an interactive session with the participating National Authority personnel exploring how NAs may benefit from, and contribute to, enhanced education and outreach efforts. Professors Hay and Mahaffy presented the conclusions and recommendations of the breakout group to a plenary session of the NA meeting. The other breakout groups also made presentations, some of which also drew attention to relevant issues such as a lack of awareness of the Convention among domestic stakeholders and proposed possible remedies such as outreach programmes to companies and NA “engagement days” to connect with stakeholders.

- 5.2 Subsequently, Professors Hay and Mahaffy gave a presentation to the NA meeting highlighting the importance of education and outreach to the implementation of the Convention. They gave examples of the potential target audiences of education and outreach activities, for example: The 18-year-old student who will be a politician, scientist, or NA member in 30 years; the young researcher making specialty organic chemicals for her PhD thesis; and the sales manager of a local chemical supplier. NAs need to know each audience and education and outreach needs to be matched to what each needs to know. The presentation also highlighted challenges, particularly for teachers and students, for example: Relevance to and ownership by students and teachers in many countries – “The Convention is someone else’s responsibility”; concerns of negative impact on public image of chemistry; knowledge base of chemistry teachers at all levels about the issue; content in chemistry is often taught in isolation from contexts; little formal attention to ethical issues in curriculum; and

remoteness of Convention structure to educational systems. The presentation stimulated many positive comments from several NAs from different regional groups noting the importance of education and outreach to the future of the Convention. There was discussion about how the OPCW and NAs can jointly strengthen future education and outreach efforts.

- 5.3 Based on its interactions with the NAs, and on the feedback from NA representatives, the TWG is of the view that education and outreach should be seen as an essential part of national implementation. Education and outreach should not be seen as another task for NAs to undertake, but as a tool to enable them to carry out their functions more effectively. The TWG will explore the development of a “toolkit” to assist NAs in conducting needs assessments and of guidance on running workshops to engage with domestic stakeholders. It would be useful to include education and outreach on the agenda of future NA meetings, including those held in regions.

## **6. AGENDA ITEM SIX – Engaging national entities: a potential model**

- 6.1 A guest presentation was given by Masamichi Minehata of the University of Bradford in the United Kingdom. The presentation demonstrated action plans, developed by the University of Bradford, to achieve strategic objectives set out in the Final Document of the BWC Meeting of States Parties in 2008. The action plans included the following:

- (a) Conducting country surveys of life science degree courses to investigate the current state of biosecurity education at universities in Europe, the Middle East and the Asia-Pacific region;
- (b) Developing online educational material to mitigate the lack of textbooks;
- (c) Developing a train-the-trainer programme to mitigate the lack of teachers;
- (d) Developing country specific educational material for short courses to help facilitate the development of national biosecurity experts networks; and
- (e) Reporting activities back to the BWC.

- 6.2 Mr Minehata noted that education and awareness-raising efforts by BWC States Parties are well documented in working papers submitted to the Seventh BWC Review Conference. Mr Minehata said that these examples can help States Parties understand how educators can enhance their own understanding about biosecurity issues. They should also help States Parties understand how to then disseminate knowledge through developing their own customised and tailored education programmes within their own life science communities, being cognizant of the principle that “no one size fits all”. Mr Minehata said that education for life scientists, policy-makers and other stakeholders about social responsibility on dual-use issues is easily achievable and need not be expensive, time-consuming or over-burdening.

- 6.3 Subsequent discussion within the TWG noted that outreach efforts in some States Parties have demonstrated the need for a coherent approach to domestic stakeholders by governments, for example by covering the Convention, BWC and export controls

together rather than separately. TWG members also highlighted the importance of BWC States Parties reporting back on their experiences, both positive and negative, in conducting education and outreach activities.

## **7. AGENDA ITEM SEVEN – Responsible conduct of research**

7.1 TWG members discussed the growing number of national and international initiatives on the responsible conduct of research (RCR). In many situations, it might be most effective to introduce information on the OPCW and the Convention in the context of RCR, rather than through specific stand-alone courses. Jo Husbands, Alastair Hay and Jan Apotheker each described various reports or meetings on RCR, and identified it as an area in which information on the Convention could be introduced. This was already happening with information on the BWC being introduced into discussions on RCR in the life sciences. Peter Mahaffy noted that Statute 5 of the International Council for Science (ICSU) states that the free and responsible practice of science “requires responsibility at all levels to carry out and communicate scientific work with integrity, respect, fairness, trustworthiness, and transparency, recognising its benefits and possible harms.” The OPCW could work with ICSU in order to engage in the global debate on RCR. Opportunities for such engagement could be the Third World Conference on Research Integrity in May 2013 in Montreal and the World Science Forum in Rio de Janeiro in November 2013.

7.2 Jo Husbands introduced a survey of codes of conduct from professional chemistry societies and ethics codes from trade associations, industry, government and academia. Of the 40 codes surveyed, only one clearly stated that members cannot provide materials or expertise to create a chemical weapon. While others had language about ethics, safety and environmental responsibility, only two referred specifically to security practices and principles. Although unable to attend the TWG meeting, Detlef Männig circulated examples of several codes of conduct from professional associations and the chemical industry. TWG members agreed that incorporating reference to the Convention into existing and new chemistry codes of conduct could be a mechanism for increased outreach, and should therefore be explored further.

## **8. AGENDA ITEM EIGHT – Education and outreach at the Third Review Conference**

It was noted that the final reports from the First and Second Review Conferences did not contain specific references to education, although they did contain general statements about the value of awareness-raising. In contrast, past BWC Review Conferences and Meetings of States Parties have made specific mention of education, and BWC States Parties have submitted several national papers on the topic. For example, the Seventh BWC Review Conference noted that oversight, education, awareness-raising and codes of conduct have a role to play in preventing the misuse of biological agents. In addition, a group of 11 BWC States Parties submitted a working paper on possible approaches to education and awareness-raising among life

scientists.<sup>2</sup> TWG members recommended that States Parties should discuss approaches to education and outreach at the Third Review Conference and that appropriate language should be included in its final report. They also encouraged States Parties to share their own experiences, perhaps through the submission of national papers. Such experiences could also be shared at a side event organised during the Third Review Conference.

## **9. AGENDA ITEM NINE – Engagement with other relevant stakeholders**

- 9.1 Daniel Feakes from the Secretariat gave a short presentation on the “disarmament and non-proliferation education” activities of the United Nations Office of Disarmament Affairs (UNODA). In 2001, the UN Secretary-General had requested a group of governmental experts to undertake a study of disarmament and non-proliferation education around the world. The group reported in 2002 and its report was submitted to the General Assembly (A/57/124 dated 30 August 2002). Since then, every two years the Secretary-General has submitted a report and the First Committee has adopted an unopposed resolution. These biennial reports contain submissions from Member States and relevant international organisations, including the OPCW, concerning their activities in this area. UNODA has a disarmament education website, convenes an inter-agency meeting between relevant international organisations and periodically offers training to local educators. The TWG noted that the information on the UNODA website is mainly targeted at diplomats and students of political science and suggested that a section could be created for science students.
- 9.2 Peter Mahaffy briefed the TWG on the activities of the ICSU Committee for Freedom and Responsibility in the conduct of Science (CFRS). In the context of the Principle of the Universality of Science and the role that it plays in addressing both the freedoms and responsibilities of science and scientists, CFRS has considered how it might address the topic of Science and War, especially in the context of fourth generation war, which is the type of conflict that poses the greatest threat for the use of chemical and biological weapons. There has been some discussion in CFRS about holding a workshop on this topic to raise awareness of the global scientific community, perhaps in partnership with the Pugwash Conferences on Science and World Affairs. The TWG might explore possibilities for building synergy with this initiative, and express its views to CFRS on whether joint involvement in a workshop might be of interest.
- 9.3 Peter Mahaffy also briefed the TWG on the Malta Conferences. These events, of which there have been five to date, are designed to bring together chemists from countries in areas of tension, particularly those from the Middle East. The sixth Malta Conference is scheduled to take place in November 2013 and Professor Mahaffy reported that the organisers are interested in including issues relating to the Convention on its agenda.
- 9.4 Peter Mahaffy and Jan Apotheker briefed the TWG on the activities of IUPAC, particularly its standing committees on chemistry education (CCE) and the chemical

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<sup>2</sup>

See BWC/CONF.VII/WP.20/Rev.1, available at <http://daccess-ods.un.org/access.nsf/Get?Open&DS=BWC/CONF.VII/WP.20/Rev.1&Lang=E>

industry (COCI). The TWG recommended that the OPCW should be present at the IUPAC General Assembly and World Chemistry Congress in Istanbul in August 2013 which present a significant opportunity to engage with the global chemistry community. A number of ways in which OPCW could participate were put forward and will be taken up by the Secretariat in consultation with the TWG.

9.5 Soon Ting-Kueh informed TWG members of the 15th Asian Chemical Congress in Singapore in August 2013 and the possibility of arranging a half-day workshop on the Convention. The Secretariat will explore options with the organisers.

9.6 Several TWG members referred to the format of the annual BWC Meetings of Experts. The structured nature of this process creates opportunities for the scientific community to engage with the BWC and its States Parties on issues relating to science and technology, including education, awareness-raising and codes of conduct. The TWG believes that similar meetings in The Hague might be a useful way to engage the global scientific community in OPCW discussions on scientific and technological topics.

## **10. AGENDA ITEM TEN – Topics for intersessional work and dates of the next meetings**

10.1 The future work of the TWG will be focused on the areas outlined below:

(a) Creating Educational Materials and Demonstration Projects:

- (i) Updating IUPAC “Multiple Uses of Chemicals” materials to reflect advances in education technology (e.g., video)
- (ii) Undertaking a pilot project on “Chemistry in Conflict” for high school students in the Netherlands
- (iii) Seeking support for demonstration project at university level (e.g., in Argentina)

(b) Building and Strengthening Partnerships

- (i) With other non-proliferation and disarmament organisations: BWC (in particular, given convergence), UNODA, CTBTO
- (ii) With IUPAC, Especially CCE
- (iii) With other international science bodies, ICSU, especially CFRS

(c) Reaching out to the Scientific Community

- (i) Calendar of relevant activities
- (ii) Special events/ appearances by the Director-General at scientific meetings: IUPAC General Assembly 2013, 15th Asian Chemical Congress

(d) Undertaking Broader Outreach

- (i) For centenary of the First World War in 2014 and of the first use of chemical weapons in 2015



- (ii) Focus on science museums/special events and exhibits
  - (iii) Promoting IUPAC materials
  - (iv) Strategic plan to increase use
  - (v) Promoting responsible conduct
  - (vi) Project on codes of conduct
  - (vii) Embed chemical weapons issues in broader projects (e.g., IAC/IAP, others)
- (e) Engaging Industry
- (i) Around what's new or changing (i.e., trends in science and technology, production, diffusion)
  - (ii) Supporting education and outreach capacity
  - (iii) Toolkit for national needs assessment by/for National Authorities
  - (iv) Cross-WMD aggregating website
  - (v) Dedicated sections on existing websites
- 10.2 A date for the third meeting of the TWG was not fixed, but it was suggested that one option would be for it to take place adjacent to another meeting at which several TWG members would be present, for example the IUPAC meetings in Istanbul or the Asian Chemistry Congress in Singapore. A date will be decided upon in consultation between the TWG Chairperson and the Secretariat.

## 11. **AGENDA ITEM ELEVEN – Any other business**

None.

## 12. **AGENDA ITEM TWELVE – Summary of conclusions and recommendations and elaboration and adoption of the TWG report**

The following is a summary of the main conclusions and recommendations of the second meeting of the TWG:

- (a) The OPCW should participate in future meetings of the IUPAC CCE and should use the IUPAC meetings in Istanbul in August 2013 as an important awareness-raising opportunity;
- (b) The TWG will continue to provide support to the project to develop educational materials for high school students in the Netherlands and will provide support to future projects to develop educational materials for university students;
- (c) The TWG very much appreciated the opportunity to interact with the 14th annual NA meeting and recommends that education and outreach be included on the agenda of future NA meetings, including those at the regional level;
- (d) The TWG recommends that education and outreach is seen as an essential element of national implementation and is of the view that it will play an important role in preventing the misuse of toxic chemicals;

- (e) The TWG believes that there are important lessons for the OPCW from education and outreach activities under the BWC, for example the utility of “train the trainer” programmes, the value of States Parties reporting on their experiences of education and outreach and the opportunities provided for interaction with the scientific community by structured meetings. The OPCW should therefore strengthen its interaction with the BWC;
- (f) The TWG views the responsible conduct of research as a very useful context in which to raise the multiple uses of chemicals and awareness of the Convention. To this end, the OPCW should engage with ICSU and other relevant actors;
- (g) The TWG will continue to study the utility of codes of conduct in different settings;
- (h) States Parties should discuss education and outreach in the context of the Third Review Conference, for example through national papers and side events, and the TWG encourages the inclusion of appropriate language on the importance of education and outreach in the final report of the Review Conference;
- (i) The TWG recommends the OPCW to continue its interactions with external stakeholders such as UNODA and IUPAC, while TWG members will assist in establishing new interactions, for example with ICSU;
- (j) The TWG briefly discussed potential OPCW involvement in the centenary of the First World War in 2014 and the centenary of the first use of chemical weapons in 2015. TWG members recognised that anniversaries such as these can play an important role in raising awareness among target audiences and recommended the OPCW actively considers ways in which to make best use of them.

### **13. AGENDA ITEM THIRTEEN – Closure of the meeting**

The Chairperson closed the meeting at 10:50 on 24 November 2012.

Appendix: List of Participants in the Second Meeting of the Temporary Working Group on Education and Outreach in Science and Technology Relevant to the Chemical Weapons Convention

### Appendix

**LIST OF PARTICIPANTS IN THE SECOND MEETING OF THE TEMPORARY  
WORKING GROUP ON EDUCATION AND OUTREACH IN SCIENCE AND  
TECHNOLOGY RELEVANT TO THE CHEMICAL WEAPONS CONVENTION  
THE HAGUE, THE NETHERLANDS<sup>3</sup>  
22 – 24 NOVEMBER 2012**

|     | <b>Participant</b>             | <b>Institution</b>   |
|-----|--------------------------------|--|
| 1.  | Apotheker, Jan                 | University of Groningen, the Netherlands   |
| 2.  | Benachour, Djafer <sup>4</sup> | Ferhat Abbas University, Ministry of Higher Education and Scientific Research, Setif, Algeria                    |
| 3.  | Engida, Temechgn               | Addis Ababa University, Ethiopia   |
| 4.  | Hay, Alastair                  | University of Leeds, United Kingdom of Great Britain and Northern Ireland  |
| 5.  | Husbands, Jo                   | National Academy of Sciences, Washington, D.C., United States of America   |
| 6.  | Mahaffy, Peter                 | The King's University College, Edmonton, Canada  |
| 7.  | Mahdi Balali-Mood              | Medical Toxicology Centre, Imam Reza Hospital, University of Medical Sciences, Mashhad, Islamic Republic of Iran |
| 8.  | Mathews, Robert                | Defence Science and Technology Organisation, Melbourne, Australia  |
| 9.  | Mogl, Stefan                   | Spiez Laboratory, Switzerland  |
| 10. | Soon, Ting-Kueh                | Malaysian Institute of Chemistry, Kuala Lumpur, Malaysia   |
| 11. | Suárez, Alejandra Graciela     | Universidad Nacional de Rosario, Argentina   |

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<sup>3</sup> Detlef Männig (Evonik Industries AG, Germany) and Philip Coleman (Protechnik Laboratories, South Africa) could not attend the second meeting of the TWG.

<sup>4</sup> Chairman of the TWG.