

**NOTE BY THE DIRECTOR-GENERAL****RESPONSE TO THE REPORT OF THE THIRTIETH SESSION
OF THE SCIENTIFIC ADVISORY BOARD
10 – 12 NOVEMBER 2020**

1. This Note presents the Director-General's comments on the report of the Thirtieth Session of the Scientific Advisory Board (SAB) (SAB-30/1, dated 12 November 2020) and the ongoing work of the Board.
2. Scientific and technological evolution needs to be understood and monitored in order to ensure the full and effective implementation of the Chemical Weapons Convention (hereinafter "the Convention"). Given current security concerns, a risk of degradation of the norm against chemical weapons use, and a rapidly evolving technological landscape, the need for sound scientific advice on chemical disarmament and non-proliferation continues to be essential. Preventing the use of chemical weapons and ensuring that the OPCW remains capable of meeting the needs of States Parties is a continuous challenge. In this regard, the advice of the SAB serves as a valuable resource in decision-making processes.

**RESPONSE TO THE REPORT OF THE THIRTIETH SESSION OF THE
SCIENTIFIC ADVISORY BOARD**

3. The SAB met virtually via the Microsoft Teams platform for its Thirtieth Session from 10 to 12 November 2020. The session was chaired by Dr Christophe Curty, supported by Dr Zrinka Kovarik as Vice-Chairperson. The report of the session was issued as SAB-30/1.
4. In his opening remarks (paragraphs 5.1 to 5.3 of SAB-30/1), the Director-General informed the SAB of developments at the OPCW following the Board's Twenty-Ninth Session in September 2020 (SAB-29/1, dated 2 September 2020). The Director-General noted his appreciation of the Board's commitment and work, especially in light of the challenges posed by the COVID-19 pandemic. He then updated the Board on recent events involving the Technical Secretariat (hereinafter "the Secretariat"). He provided a brief summary of the events related to the Alexei Navalny case, highlighting in particular the Secretariat's response, the provision of assistance to Germany following its request, and willingness to assist all States Parties in matters of alleged chemical weapons use. He noted that the analysis conducted by designated laboratories of the biomedical samples collected from Mr Navalny indicated the presence of biomarkers of a cholinesterase inhibitor that, while similar in structure to recently scheduled



chemicals, is not in the Annex of Chemicals to the Convention.¹ Further updates centred on the ongoing work in Syria and updates from the Ninety-Fifth Session of the Executive Council, where the topic of central nervous system-acting chemicals (CNS-acting chemicals) was revisited. He reminded the Board that its recent scientific advice on the aforementioned topics has been valuable and that it may be called upon to provide further advice.

5. The Director-General announced that he is establishing a new Temporary Working Group (TWG) on the Analysis of Biotoxins, pursuant to the SAB's recent recommendation. He indicated that biotoxins represent an area that requires further research and analysis given recent technological developments in the field. The Director-General is looking forward to working with the Chairperson of the SAB in order to finalise the terms of reference for and group composition of the Biotoxin Analysis TWG.
6. The Director-General concluded by providing an update of the Centre for Chemistry and Technology (ChemTech Centre) project, highlighting some of the recent developments in relation to its design and construction. He welcomed the SAB's ideas for future science and capacity-building projects at the Centre.

RECOMMENDATIONS TO THE DIRECTOR-GENERAL (PARAGRAPHS 1.4, 8.1 TO 8.5, AND 11.3 OF SAB-30/1)

7. The Director-General thanks the SAB for the recommendations it submitted through SAB-30/1. The scientific methodologies employed by the Secretariat must be rigorous and robust, and the Director-General is pleased to see these principles underpinning its recommendations. The Director-General submits the following perspectives on the SAB's recommendations:
 - (a) In response to the recommendation in subparagraph 1.4(a) and paragraph 11.3 of SAB-30/1, relating to the organisation of a workshop in partnership with the chemical industry to discuss topics of mutual interest, the Director-General agrees with this recommendation and encourages the SAB to organise a workshop with the chemical industry, and to involve the Secretariat. He reminds the Board that the Secretariat works closely with several chemical industry production and trade groups, namely the International Council of Chemical Associations and the International Chemical Trade Association, and would appreciate that they be included in preparing and convening a workshop. He notes the importance of this type of workshop in preparation for the next Review Conference.²

¹ Please see the news report released by the OPCW on 6 October 2020, entitled: "OPCW Issues Report on Technical Assistance Requested by Germany." The report is accessible here: <https://www.opcw.org/media-centre/news/2020/10/opcw-issues-report-technical-assistance-requested-germany>.

² The Fifth Special Session of the Conference of the States Parties to Review the Operation of the Chemical Weapons Convention.

- (b) In response to subparagraph 1.4(b) and paragraph 8.1 of SAB-30/1, recommending that the Secretariat convene a workshop dedicated to newly scheduled chemicals that were officially added to the Annex on Chemicals on 7 June 2020, the Director-General acknowledges the importance of fully understanding the detection and identification modalities, decontamination methods, and medical countermeasures related to these compounds. It is important that the Secretariat and States Parties fully understand the properties of these chemicals so that inspection and verification activities can continue safely, and to ensure that any potential misuse of these materials will be properly handled.
- (c) In response to subparagraph 1.4(c) and section 8(a) of SAB-30/1, the Director-General agrees with the Board that new techniques related to the detection of exposure to chemical weapons are important for the Secretariat. The chlorine exposure detection technique addressed by the SAB at its Thirtieth Session will be considered by the Secretariat, in addition to other new and novel techniques, in its further work.

UPDATES FROM THE TECHNICAL SECRETARIAT (PARAGRAPHS 6.1 TO 6.4, 7.1 TO 7.10, AND 10.1 TO 10.3 OF SAB-30/1)

8. Concerning the presentations by the Secretariat, the Director-General is looking forward to the outcomes of the work on determining the applicability of distributed ledger technology to declaration challenges.
9. Concerning the interaction of SAB members with the media, the Director-General reaffirmed the guidance provided by the SAB Secretary. The Director-General appreciates the Board's adherence to its terms of reference and the particular elements surrounding each member's role as an independent expert. He knows the Board will continue to work in compliance with its terms of reference and reiterates that the OPCW Secretariat is always able and willing to support SAB members with any inquiries they may have on this matter.

EFFECTS OF TOXIC CHEMICALS ON LIVING ORGANISMS AND FORENSIC APPLICATIONS THEREOF (PARAGRAPHS 8.1 TO 8.15 OF SAB-30/1)

10. Understanding the effects of toxic chemicals and how they may assist in the detection and understanding of exposure to chemical weapons is of great interest to the Secretariat. It is critical that the Secretariat stays abreast of scientific and technological developments in this area in order to best assist States Parties in the event of allegations of chemical weapons use. The Director-General commends the SAB for ensuring that these topic areas continue to receive attention. With regard to the topics discussed at the SAB's Thirtieth Session, the Director-General provides the following views:
- (a) The Director-General is interested in keeping apprised of developments on the potential for spectroscopic methods to assist in the detection of chlorine exposure and expects that this work will be evaluated within the Secretariat. The Director-General sees value in this approach.

- (b) With some carbamate compounds being added to the Annex on Chemicals, the Secretariat must ensure that it can continue to conduct its verification work safely. On the topic of therapeutic options against carbamate poisoning, the Director-General is thankful for the presentation, as knowledge about medical countermeasures against exposure to these compounds is of great interest to the Secretariat. The Director-General hopes that the SAB will be able to provide more presentations on the topic of medical countermeasures and, if a workshop is held in the future on the topic, that States Parties and scientists from around the world will share any pertinent information that could assist in properly detecting, identifying, decontaminating, and protecting against these compounds.
- (c) The work on developing novel bioindicators for the detection of arsenic in aqueous environments shows promise in providing another means by which to address the serious problem of sea-dumped chemical munitions. While still at its early stages, utilising aquatic life to act as a sentinel for elements or compounds specific to chemical weapons is a novel and unique approach. The Director-General hopes this research will continue and that some tangible outcomes will contribute to improved detection of sea-dumped chemical munitions in future.

**ADVANCES AND CONSIDERATIONS IN CHEMICAL INDUSTRY
(PARAGRAPHS 9.1 TO 9.7 OF SAB-30/1)**

- 11. The Director-General thanks the Board for incorporating topics concerning the chemical industry at its Thirtieth Session. Proper consideration of industrial activities and approaches, especially as they apply to new technologies, is important within the context of the Secretariat's work. The speed with which the chemical industry is converging and innovating is impressive. These technological and scientific developments will pave the way for humanity to grow and prosper in the twenty-first century and beyond. However, at the same time, these developments need to be monitored to ensure that any potential negative effects are understood in an effort to prevent misuse. The Director-General is grateful to the Board members for their continued efforts in partnering with the chemical industry and fully understanding the developments within the context of the Convention.
- 12. The Director-General is particularly interested in having the Secretariat remain informed of developments in the pharmaceutical industry, including with regard to CNS-acting agents. These compounds can be highly toxic if misused and represent a class of chemicals that may require further understanding. In addition, the Director-General finds relevant the concept of artificial intelligence-assisted synthesis, as well as the ramifications it may have on the Convention and the ultimate goal of ridding the world of chemical weapons. He is interested in the SAB's continued monitoring of this field of research to ensure that any potential proliferation or security concerns can be identified quickly.

**FUTURE WORK AND OTHER BUSINESS OF THE SCIENTIFIC ADVISORY
BOARD (PARAGRAPHS 11.1 TO 11.9 OF SAB-30/1)**

- 13. The SAB will seek to hold its Thirty-First Session in early spring 2021, at which time the Board will follow up on the topics flagged for further discussion at its Thirtieth Session and continue to develop the scope and events of the scientific review in the

lead-up to the Fifth Review Conference. Looking towards the SAB's continued work, the Director-General thanks Dr Christophe Curty and Dr Zrinka Kovarik for their dedication and leadership of the SAB in their roles as Chairperson and Vice-Chairperson, respectively. He also congratulates Dr Curty on his re-election as SAB Chairperson for 2021, and Dr Andrea Leisewitz on her election as Vice-Chairperson for 2021.

14. The SAB will continue its practices of engaging and networking with scientific communities, in particular through conference and workshop attendance and scientific publications, with administrative support provided by the Secretariat. These activities serve to strengthen the Secretariat's knowledge base on the science and technology relevant to the Convention and the mission of the OPCW. The Director-General continues to be impressed by SAB members' accolades and participation in these important activities.
15. In December 2020, the Secretariat initiated a "crowdsourcing challenge" to collect technical information on observable and biomarker-based signatures of toxic chemical exposure in plants.³ The use of crowdsourcing, which the SAB had proposed as an approach for the Secretariat to consider, opens up new opportunities for engagement with technical communities and will assist the Secretariat and the scientific community in understanding what gaps still exist in this field. The Director-General is grateful to the SAB members who will be nominated to work with the Secretariat to support this effort moving forward.
16. The Director-General thanks the European Union for its Council decision 2019/538 of 1 April 2019, which provides funding for both the crowdsourcing challenge and the work of TWGs.
17. The SAB's activities are a valuable resource for the OPCW and States Parties. Its research and advice provide a sound basis to support the implementation of the Convention. The Director-General appreciates the quality and substance of the SAB's work and recommendations.

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³ See <https://www.opcw.org/biomarker>.