禁止化学武器组织

教育和外联
咨询委员会

第五届会议
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关于教育和外联在防范化学武器死灰复燃方面的作用的报告

1. 执行概要

1.1 本报告是由教育和外联咨询委员会（教联咨委会）编写的，旨在确定教育和外联在帮助禁止化学武器组织（禁化武组织）实现防范化学武器死灰复燃的目标方面的各种方式。

1.2 “禁止化学武器组织的中期计划（2017 年至 2021 年）”（EC-83/S/1 C-21/S/1，2016 年 4 月 8 日）第 35 段表示：

> 要做到成功地履行《公约》，就不能简单地依赖各国政府的监管方式。这还要求将主人翁意识灌输给化工界、科研界、学术界、非政府组织和民间社团中的利益攸关方，以争取其支持和积极的协作。[1]

1.3 通过回复禁化武组织技术秘书处（下称“技秘处”）总干事在第三届会议上教联咨委会提出的 3 项请求（见 ABEO-3/1 的附件 2，2017 年 3 月 16 日），本报告探讨了如何培育“主人翁意识”。上述 3 项请求如下：

(a) 查明与禁化武组织的教育和外联活动有关的教育和外联理论和实践的最佳做法和最新进展；

(b) 在本组织将其工作重点放在防范化学武器死灰复燃的情况下，将有关的教育和外联理论和实践与禁化武组织的任务和主要工作领域挂钩；及

(c) 在此基础上，制订出一整套具体的教育和外联活动和项目。作为一项优先工作，本组织、缔约国和教联咨委会及其各位委员应从 2018 年起落实这套行动和项目。[2]

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[1] 可查阅：https://www.opcw.org/fileadmin/OPCW/EC/83/en/ec83s01_c21s01_e_.pdf。

[2] 本报告的附件 1 载有总干事的请求的全文。

1.4 一个重要的证据基础现已确认了以下情况：向受众讲授或使其知情的最佳教育方法是“主动学习”，而不是那种使学生被动地接受信息的传统的讲授式教学。那种方式把学习者而不是教学者作为所有活动的中心。而以学习者为中心的策略可以应用于课堂、实验室或现场。

1.5 越来越多的知识和经验所反映的深入见解说明了禁化武组织可如何支持适用于化学武器裁军领域的不同国家和区域经验的教育和外联。本报告介绍了一些用以支持积极学习的教学策略，这些策略与禁化武组织为所有利益攸关方开展的广泛的能力建设方案高度相关。

1.6 关于有效教学的研究也显示在塑造人的态度方面，知识本身起到的作用是相对有限的。哪怕以最中立的方式，仅仅提供信息的做法也不太可能成为最有效的使他人参与其中的途径。这项研究强调了理解特定受众可能如何关注某件事甚或对其作出反应的重要性。因此，有必要留出足够的时间来让受众讨论各种想法和概念，以便能将听到的东西与自身的情况联系起来。

1.7 作为其范围已扩大的教育和外联活动的一部分，**禁化武组织应与新的利益攸关方群体接触，以提高其对“防范化学武器死灰复燃”可能作出的贡献的认识，并推广旨在降低在无意中破坏了禁止化学武器的规范的风险的职业、科学和商业文化**。本报告指明了一系列利益攸关方，即工业界、科学家、学术界、民间社团、决策者和媒体；并就以下方面提出了建议：

(a) 所采用的一般方式；

(b) 应该落实的项目；

(c) 应该采取的具体行动；及

(d) 应该由谁来开展这些项目/活动。

1.8 这些建议为中期的教育和外联活动的战略性和可持续的组合[3]提供了基础。

1.9 技秘处内的许多单位已经将份量很重的教育和外联内容纳入了其工作之中，其中包括培训工作人员，以使其执行特定的任务。来自学习科学和外联理论领域的见解与这些活动的设计和实施直接相关，并可进一步强化这些设计和实施。

1.10 技秘处**应该针对其全部教育和外联活动而系统地制订更具互动性的方法。活动的设计应更重视对教学或培训的有效性进行评估。因此，对课程和其它活动的设计需有明确的目标和可衡量的指标。**

1.11 缔约国的大多数教育和外联活动都是通过其国家主管部门进行的。在国家履约方面，所有国家主管部门均负有一定的基本职责，尽管其范围和重点可能会有很大差异。教育和外联活动的范围也各不相同。对于一些国家主管部门来说，针对其国家的化学工业开展外联是其例行工作之一。相比之下，非洲和拉丁美

[3] 本报告的附件 2 载有建议开展的全套活动。

洲的许多小国谈不上有任何真正的化学工业，但却仍可能与贸易商和航运机构或“非正规”部门交往，而这种情况已越来越引人注目。根据教联咨委会的专业评估结果，有助于防范化学武器死灰复燃的教育和外联活动将受到目标受众和具有庞大化工行业的缔约国的欢迎。

1.12 有许多国家主管部门希望拓展其教育和外联活动，并已要求向其提供援助和培训，以使其具备开展工作的能力。鉴于了解到这些要求，本报告建议**禁化武组织利用其现有的工作规程来支持国家主管部门，以帮助其培育开展教育和外联活动的能力。此外，还需要对现有的教育和外联材料进行调整，以使其得到更有效的利用。**

1.13 **为了确保针对世界各地不同类型受众的所有教育和外联活动均具有一种共同的目标感，建议采用一个总揽式主题。“防范化学武器死灰复燃”一语反映了禁化武组织的首要目标，且具有足够的可塑性，可以适应许多不同的教育和外联环境。**鉴于“防范化学武器死灰复燃”包含了一整套行动，可以利用诸如化学安全和安保、化学工业的尽责关爱®倡议和负责任的科学等补充性主题来制定各种行动框架，以支持或参照总目标。

2. 背景

禁化武组织的教育和外联

2.1 禁化武组织在早年的时候使已经开始进行教育和外联活动。本报告的附件 3 载有关于这些活动的历史概要[4]。缔约国大会审查《化学武器公约》实施情况第三届特别会议（下称“第三届审议大会”）正式肯定了教育和外联对全面和持续履行《化学武器公约》（下称“《公约》”）及其禁止化学武器的规范所作的贡献。附件 4 列出了禁化武组织近期关于目前为教育和外联设想的作用的各份报告。

2.2 执行理事会（下称“执理会”）第八十届会议关于设立教联咨委会的决定（EC-80/DEC.5，2015 年 10 月 8 日[5]）认为：教育和外联有助于缔约国和技秘处“继续以可持续的方式履行《公约》”。在此方面，该决定指出了下列做法的重要性：“应与包括科学家、工业界、学生、教育工作者、民间社团和决策者在内的一系列*受众*进行互动”（斜体是后加的，以示强调）。此外，与此同时，技秘处和国家主管部门可以联手开展教育和外联；并为受众进行能力建设，以使其能够更好地承担起教育和外联方面的职责。

2.3 总干事请教联咨委会第三届会议（2017 年 3 月 14 日至 16 日）就教育和外联在今后履行《公约》中的作用编写一份实质性报告[6]。根据其领受的任务，教联咨委会应确保：禁化武组织的教育和外联活动以及缔约国的教育和外联活动均做

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4 以下文件载有更详尽的介绍：科学咨询委员会下设的教育和外联临时工作组“教育和外联：促进一种负责任的化学的文化”（SAB/REP/2/14，2014 年 11 月 25 日）。
可查阅：https://www.opcw.org/fileadmin/OPCW/SAB/en/Education_and_Engagement-v2.pdf。

5 可查阅：https://www.opcw.org/fileadmin/OPCW/EC/80/en/ec80dec05_e_.pdf。

6 本报告的附件 1 载有总干事的请求的全文。

到有效、可持续并符合成本效益；同时，上述活动均受益于教育和外联理论与实践方面的最新进展。上述报告应该：

(a) 查明与禁化武组织的教育和外联活动有关的教育和外联理论和实践的最佳做法和最新进展；

(b) 在本组织将其工作重点放在防范化学武器死灰复燃的情况下，将有关的教育和外联理论和实践与禁化武组织的任务和主要工作领域挂钩；及

(c) 在此基础上，制订出一整套具体的教育和外联活动和项目。作为一项优先工作，本组织、缔约国和教联咨委会及其各位委员应从 2018 年起落实这套行动和项目。

防范化学武器的死灰复燃

2.4 教联咨委会第三届会议建议：禁化武组织采取“防范化学武器死灰复燃”一语作为进行与利益攸关方的互动的总揽式主题，以便向利益攸关方传达一种方向感，而这种方向感应该是禁化武组织目前正在进行和为将来设想的所有活动所共有的。教联咨委会进一步强烈鼓励“在作每一次公开讲话（讲演、研讨会的介绍或者培训活动、外联、公共外交、在线教育单元或出版物等）时，禁化武组织的工作人员均应系统地将一个或多个段落专门用于阐述该概念，并有针对性地向受众介绍该主题的要点，说明某种具体活动的各个方面或各种目标如何有助于推进该术语所提出的总揽式目标”[7]。

2.5 禁化武组织广泛地开展各种教育和外联活动。此外，禁化武组织希望同时与许多不同类型的利益攸关方接触，而且还具有并行的短期和长期的宏伟构想。采用中央组织式主题有助于构建和维持目的的一致性、总体战略方向以及体现在各项不同举措中的方法上的内聚力。

进入销毁后阶段

2.6 《公约》正在逐步进入其下一个阶段。普遍性业已几近实现，而且正越来越接近实现经核查而销毁所有宣布的化学武器库存这一目标。在这种情况下，缔约国的注意力自然正转向在不断变化的科学、技术、经济政治和安全环境中维持对化学武器的禁止。这种过渡要求缔约国明确并确定今后的优先事项。

2.7 《公约》的序言部分第 6 段规定了下述前瞻性职责：

> 决心为了全人类，通过执行本公约的各项规定而彻底排除使用化学武器的可能性，从而补充按 1925 年《日内瓦议定书》承担的义务。[8]

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[7] ABEO-3/1 第 8.33(b)分段（2017 年 3 月 16 日）。可查阅：https://www.opcw.org/fileadmin/OPCW/ABEO/abeo-3-01_e_.pdf。

[8] 《公约》的全文见于：https://www.opcw.org/fileadmin/OPCW/CWC/CWC_en.pdf。

2.8 《公约》为全人类设定了一个永恒的愿景，并指示通过执行条约规定来实现这一愿望。

2.9 “防范化学武器死灰复燃”一语是对该规范的未来发出的呼吁。这句话影响到人们如何看待不同的条约规定的具体实施情况，不管是《公约》第六条规定的“《公约》不加禁止的活动”，还是核查制度的未来，或是与化工界、科学界和其它利益攸关方的互动。因此，从教育和外联的角度来看，这句话自然而然地从序言部分第 6 段反映的愿望转向了针对具体而前瞻性的行动和活动的组织性主题。而且，对不同环境下的过多的活动而言，这句话因具有足够的可塑性而起到了总揽性主题的功能。

2.10 这句短语已经流行于禁化武组织。此语就曾出现在第三届审议大会的最后报告（RC-3/3*，2013 年 4 月 19 日）[9] 中，而且还已用于总干事、副总干事和其他高级官员的几次正式发言里[10]。在技秘处题为“2025 年的禁化武组织：确保世界永无化学武器”的前瞻性说明（S/1252/2015，2015 年 3 月 6 日）[11]中，这句话也被广泛采用。尽管如此，“防范化学武器死灰复燃”在语义上大致是空泛的，而以下现象可资证明：此语偶尔可与正式发言中提到的“不扩散”互换，或者看上去对禁化武组织及其技秘处开展的活动没有什么实质性影响。

采用中央组织式主题

2.11 “裁军”或“不扩散”等概念体现的是总的政策目标，而并不是邀请利益攸关方个人采取具体的行动。相反，“防范化学武器死灰复燃”更容易唤起利益攸关方群体和个人的责任感，以捍卫植根于《公约》的规范。一方面，可以将其定义为禁化武组织、其技秘处和国家主管部门为履行《公约》条款而采取的集体性行动；另一方面，其也可定义为专业、科学和学术界以及民间社团和个人为了促进那些有助于支持《公约》不加禁止的目的的意识、责任和具体行为而携手开展的行动。

2.12 虽然每一项行动都可以独立采取，但这些行动最终都有助于总体目标的实现。而且，每项行动均加深了规范意识，并吸引到新的群体和个人。总揽式主题同时宣传了目标的同一性，并使目标在每个层面和每项行动中都具体化，同时实现在各种各样的受众中间的独特的能见度。

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9 可查阅： https://www.opcw.org/fileadmin/OPCW/CSP/RC-3/en/rc303__e_.pdf。

10 例如，见副总干事 H. A. • 拉奥的主旨发言：“Preventing the Re-Emergence of Chemical Weapons: Lessons for Non-Proliferation”, Summer Programme, Asser Institute, (The Hague, 2016)。可查阅：https://www.opcw.org/fileadmin/OPCW/DDG/DDG_Keynote_Speech_Asser_2016-09-05.pdf。
早在 2012 年，亚历山大 • 凯勒（巴斯大学前人员；技秘处现任高级政策干事）便已阐述过这一概念，虽然当时谈到的是该语在裁军界正被用得越来越多。（A. Kelle, “Non-proliferation and preventing the re-emergence of chemical weapons”, Disarmament Forum, no. 1 (2012), pp. 55–64）。可查阅： http://unidir.org/files/publications/pdfs/agent-of-change-the-cw-regime-en-312.pdf)。
在于第三届审议大会之前接受一次采访时，总干事就数次用到了该概念。D. Horner, “No Chemical Weapons Use by Anyone: An Interview with OPCW Director-General Ahmet Üzümcü”, Arms Control Today (January/February 2013)。可查阅：https://www.armscontrol.org/print/5642。

11 可查阅：https://www.opcw.org/fileadmin/OPCW/S_series/2015/en/s-1252-2015_e_.pdf。

2.13 因此，包括公共外交在内的教育和外联的职能自然不仅是制定借以实现总体目标的各种战略、方法和工具，还在于帮助受众看清自己在防范化学武器死灰复燃方面的切身利益以及发挥的作用。

2.14 “防范化学武器死灰复燃”是禁化武组织的首要目标。但是，这句话也可用来界定化学裁军。鉴于“防范化学武器死灰复燃”包含了一整套行动，可以利用诸如化学安全和安保、化学工业的尽责关爱®倡议和负责任的科学等补充性主题来制定各种行动框架，以支持或参照总目标[12]。

2.15 在各种目标受众中维持目标的同一性并不意味着不需要有差异化，因为还要顾及目标受众的差异或区域和文化背景的不同。

3. 教育和外交：当前的理论与实践

3.1 本节汇编了各种研究机构得出的研究结论，这些结论为我们目前如何理解开展教育和外联的最佳方式提供了依据。本报告是分成不同部分来探讨教育和外联的，而公共外交被视为一种特殊的外联。

3.2 尽管大多数关于当代教育和外联研究的出版物都来自北美和西欧，但其见解和方法正应用于全球范围。世界各地的广泛的实践经验表明：这些方法可以在一系列不同的文化背景和社会背景下成功地应用。这种越来越多的知识和经验提供了经验教训，借以说明禁化武组织可如何以适于不同的国家和区域在化学武器和裁军领域的经验的方式来开展教育和外联，以便支持防范化学武器的死灰复燃的行动。

教育以及学习的科学

3.3 过去几十年的教育研究提供了有关从婴儿到成年人如何进行学习的基本认识。认知心理学、神经科学以及相关领域中的那些揭示了大脑的工作方式的最新发展强化了这些结论。总的来看，上述研究成果提供了进行教育和培训的最有效方式的有力证据。

3.4 上述研究最重要的意义之一在于“主动学习”法，而不是传统的使学生成为被动接受者的讲课式教学，故产生了效果更好且效应更久的结果。这些结果适用于事实性信息和更基本的概念。这些方法可以应用于许多场合，包括教室、实验室或现场[13]。

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[12] 科学咨询委员会下设的教育和外联临时工作组的报告（SAB/REP/2/14）探讨了若干主题，这些主题可用于推动意识的提高和与特定受众的互动。

[13] National Research Council (NRC), *How People Learn: Brain, Mind, Experience, and School (Expanded Edition) (Washington, DC: National Academies Press, 2000) and NRC. Reaching Students: What Research Says About Effective Instruction in Undergraduate Science and Engineering* (Washington, DC: National Academies Press, 2015).

3.5 主动学习法并非新鲜事物。在西方文化中，苏格拉底法可被视为一个早期的范例子[14]。印度也有古代和现代的实际应用的例子。主动学习过程包括下述特征：

(a) 让学生参与某项活动，从而迫使其对各种观念及其实际的应用方式进行思考；

(b) 要求学生定期评估自己在处理某一特定学科中的概念或问题方面的理解能力和技能水准；

(c) 通过参与或贡献而掌握知识；及

(d) 通过使其收集信息、进行思考并解决问题的各种活动，让学生在精神上并常常在身体上保持参与[15]。

3.6 有很多支持主动学习的教学策略，例如课堂上的下列做法：解决问题、一对一讲解、案例研究、角色扮演和其它模拟、做练习和从原始调查中学习（例如在实验室）。因此，理论和实践可能与禁化武组织广泛的能力建设方案具有相关性，因为其可用作与学术界进行互动所需的材料和方法。

3.7 关于学习的研究的一项重要发现是事实性知识必须置于一个文化框架中才能被理解好。这强调了应将对过程和内容的学习与有效的指导相结合。确保有供思考的时间是有效学习的另一个重要组成部分：反思已证明有助于进行更深入的学习[16]。同样，还有许多策略可为这种反思提供机会。

3.8 这些见解对于禁化武组织来说非常重要，因为学生（特别是成年学生）来到课堂上课时脑子并非空空如也，即并不是让老师把新知识和新思想往脑子里一倒便了事。他们是带着一系列的经验和文化框架来的，而这些经验和框架正是构建新的认识的地基[17]。有时，学生先前已有的理解将有助于进行进一步的学习。在其它的情况下，学生到来时可能已有先入之见或误解，这限制了其吸取更多信息或想法的能力。对付甚或改变学生已有的成见既需要时间也需要同老师进行清楚的交流。

3.9 文化也会影响原有的看法，这对于编制用于禁化武组织所针对的那种国际受众的教材是有意义的。

3.10 另外，如果对学生传输太多的想法，而且做得太快，就会使其觉得难以消化，特别是如果这还需要其改变以前持有的观念。没有得不到帮助，人们在不同领

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14 *J. Frazier, ed., The Continuum Companion to Hindu Studies (London: Continuum, 2011).*

15 NRC, *How People Learn* and J. Michael, "Where's the evidence that active learning works?" *Advances in Physiology Education* 30 (2006):159-167.

16 NRC, *America's Lab Report: Investigations in High School Science* (Washington, DC: National Academies Press, 2005) and NRC, *Ready, Set, Science*! (Washington, DC: National Academies Press, 2008).

17 NRC, *How People Learn*.

域和不同类型的知识之间建立起相互关联时便很费劲[18]。例如，禁化武组织的筹备工作可能涉及到做一些评估，而这些评估的依据是通过观察而对某种具体情况得出的看法以及技术性的知识。鉴于其固有的复杂性，应该通过设计而使培训包含不同类型的反思时间，这包括：提供这种机会的讲座中的预设休息时间；为反思提供框架和指南的练习。

3.11 当学习者发现了教材的相关性时，学习也得以强化。相关性是有必要的，因为这强调了使教材和活动适应于当地环境和个人情况的重要性，例如，为教师提供一系列建议，供其借以调整共用课程，以使课程适应其自身的情况；并协助将教材翻译成当地的语言。

3.12 对伦理发展情况的了解少于对技术领域中的学习的了解。在不同的文化背景中的适宜道德模式上达成的共识也更少[19]。在不同的文化背景中，如禁化武组织的某些培训课程，可能会遇到更多的挑战，因为在那些背景下，原有的理解将影响到个人与教材和活动的互动方式。然而，有很多人一致认为对于在多种情况下吸引学生介入伦理事宜来说，积极的学习方法既适用又有效。

3.13 在过去的 10 年里，为了给日益全球化的研究界的行为提供指南，已经作出了巨大努力来制定了共同的准则[20]。在开展关于负责任的科研和其它科学伦理问题研究的教育方面，还有一些成功的做法的例子，这些方法是由国际团队开发、测试并在不同环境实施过的[21]。这些经验为开展教育活动并开发教育资源提供了模式，而上述活动和资源是“防范化学武器死灰复燃”所涵盖的整套行动的组成部分。

3.14 研究表明只有在用到这种方法的课程或活动为每个组成部分及整体努力而明确设定了目标和目的的情况下，主动学习法才会最有效。确定了目标和目的之后，对评价进行设计和检查以确保目标和内容事项之间保持一致。这一过程称为“向后”或“逆向”设计[22]。这确保了如下情况：通过明确地阐述学习目标，这些目标将为从头设计指导和评价策略提供依据并整合到其中。此外，让学生清楚了解目标使其能够理解课程或活动的目的，这将进一步增强他们的理解。

3.15 关于学习的研究有力地表明评价应成为教学和学习的有机组成部分[23]。在教育研究界中，普遍一致认为那些未将评价整合到学习过程中的方案将有可能在实现其培训或教育目标方面被证明缺乏有效性。虽然也有各类工具可用于支持评

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18 *同上。*

19 S. Bonde *et al.*, “Making Choices: Ethical Decisions in a Global Context,” *Sci Eng Ethics*, No.22 (2016):*343*–366. DOI 10.1007/s11948-015-9641-5.

20 InterAcademy Council and IAP (The Global Network of Science Academies), *Responsible Conduct in the Global Research Enterprise: A Policy Report* (Amsterdam: IAC, 2012); *Lancet,* “Promoting research integrity: a new global effort,” Editorial, Vol. 380 (October 27, 2012):1445; and N.H Steneck, “Global Research Integrity Training,” *Science,* Vol. 340 (May 3, 2013): 552-553.

21 Bonde *et al.*, “Making Choices.”

22 G. Wiggins and J. McTighe, Understanding by Design, Expanded 2nd ed. (Upper Saddle River, NJ: Pearson Publishing, 2005)。

23 NRC, Reaching Students, and Dirks et al., Assessment in the College Classroom (New York: Freeman, 2014)。

价，但要实现有效性，这些工具必须用以实现期望的学习成果。此外，标准教育评价和向后设计理念均与目前用以指导禁化武组织的方案编制和评估的基于成果的管理系统相兼容。

主动学习法实例

3.16 采用主动学习后，授课作为一种教学方式并没有消失，而是通过重新设计来纳入与学生进行互动的系统化的机会。比如，讲师可以介绍 10 至 12 分钟，然后进行一些简短的演练或通过有组织的讨论来使教师和学生有机会评价教材是否正得到理解[24]。这些方法可以在多种场景下采用，从小型班级到容纳上百学生的大型讲堂皆可。

3.17 两个常见的主动学习实例是在基于问题的学习和案例研究方面的。与现实世界中的问题相联系是基于问题和案例策略的重要特点。

3.18 基于问题的学习法已应用于生物安保教育之中。例如，布拉德福德大学编写了一份其中载有关于生物裁军和不扩散等各类话题的文章的经编辑的刊物[25]。其中包括了关于主动学习的讨论并载有采用“基于团队学习”演练的配套手册，其针对教师的更多材料可在项目网站查阅[26]。

3.19 案例研究通常由那些采用基于问题的教学方式的院系使用。涉及多名学员的案例可由其进行角色扮演，这是主动学习的最古老的形式之一。模拟提供了一种方式，以鼓励学生“设身处地”地以决策者来理解谈判的复杂性或国际危机的压力。角色扮演可以从简单到复杂，并从占用部分课堂环节的演练到可能投入全部课程的模拟军控谈判[27]。2017 年 1 月，禁化武组织举办了一次桌面演练，这就是安保专家和国际及区域组织代表所熟悉的主动学习的形式。禁化武组织定期组织学生群体参加模拟联合国方案，从而在“真实世界”的裁军场景中进行模拟。

3.20 角色扮演的优势之一（特别是在讨论道德问题时）就是个人可以采用并支持某一立场，但无需从一开始就使其观点为众人所知。如下一节所讨论的那样，在线教育的进展正在促进角色扮演和模拟能与教室以外和甚至国境外的参与者进行互动。

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24 在 NRC, Reaching Students, 96-103 中可找到若干实例。

25 S. Whitby et al., Preventing Biological Threats: What You Can Do, (Bradford, UK: Bradford Disarmament Research Centre, 2016)。请见：http://www.brad.ac.uk/social-sciences/peace-studies/research/publications-and-projects/guide-to-biological-security-issues/。

26 T. Novossiolova, The Biological Security Education Handbook: The Power of Team-Based Learning, (Bradford, UK: Bradford Disarmament Research Centre, 2016)。http://www.brad.ac.uk/social-sciences/peace-studies/research/publications-and-projects/guide-to-biological-security-issues/。

27 A. Kelle, “Experiential learning in an arms control simulation,” *PS: Political Science & Politics*, No.2 (2008): 379-85。

借助技术进行的学习

3.21 在线技术使得开发高质量的与广泛受众进行共享的课程材料成为可能。只要重视必要的调整，该方法在国际应用中特别有希望。鉴于主动学习的有效性已得到了验证，借助技术的模块将需要在其设计中实现互动。在网页上简单地阅读问题并通过点击完成测验可能无法支持认知、行为和绩效的变化。

3.22 实际的技术问题也是设计有效的在线教育的关键组成部分。需要认真地考虑可用的技术和带宽，因为禁化武组织还在遭受频繁断电或连接速度缓慢的有关地区开展了重大的援助方案。在一些场景中，即使互联网连接受限或不可靠也可以获得移动手机接入，同时对开发这些方案正在给予越来越多的关注[28]。

3.23 还可以利用学生对技术的熟悉程度来让他们参与裁军相关的活动。教联咨委会委员本杰明•鲁伊兹•罗耶拉一直在其学校内与来自若干学校的学生群体合作搭建一个名为“*Ciencia para la paz*”[29]（科学用于和平）的网页（博客），在其中将张贴关于化学武器和其它大规模毁灭性武器的信息。鲁伊兹教授还让学生使用传统的科学交流方式 — 海报 — 来制作与科学用于和平和化学武器问题有关的材料。

3.24 2017 年 3 月，欧盟的不扩散联合会启动了名为“欧盟的不扩散和裁军”[30]的在线学习课程。上述联合会是由支持欧盟不扩散和裁军政策的 4 家欧盟智囊机构领导的一个全欧盟范围内的学术和研究网络。该课程旨在为对军控、不扩散、裁军和欧盟在这些领域采取的政策感兴趣的从业人员和学者提供全面的知识资源。法兰克福和平研究院牵头开发了该课程，并向德国有关大学的在主动学习方面的专家进行了咨询，以利用在线教育方面的最新做法。教联咨委会主席让 •帕斯卡尔 •桑德斯起草并介绍了关于化学武器的单元[31]。

向教师施教并促进专业发展

3.25 如果缺乏对院系进行同步的专业发展，编制教育材料和开展活动是不可能有效的。研究表明仅仅提供关于主动学习法的有效性的证据不足以说服院系转变其教学方式[32]。采取经过认真设计的有针对性的努力是必要的。

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28 D. Sagarmay, “Distance Learning in Developing Countries through Multimedia Technology Using Mobile Devices,” *International Journal of Education and Learning*, Vol. 1, No. 1 (March 2012): 41-48。

29 请见：www.cienciaparalapaz.wixsite.com/cienciaparalapaz。

30 请见：https://nonproliferation-elearning.eu/。

31 https://nonproliferation-elearning.eu/learningunits/chemical-weapons/

32 C. Henderson, N. Finkelstein, and A. Beach, “Beyond dissemination in college science teaching: An introduction to four core change strategies,” *Journal of College Science Teaching*, Vol. 39, No.5 (2010):18-25

3.26 许多学科的专业学会为新员工开办讲习班和教育研讨会，并针对其成员提供特殊兴趣班，同时还开展其它活动来提升对有效教育做法的意识及表彰参与该项工作的个人。该方案属于更广泛类型的“教员培训”方案的组成部分，其中更有经验的教育者在初次见面后尝试以可持续的方式来传授知识或技能。最新的方案利用学习科学来为院系发展方案的设计提供依据，其中在讲习班/会议/机构中传输主动做法和原则[33]。

3.27 一些专业学会及其在国际学科联盟的同行（其中包括化学领域）也在国际上推广主动学习法。国际纯粹和应用化学联合会（国际化联）下设化学教育委员会，而禁化武组织科学政策顾问是其中的联络委员。化学教育委员会每两年举办一次国际性大会，另外还有若干有关化学教育的区域性会议。由美利坚合众国国家科学院在中东、北非、南亚和东南亚开展的关于尽责科学的教员机构是另一个实例，并且还在其中纳入了关于安保问题的讨论[34]。这些和其它方案合在一起为推动教员开发提供了若干模型。

3.28 这些专业组织的工作也为努力将诸如化学武器和《公约》等话题纳入中学及更高级别的学校课程提供了经验教训。那些推动将这些主题纳入其中的“冠军”的作用尤其重要。同样希望在能够支持其他人并分享经验教训和最佳做法的教员中建立网络。他们启迪了构建可比性网络的努力，以解决安保问题（通常在更广泛的框架内）。下文中的框 1 描述了教联咨委会委员奥斯丁•欧奇恩开展的网络搭建项目，其采用了“头脑友好型学习”技术在肯尼亚和周边国家开展化学安全和安保培训。

框 1：肯尼亚的化学安全和安保

肯尼亚化学学会在东非地区率先领导了化学安全和安保培训。为了改善培训的实施，肯尼亚化学学会与位于美国的桑迪亚国家实验室合作开展了关于课程开发的教员发展方案。2017 年 2 月，来自桑迪亚的教员向肯尼亚化学学会的教员进行了关于化学剂和生物剂的风险评价及使用桌面推演的培训。2017 年 4 月，一名肯尼亚化学学会的教员和来自利比亚的学员在吉隆坡参加了由桑迪亚主持的为期一周的关于化学风险减缓的讲习班。在桑迪亚国家实验室的教员的指导下，3 名肯尼亚化学学会的教员一直在审查此前编写的培训材料/模块以体现新的教学技能。这些所谓的“头脑友好型”培训方式以受训学员现有的知识和经验为基础，并由协助人员引导学习过程以实现希望的成果。采用这种新方法进行学习比一般只有教员在其中做发言的课堂授课更成功。肯尼亚今后的培训将包括在课堂上更多的互动和桌面演练，并让学员积极参与讨论和角色扮演。试点项目模块正在规划阶段并等待资助。肯尼亚化学学会还在考虑制定计划以使过去所有的化学安全和安保培训材料更具互动性。

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33 R.C. Hilborn, ed, The Role of Scientific Societies in STEM Faculty Workshops (College Park, MD: American Association of Physics Teachers, 2013)。
请见：http://*www.aapt.org/Conferences/newfaculty/upload/STEM_REPORT-2.pdf*。

34 关于该学院的信息可见项目网站：http://nas-sites.org/responsiblescience/并见 NRC, *Developing Capacities for Teaching Responsible Science in the MENA Region: Refashioning Scientific Dialogue*. (Washington, DC: National Academies Press, 2013)。

来自行业的见解

3.29 人们在讨论教育和培训时首先倾向于想到学术界，但是行业开展的若干活动对禁化武组织和缔约国有着潜在的现实意义。对于化工企业，征聘并保留受过良好教育且有积极性的人才对实现其竞争力目标、创新能力、吸引力和声誉来说至关重要。该领域的政策属于善政问题，并且一般由企业最高层处理。这涉及到广泛和持续的培训，这可通过量身定制或针对群体来进行（诸如对有关安全和遵约的话题）。

3.30 尽责关爱®倡议要求对卫生、安全、安保和环境事项进行充分的培训[35]。企业还必须建立并保持用以促进如下内容的系统：危险和安全处理信息的流动；围绕价值链的适当指导和培训，以支持风险评价和对产品进行风险管理；及从供应商接收有关该组织使用的产品和服务的这类信息的系统。

3.31 一般由专业讲师在能够促进教员和学员开展互动的专门的企业培训中心或外部机构中开展培训课程。培训课程一般需要员工离开办公室几天时间（如两至 3 天或连续 5 天）。企业还着手开发了针对若干主题的在线学习，因为这比常规培训更灵活并面向更广泛的受众。并非所有方法都是互动的，但行业对于培训有效性的兴趣使其成为了主动学习法的良好受众。

来自其它国际不扩散和裁军机构的见解

3.32 教联咨委会领受的任务包括就与其它国际组织“发展并保持伙伴关系”提供建议。教育和培训被视为对持续推进全球裁军和不扩散进程有至关重要的作用。最权威的说法来自 2002 年的《联合国关于裁军和不扩散教育的研究报告》：

> 裁军和不扩散教育和培训的总目标是向个人传授知识和技巧，使其以国民和世界公民的身份对落实实质的裁军和不扩散措施以及在有效国际管制下实现全面彻底裁军的最终目标作出贡献[36]。

3.33 联合国继续监督裁军和不扩散教育，并通过网站为不同受众提供了各类广泛的资源，以及就不同组织的活动发布双年度报告[37]。

3.34 这类教育在近年来广受关注，这反映在各类国际组织开展的活动中。附件 5 介绍了各类组织开展的活动。一些活动把关注重点放在鼓励“下一代”政策和技术专家，以使其能够开展与减少扩散风险或支持条约和协定实施的工作。其它努力的关注重点是与更广泛的科学和技术或政策群体进行互动，以提高对现有条约的意识（如《公约》），并为其目标和有效实施动员起支持。最后，一些活动回应了关于构建全球公民的呼吁。

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35 尽责关爱®最初于 1980 年代中期在加拿大启动，是一个化工企业、国家化工协会及其合作伙伴为改善卫生和环境成效、加强安保并与利益攸关方交流产品和工艺的全球性的自愿努力。尽责关爱如今在全球多达 65 个国家中开展，使企业继续尝试创新的方法以致力于到 2020 年前实现可持续发展全球峰会的愿景，“所有化学品将以对人类健康和环境的风险降至最低的方式进行生产和使用”。请见：https://www.icca-chem.org/responsible-care/。

36 *《联合国在裁军和不扩散教育问题方面的研究报告》*，秘书长的报告，A/57/124（纽约：联合国，2002 年）。请见：http://www.un.org/ga/search/view_doc.asp?symbol=A/57/124。

37 请见：https://www.un.org/disarmament/education/。

3.35 2013 年 12 月，《今日禁化武组织》专门为教育和外联制作了一期特刊，其中包含关于其它国际组织开展的活动的文章[38]。这些活动为在适当情况下开展合作提供了可能性，例如在与“下一代”进行互动和共享经验及教训方面的努力。

外联和公共交流的科学

3.36 支撑当前外联理论和做法的基本理念来自于一系列社会科学学科，其中包括心理学、社会学、政治科学、人类学、交流和语言学。来自关于大脑如何运转的研究的见解不断地为这些学科提供依据。因此，这与上文讨论的关于学习科学的基本理念有关联和联系。尽管如此，在描述研究结果时的共识较少，更多的是来自具体领域的术语。其不是“理论”，而是以其见解为行动提供依据的一套跨学科的理念。例如，这类理念和研究的综合和应用是“战略交流”的核心，这是各类组织（政府、企业和非政府组织等）和诸多应用（营销、政治宣传、公共外交、危机沟通等）中所使用的关于外联手段的最常用词汇。

3.37 正如关于学习的研究方面的情况样，外联研究的关键见解就是受众并非空空如也的容器或白板一块。一般来说，人们依靠“文化模型”来收集和加工信息及经验，这种模型为理解人们身边正在发生的情况提供了经济的方式[39]。这些模型可以是道德价值、宗教信仰、文化价值或认同、对专家的信任水平或这些要素和其它因素的组合，用以帮助人们理解信息。不论是将其视为透镜还是过滤器，这些模型都表明了如下情况：根据不同人的不同倾向，他们对同样的资料或信息的理解都不同[40]。“个人也更可能接受虚假信息，并且如果虚假信息具有身份认同而不是身份威胁的特点则拒绝对其纠正”[41]。

3.38 此外，面对可能要予以关注的海量问题，大多数人将“只收集其认为有必要的尽可能多的信息，以便做出任何特定的决定。他们依赖于认知捷径或启发法来对大量信息进行有效地筛选，并对问题形成态度……”[42]。那些专业知识最少的人最有可能依赖于这些捷径。

3.39 把这些放在一起，这项研究便表明了知识在塑造人们的态度方面发挥了相对有限的作用。因此，仅提供信息不可能成为最有效的互动方式（即使以最可能的中立方式）。这些结论对任何复杂的话题都有现实意义，并强调了理解如下情况的重要性：在设计外联活动或宣传时受众可能如何看待某一问题并对其作出回应。

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38 请见：https://www.opcw.org/fileadmin/OPCW/OPCW_Today/OPCW_Today_-_Vol_2_No_5.pdf。

39 N. Quinn and D. Holland, “Culture and cognition,” in eds. D. Holland and N. Quinn, *Cultural models in language and thought* (Cambridge: Cambridge University Press, 1987), 3–40。

40 D.A. Scheufele, “Five Lessons in Nano Outreach, *Materials Today*, Vol. 9, No. 5 (2006):64。

41 D.M. Kahan, “Misconceptions, Misinformation, and the Logic of Identity-Protective Cognition,” Cultural Cognition Project Working Paper Series No. 164; Yale Law School, Public Law Research Paper No. 605; Yale Law & Economics Research Paper No. 575 (2017), 1. Available at: https://ssrn.com/abstract=2973067。

42 D.A. Scheufele, “Messages and Heuristics: How audiences form attitudes about emerging technologies,” in ed. J. Turney, Engaging Science: *Thoughts, Deeds, Analysis and Action* (London, UK: The Wellcome Trust, 2006):20-25。

3.40 2014 年，皇家化学学会启动了一项重大项目，以研究目前在大不列颠及北爱尔兰联合国的公众对于化学的态度、意识、兴趣和参与。该项目包括了若干定性讲习班（也称“专注小组”）和在全国范围进行有代表性的面对面的公众调查[43]。以下框 2 提供了前皇家化学学会主席大卫•菲利浦在前言中的长文引述，其中解释了技术专家对公众的信念 — 诸如对大范围的“化学恐惧”的预期 — 也许未必会反映出现实情况。

框 2：英国公众对化学的真实想法

作为专业的化学家，我们以为自己了解公众对化学的看法，但是我们缺乏实际的证据来证明这种看法。现在我们做的是……

对我来说，最有趣且最惊喜的发现就是公众对化学和化学品的认知比专业化学家所认为的更加积极。尽管这么说，这种观点由于对化学家是什么和化学家干什么出现混淆而受到了影响。比如，误将化学家认成药剂学家，这是英国特有的现象。

虽然我们已预见到了这种结果，但我们低估了其规模。我们将不得不努力工作以试图确保“化学家”这一名词在未来用于我们所理解的含义。我们不能简单地改变词语的常用意义，但我们可以在词语的使用方式上保持一致。当我们讨论自己和我们的工作并说“化学家”时，我们可以改变说“我是从事化学领域工作的科学家”。此外，如果我们认为将自己限定为科学家听起来显而易见，我们应该看看这些结论，因为完全不明显。这可能是为实现更可理解的词汇使用的第一个个重要步骤。

该研究表明我们对公众意见的看法可能过于负面。化学是我们的专业，也是 s 我们的热情，并且我们对此如此关注以至于我们可能有一些偏见。或许因为过去十多年不良的新闻报导使我们变得十分戒备。但我们应质疑这种看法，并相反地用更加基于证据的方式来开始思考公众意见。

该研究向我们展现了比预期更美好的画面，但也展示了趋向于化学中立的情景。与其将关注重点放在少数的负面观点上，我们应尝试处理如此多的人所表达的中立性。我相信有了这些人我们才能令其有所改观。

我们不应当依赖于以教育其他人为动机的侧重内容的传统方式。我们需要对公众交流采取更战略性和现实环境的方法，而且在此方面，针对如何理解我们的受众并编写有效的叙述的规划与针对构建内容的计划一样多。

为了尝试影响公众对化学的态度，我们作为化学家必须重新思考我们对公众的态度。

来源：皇家化学学会，《公众对化学的态度》，研究报告 TNS BMRB（伦敦：皇家化学学会，2015 年）：3。

[43] 关于该研究的若干报告和用以使皇家化学学会及其他化学家与公众进行更有效交流的工具包，请见：http://www.rsc.org/campaigning-outreach/campaigning/public-attitudes-chemistry/。

3.41 在设计与化学武器相关的外联策略并防范其死灰复燃方面可能比较重要的其它概念包括“事项突出”和“有效性”（观众成员认为解决问题能够带来多大程度的改变）。最后，另一个关键的概念是“设定框架”，即深入了解如何能使信息的传达方式的重要意义等同于 — 或在某些情况下超过 — 所传达的信息的重要性，这是因为人们有自己处理信息的方式；或者，深入了解此种信息与现有的文化模式进行互动的方式[44]。因为其框定的方式不同，同样的信息将产生不同的影响。对该问题的认知有助于为禁化武组织选取关键信息用以开展外联活动而提供依据。

外联和公众互动

3.42 在过去几十年里，学者将大量精力投入了政府与公民进行互动以实施（且有时制定）政策的方式。这种互动受到政府机构的类型和程序以及广泛的各类社会和文化背景的严重影响。禁化武组织、缔约国和国家主管部门可以通过思考该研究而产生的部分见解而获益。

3.43 学者和从业人员通常在谈论公众参与时将之视为权力部门与选民之间的影响力与信息流动。根据目的，交流可以是单向或双向的。公众交流没有单一的方法。学者描述了关于有效的公众交流的若干最低标准，尤其是对包容性和多样性、信息的提供和基于价值的质疑[45]。一些禁化武组织成员国基于其在开展销毁宣布的库存的过程中汲取的经验本可以提供见解。与利益攸关方进行合作和对话也是化工行业尽责关爱®倡议的特点。

3.44 对合作和对话的这种重视正好符合了专家对关键利益攸关方进行外联的方法的根本性变革。其认识到有效的沟通不只是专家告诉受众其需要后者知道的情况这一单向的流动。如美利坚合众国国家科学院、国家工程学院和国家医学院2017年的报告总所得出的结论：

> 委员会认为虽然科学家有责任讨论他们的工作，但他们有同等的责任来聆听公众的意见，以便加强公众对话的质量，并提升所体验的和实际的科学对社会的现实意义。……而且还可以澄清社会需要和希望从科学家那里获得哪些信息[46]。

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44 D.A. Scheufele and S. Iyengar, “The State of Framing Research: A Call for New Directions,” in eds. K. Kenski and K.H. Jamieson, *The Oxford Handbook of Political Communication Theories* (New York: Oxford University Press, 2014).

45 例如，M. Schoch-Spana, “Public archetypes in U.S. counter-bioterrorist policy,” in eds. H. Durmaz, B. Sevinc, A.S. Yayla, and S. Ekici, eds., *Understanding and Responding to Terrorism* (Amsterdam: IOS Press, 2007):364-375.

46 NRC, Communicating Science Effectively: *A Research Agenda*, (Washington, DC: National Academies Press):18.

作为一种特殊形式的外联的公共外交

3.45 技秘处开展了公众外交战略，这是在教联咨委会设立前编制和实施的[47]。其首要目标就是“提高对禁化武组织成就的认可度，从而在多边主义和国际合作中融入更大的信心，用以作为一种实现全球和平与安全的手段”。为实现该目标制定了由下列 3 个部分组成的战略：

(a) 编制动态的信息传输，以突出禁化武组织的积极成就；

(b) 增加媒体对禁化武组织的报导和我们的网页及社交媒体网站的流量；及

(c) 使核心利益攸关方群体（诸如化工行业）加深对《公约》和禁化武组织的了解。

3.46 在适应不断变化的情况方面，该战略文件引述了如下事实：重点从“裁军”转向“防止化学武器死灰复燃”，并调整以适应“信息互动和企业运用社交媒体的虚拟模型”，同时维持“在完成了在叙利亚执行的任务之后并在荣获诺贝尔和平奖之后在化学裁军成就方面目前的较高知名度”。

3.47 难以将公共外交作为概念予以定义。尽管如此，其更属于一种上述说明看来所指的媒介。与目标受众进行有重点的互动对于这一概念至关重要。公共外交通常被视为“一种辅助功能，即一种构成对涵盖高度政治性、经济乃至军事内容的主要政策举措的附属性或辅助性服务”[48]。近年来，这一理解已扩大到“把握国际关系中的新兴趋势，在此方面，在世界政治中具有一席之地的各类非国家行为方 — 超国家组织、次国家行为方、非政府组织甚至私营企业 — 与外国公众进行交流和有意义的互动，并由此制定和推动自身的公共外交政策和实践”[49]。

3.48 可能需要在后一种情况下观察用以支持禁化武组织主要政策倡议的公共外交战略。制定统一的公共外交政策以确保向具体的利益攸关方群体及时和定期地进行外联。公共外交突出显现并更新禁化武组织的目标和政策，目的是最终予以实现。正是在这一意义上其将“防范化学武器死灰复燃”向更广大的受众进行传播，不论他们是专业性选民（如行业或科学家）或公众。

3.49 此外，其确立了在每当发生了挑战《公约》的完整性的事件时进行有信心的交流的整体框架。对于禁化武组织和技秘处来说，公共外交具有一种预期性（哪怕不是预防性）的特点。通过定期和有针对性的互动，禁化武组织能够向具体的关键利益攸关方介绍其工作方案、成就和愿望。其以这种方式将自身确立为权威的信息来源，同时使目标受众熟悉其各类活动的目标、细节和复杂性（在任何时候都遵守任何适用的保密模式）。

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47 总干事的说明：“公共外交战略”（S/1215/2014，2014 年 9 月 23 日）。可查阅：https://www.opcw.org/fileadmin/OPCW/S_series/2014/en/s-1215-2014_e_.pdf。

48 A.K. Henrikson, “What Can Public Diplomacy Achieve?” *Discussion Papers in Diplomacy* (The Hague: Netherlands Institute of International Relations “Clingendael,” 2006):1.

49 同上。

3.50 也正是在这一理念的基础上公共外交能够与教育和外联战略发生互动。

为外联创造局面

3.51 除了理解个人如何处理并对信息作出反应，另一个从事社会科学（尤其是人类学和考古学）研究的机构提供了关于在可以开展教育和外联的地方创造有意义的局面的价值的见解。人类学家认为“价值”是人们为了保持、保护和保存历史遗迹所做的所有努力的效果，以作为协助创造更美好的未来的方式[50]。作为公共历史、人类考古学、群体考古学等的成果，通过遗产管理来创造价值，以便：

(a) 找到那些处于化学武器的使用的阴影下的重要遗址，这些遗址可以适当的启动以便使子孙后代获益；及

(b) 协助确定并保持这些遗址的价值，作为警示未来的纪念碑。

3.52 保护这些遗址并创造展品以向更广大的受众提供关于化学武器的历史和经历能够大幅度地加强外联的有效性。对第一次世界大战期间大规模化学武器袭击的百年纪念提供了机会，借以利用这些活动的材料来宣传关于防范化学武器死灰复燃的关键信息。于 2015 年 4 月 21 日在比利时的伊帕尔举行的纪念活动由禁化武组织主持的，那就是一个突出的例子[51]。教联咨委会委员安娜•扎列夫斯卡娅主持了多学科研究（档案研究、挖掘等）和在曾于 1915 年使用过化学武器的地点开办的现场讲习班，其中就使用了主动学习策略。其展品于 2015 年 3 月首先在禁化武组织总部展出，之后于 2015 年 12 月在于日内瓦举行的《生物武器公约》年会上展示，而且还在波兰进行了展出[52]。从外联的角度，通过展品对这一令人困扰的过去进行公开展示创造了特别有助于展现禁化武组织的优先工作的局面。

3.53 就像任何外联活动一样，传播必须承认潜在受众的经验和期望是有效的。研究可以深研出下述因素：国家描述是如何受到化学武器使用事件的痛苦历史（古代、现代和新近的）的影响的；民间社会、政治和媒体是如何构建其讨论的；在哪些因素和行动（包括非行动）为地方和区域以及全球层面的此类描述的构建和演进提供了依据。与这类负面遗产进行关键的互动还可有助于打造更加以价值为导向的认同感和对“防范化学武器死灰复燃”进行的更深刻的反思。

现有的禁化武组织资源

3.54 作为编制本报告的工作的一部分，教联咨委会审查了禁化武组织目前在教育和外面领域的活动和已有的为这些活动提供支助的资源。此次审查得出的鼓舞人

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50 D. Graeber, *Toward an anthropological theory of value: The false coin of our own dreams* (New York: Palgrave, 2001).

51 见：https://www.opcw.org/special-sections/ieper-a-centenary-commemoration。

52 Professor Zalewska’s work is the subject of the film from the FIRES Project “Buried Memories.” See also A. Zalewska, “The ‘Gas-scape’ on the Eastern Front, Poland (1914–2014): Exploring the Material and Digital Landscapes and Remembering Those ‘Twice-Killed’”, in eds. B. Stichelbaut and D.C. Cowley, *Conflict Landscapes and Archaeology from Above* (London and New York: Routledge, 2016).

心的结论之一就是：技秘处用于教育和外联的诸多资源已明确地专用于或可随时经调整而用于本报告所讨论的最佳做法。有关资源包括“战火”短片系列，其中通过重点关注以下事宜而将化学武器问题置于人的环境之中：个人的故事[53]；《海牙伦理准则》，该准则确立了支持《公约》基本模式的道德规范的基本要素，并为就与《公约》有关的化学实践方面的道德事项进行讨论提供了基础[54]。另一个例子就是以下框 3 所描述的“化学品多重用途”网站[55]。

框 3：“化学品的多重用途”网站

用于教育和外联的资源的最早实例产生于禁化武组织与国际化联建议的关系。2005 年，禁化武组织资助建立了一套称为“化学品多重用途”的互动式电子材料，其明确地以主动学习原则为基础。该网站向学生、教育者和政策制定者介绍化学品的多重用途这一问题，并探讨了其如何能用于有益的目的以及如何能被滥用以制造非法药品甚或化学武器。该项目由国际化联的化学教育工作领域的两位领军人物开展，即加拿大的彼得·马哈菲和大不列颠及北爱尔兰联合王国的阿拉斯泰尔·海伊（教联咨委会委员）。

选择了“化学品的多重用途”一词来强调在关于化学品的负责任使用的决策方面存在的灰色地带[56]。有时化学品的使用方式是明确符合道德或不符合道德的，但更常见的是存在各类目的，并且化学物质的效果或反应取决于其使用的环境和使用者的意图。为此，特别是在教育和外联环境中，这些材料试图让使用者了解以下情况：对用途进行分类的复杂性；在开发负责任的做法以指导学生、教育者、政策制定者和公众每日做出的关于化学品的选择时所面临的挑战，而其中的大部分选择是有益的。

该资源在不同区域的针对化学家和教育者的若干讲习班上进行了测试。除了在 2017 年夏季对其作进一步更新以外，已获得了资助用于使该材料以禁化武组织所有官方语言发布[57]。

3.55 下一节讨论了在如何最好地设计并支持用以将各种应用和经验教训扩展至本组织所有相关部分的方式方面所面临的挑战。

结论

3.56 教联咨委会对目前关于教育和外联的研究和对禁化武组织目前的活动和资源的审查得出了若干对总干事请求向其提供的建议提供支持的结论：

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53 这些附有禁化武组织的所有正式语言的字幕的短片可在以下网站上观看：www.thefiresproject.com。

54 The Guidelines, also available in all official OPCW languages, may be found at https://www.opcw.org/special-sections/science-technology/the-hague-ethical-guidelines/.

55 P. Mahaffy et al., “Multiple Uses of Chemicals – IUPAC and OPCW Working Together Toward Responsible Science,” *Chemistry International*, Vol. 35, No. 5 (2014).

56 G. Pearson and P. Mahaffy. “Education, outreach, and codes of conduct to further the norms and obligations of the Chemical Weapons Convention” (IUPAC Technical Report), *Pure and Applied Chemistry*, Vol. 78, No. 11 (2006): 2169-2192.

57 参见：https://www.opcw.org/special-sections/education/multiple-uses-of-chemicals/.

(a) 关于成人如何学习在不同环境中进行应用的研究得出的见解，这些环境包括：课堂、培训班、实验室和实地之中。这些见解对禁化武组织有现实意义。

(b) 大多数关于成人学习的研究的结果已在西方发表，但结论和见解已在世界各地被成功采用。

(c) 指导和互动的互动式方法（亦称“主动学习法”）已表明在实现学习成果方面更有效。

(d) 人们通过反映优先经验和价值的“文化地图”来加工信息，因此外联在设计上应将这些倾向考虑在内。

(e) 仅提供更多的信息以便与某人互动是不够的，还需要使信息和主题事项与参与活动的任何人产生现实意义。

(f) 教育和外联最有效的方式是将对受众有现实意义的材料和信息与互动式方式相结合。

(g) 技秘处的许多部门已参与了教育和外联及培训活动，而关于成人学习的研究见解对此有现实意义。

(h) 国家主管部门在开展教育和外联方面的经验和能力彼此很不一样。国家主管部门已经确定了具体的援助需求，以使其能够有效地开展活动。

(i) 禁化武组织的若干现有的教育和外联资源已经基于对有效的成人学习进行研究所得出的见解上。其它资源可随时用于此类活动。

4. 建议进行的活动的组合

4.1 在于 2017 年 3 月向教联咨委会提出的要求中，总干事问了委员会如下问题：“从 2018 年开始，本组织、缔约国和教联咨委会及其委员们应优先开展哪些具体行动来扩充禁化武组织的教育和外联活动的范围和触及面？”（见附件 1）。在后来的回复中，总干事请教联咨委会提供关于与若干关键的利益攸关方进行战略互动的建议。具体来说，就以下方面询问了委员会：

(a) 采取的一般性方法；

(b) 将实施的项目；

(c) 将采取的具体行动；及

(d) 谁应实施项目/活动（如技秘处、缔约国、教联咨委会、委员会各委员）。

4.2 为了回答总干事关于与在请求中列出的关键利益攸关方 — 行业、民间社会、科学家、学术界和政策制定者 — 进行互动的问题，教联咨委会为每个类别编制了一系列“模板”。另外一个模板是针对媒体的，而媒体是公共外交方面的关键利益攸关方。还将科学家包括在内，因为教联咨委会对国家主管部门的作用给予重视，尽管与这个群体的互动已通过科学咨询委员会的教育和外联活动、科学政策顾问以及与国际化联的长久关系得以确立。针对国家主管部门开展外联是科咨委和科学政策顾问尚未深入介入的领域之一，并且在这一领域有非常好的合作机会。关于模板可参见附件 2。

4.3 拟定采取的行动有不可避免的重复，因为在若干情况下，主要区别在于如何为具体的受众框定外联或教育。在对战略进行讨论之后，本文有一节讨论了技秘处、缔约国及其国家主管部门为实施所建议的项目和行动而将需的资源和能力。

针对有效的教育和外联的能力建设

介绍

4.4 如本报告的上文所述，禁化武组织及其缔约国（主要通过国家主管部门）已经积极地参与了教育和外联。此外，禁化武组织已编制了用以支持各类教育和外联活动的材料。使教育和外联成为《公约》的履约工作的一个组成部分将需要对现有活动采取更具战略性和可持续性的方式，同时还需要找到新的或更多的方式。针对关键利益攸关方的行动（在附件 2 中述及）为这一更具战略性的方式提供了基础。要有效地实施所建议的行动，将需要增强技秘处和国家主管部门的能力，而方法是通过汲取上文介绍的教育和外联理论领域中的见解。这将是长期的努力，而在目前复杂的政治环境和受制约的财务状况下，要实现全面的转型完全不可行。因此，可能更具持续性的方法是采取更加渐进的方式，从而使技秘处和国家主管部门对项目进行实验和调整，以便对在具体情况下最行之有效的方法融会贯通。下文介绍了关于如何构建这种能力的具体建议：

技秘处

建议：技秘处应系统地开发覆盖全部教育和外联活动的与爱众进行互动的方式。这应包括更加重视评价教学或培训的有效性。因此，课程和其它活动在设计上需要有明确的目标和可衡量的目的。

4.5 对教育和外联进行研究的重要经验教训之一如下：在各种场景中运用互动式的方法来吸引受众参与其中是至关重要的。技秘处举行的一些活动已经采用了一些交互式的方法，而参与者的反馈意见是他们想有更多这种经历。正如下文进一步讨论到的那样，国家主管部门也在请求援助，借以推动有关《公约》的活动；同时还请求提供培训，以了解如何使用为禁化武组织编制的教材。这为传授最佳做法又提供了一个机会。

针对教育

4.6 从各种各样的来源获得的关于在教育中采用有效沟通方法的证据是很明确的，而其意思无非是受众需要时间来消化信息。因此为讨论提供时间是至关重要的。在组织课程和活动时需要考虑到这些见解。对于正在辩论中的疑难问题，进行观点交流将更为重要。

4.7 通过明确地陈述目标并落实一些机制来评价参与人员/受训人员已实际学到了所传授的内容，本组织将获得有用的矩阵表来展示成就。

4.8 了解到信息得到了有效的传递将使技秘处能够请参会人员/受训学员在返回其本国后向其他人交流同样的信息。在可能的情况下，活动应为学员辟出时间来讨论如何能与其他人沟通其所学到的内容，并考虑如何使活动得以持续。这可以要求会议/培训讲习班学员做到这一点，也可以作为参加会议的条件。应考虑提供小额资助来促成在其本国的机构举办会议，因此这已被证明是有效的能力建设措施。

4.9 鉴于实施这些变革将需要涉及的范围，在技秘处内构建相应的能力方面有若干方案。例如，可以适当地与技秘处的一个部门合作来具体考虑其教师/教员可能需要哪些培训来过渡到对受众采用更加互动的方式。教联咨委会能够协助设计并实施培训计划。一俟该部门获得了经验，便可向其它部门提供类似的援助。另一个方案可以是从全技秘处内寻找能够接受关于主动学习基础知识的强化培训的个人，其随后将作为工作人员更广泛地实施互动的方式。

4.10 考虑到工作人员的更替，特别是禁化武组织的任期政策，在教育方法方面的初步培训和高级培训必须成为一种反复进行的活动。

4.11 除了这些方法之外，还需要考虑课程的内容和技秘处组织的活动。如果内容过多，对学员掌握所有内容并觉得有能力开展行动可能较为困难。对完全不同的内容也是相同的情况。有一种高效的情况是传授较少的内容，但是更加深入并有充足的讨论时间，以确保理念/观点被充分理解。如果学员有时间来实践期望其传承下去的内容，这会特别有效。

4.12 在展示为禁化武组织编制的教材如何能被使用（如被国家主管部门使用）时这将会非常重要。可以采用诸多不同的互动策略来沟通教材中载有的信息。尽管如此，需要时间来获得技能来以更互动的方式进行交流并为教师/讲师建立信心使其相信能够做到。若干小时或半天课程将不够充分。必须为学员辟出充足的时间来要求其向其他人展示的技能。一开始时，教联咨委会委员可以协助进行这些培训，并辅导技秘处的工作人员掌握关于这些互动方式的技能。

针对外联

4.13 在教育和培训活动之外，禁化武组织还希望向众多受众传达更多的东西。禁化武组织不同业务司的工作应当是令人感兴趣的，但如何沟通这一信息对促进这种互动是至关重要的。关于有效外联的研究所提供的见解明确了如下情况：禁化武组织的发言者必须理解其将面对的受众以及受众可能会如何处理所沟通的信息。对世界各地的某些群体可以采用相同的介绍，例如工业代表和从业科学家。但无论如何，材料需要对受众有现实意义，并以适当的细节水平予以介绍。

4.14 禁化武组织能够吸引到世界各地区的不同机构的个人，以帮助其推动防范化学武器死灰复燃这一目标。这些个人中的许多人可能更愿意付出时间，而不是仅是在会上发言，以协助制定更可持续的方案。应该在讲习班中辟出时间使应邀发言者能够在其中参与观点开发的小组工作，这是协助建立学员与《公约》及其事项进行互动的好办法。

评估和评价

4.15 禁化武组织目前采用了在联合国广泛采用的用以指导方案开发、实施和评价的基于成果管理的系统。“为成果而管理”是一句基于成果管理的流行口号。联合国开发计划署的文件描述了基于成果管理的如下“四大基石”：

(a) 明确界定为行动提供关注重点的战略目标；

(b) 具体说明预期的成果，这些成果有助于上述目标的实现，并为此而将各种方案、程序和资源整合在一一起；

(c) 对业绩进行持续监督和评估，并将教训整合到今后的规划中；及

(d) 基于持续反馈来改善问责，以提升业绩表现[58]。

4.16 幸运的是在上文的“教育和学习科学”一节中讨论过的评价的战略方法和类型与针对评估采用的基于成果管理的方法相互兼容。

4.17 如本报告的建议得以采纳，技秘处将需要开发监督指标和其它矩阵表，用以评价其实施。这是一个借以强化对禁化武组织的工作进行评价所给予的高度重视的重要机会。例如，可考虑以下的理念：

(a) 国家主管部门应该认识到参加教育和外联培训讲习班的学员应负责准备并向其他人提供培训，并在各自国家应担当教员。

(b) 技秘处将跟踪缔约国在讲习班之后组织的活动，且国家主管部门应就此作出汇报。

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58 联合国开发计划署：“基于成果的管理：概念和方法”（无日期），2，http://web.undp.org/evaluation/documents/RBMConceptsMethodgyjuly2002.pdf。

(c) 技秘处将跟踪关键业绩指标，例如开展的活动次数、学员的人数、提供的材料的使用情况等。这些指标可用以评估方案是否成功。

提供教育和外联资源

4.18 对禁化武组织网站的重新设计提供了一个重要机会，以使已有的资源能更容易地获得，亦即：通过新网站上的单一登入点，这将使访客能够方便地找到存放在网站不同区域的各类材料；或通过创建专门的教育和外联微型网站（就像为禁化武组织二十周年纪念而开发的网站那样）。这些方案的任一种都将支持更有效的资源利用，不论是国家主管部门、教育者和学生、民间社会或是其他人。

国家主管部门

建议：禁化武组织应利用其现有的为国家主管部门提供支助的程序来协助其建立用以开展教育和外联的能力。此外，现有的教育和外联材料需要增加，以使其能够更有效地利用。

4.19 国家主管部们在实现防范化学武器死灰复燃方面的教育和外联目标的现有能力存在较大差异。因此，要成功地开展教育和外联活动可能需要向国家主管部门提供援助，其中包括最起码的援助到主动辅导和协助。阿根廷提供了一个关于一些最有经验的国家主管部门正在成功开展活动的实例（见框 4）。

框 4：阿根廷关于教育与《化学武器公约》的项目

2010 年，阿根廷国家主管部门启动了若干项国内活动，以作为履约《公约》的下一阶段工作的一部分，这以如下的事实为基础：大量的化工企业未进行注册，且化工企业对《公约》的技术特性和国家履约形式的认识度不高。有鉴于此，必须提高化学学生、化学工程和那些将最终管理宣布的化工厂的其它相关职业对技术知识的掌握水平。因此，建议在化工领域的所有专业人士中推广关于负责任地运用技术和科学知识的文化，以便了解潜在的危险并防范化学品的误用和滥用(1)。

鉴于阿根廷大学系统的联邦性质，设于阿根廷外交部内的国家主管部门寻求了教育部的帮助。两个部同意开展合作并于 2013 年 8 月签署了一份战略合作备忘录，其中确定了目标和开展的行动，以实施“关于为尽责和安全地将化学科学和技术用于阿根廷共和国科学、经济和社会发展而开展教育的国家项目”。这一在国家主管部门和教育部之间的合作伙伴关系对阿根廷的国家项目的成功具有至关重要的作用。

在于 2013 年 4 月召开的首次国家会议上确定了该项目中关于化学知识尽责使用教育的 4 个如下的主要要素(2)：

(a) 由国家主管部门和教育部协调的总揽式“网络中的网络”，并举办年会；

(b) “教员培训”方案，其首期讲习班于 2013 年 6 月在罗萨里奥举办[3]；第二期于 2014 年 11 月在布兰卡港举行[4]；及第三期于 2017 年 11 月在布宜诺斯艾利斯举办[5]；

(c) 虚拟课堂；及。

(d) 流动式课堂。

重要的是应强调如下情况：其它针对研究生的活动（诸如讲习班）和实施备选主题通常为项目提供辅助，其目的是提升对《公约》或禁化武组织相关事项的意识以及对化学知识的尽责使用。

除了项目活动之外，在关于尽责应用双重用途化学品知识的教育方面的首届区域会议上，阿根廷国家主管部门还向拉美及加勒比地区的同事们介绍了其获得的经验。该会议由技秘处与阿根廷政府于 2014 年 4 月联合举办，来自 44 个国家主管部门和 22 个缔约国的大学的代表参加了此次会议。临时工作组成员兼教联咨委会现任委员阿拉斯泰尔 •海向与会人员作了介绍。此次活动为于 2015 年在亚洲举办的另一届区域会议提供了范例。阿根廷提交执理会第七十六届会议的国家文件对会议结果作了介绍[6]。

(1) C-18/NAT.3（2013 年 12 月 2 日）。可查阅：https://www.opcw.org/fileadmin/OPCW/CSP/C-18/national-statements/c18nat03_e_.pdf

(2) 有关对该国家项目的全面介绍，参见阿根廷国家主管部门执行主席所作的专题介绍：http://www.opcw.org/index.php?eID=dam_frontend_push&docID=17818

(3) 有关于 2013 年 6 月在罗萨里奥举办的讲习班的详情，参见：Alejandra Suarez and Rolando Spanevello, “Projects in Education and Outreach Relevant to the Convention: A Pilot Activity in Argentina”, *OPCW Today*, Vol. 2, No. 5 (December 2013), pp. 27-28.。可查阅：https://www.opcw.org/fileadmin/OPCW/OPCW_Today/OPCW_Today-Vol_2_No_5.pdf

(4) 有关在布兰卡港举办的讲习班的详情，参见：https://www.opcw.org/news/browse/2/article/second-national-workshop-on-education-and-outreach-held-in-argentina/.

(5) 参见：http://cancilleria.gov.ar/docentes-universitarios-se-capacitaron-en-la-ensenanza-del-uso-responsable-de-la-quimica

(6) EC-76/NAT.1（2014 年 6 月 5 日）。可查阅：https://www.opcw.org/fileadmin/OPCW/EC/76/en/ec76nat01_e_.pdf

4.20 幸运的是已经作了系统化的努力，以收集关于国家主管部门对支持教育和外联的兴趣和需求的信息。最初，关于教育和外联的临时工作组与国家主管部门于 2012 年和 2013 年在海牙举办的国家主管部门日期间进行了互动，其目标是深入了解国家主管部门的需求并为教育和外联推广主动学习法。于 2016 年进行了更加系统化的努力，当时教育和外联被列入了所有国家主管部门区域会议的议程之中。教联咨委会委员作了介绍并参与了关于当前活动和需求的讨论。国际合作与援助司对参加区域会议的人员作了跟踪调查，并获得了 66%的答复率。此次调查的有关见解包括如下内容：

(a) 尽管国家主管部门对教育和外联活动的重要性有一定程度的认识，但还有一些人没有看到教育和外联是其使命的一部分或者未将其作为优先重点。

(b) 各区域均有国家主管部门意识到了教育和外联的重要性。一些国家主管部门已经在国家层面实施了行动，因此国家主管部门之间可以共享经验和教训。

(c) 若干国家主管部门表示缺乏资源是开展教育和外联活动的障碍。除了有限的财务资源以外，这些国家主管部门还表示：需要将禁化武组织的材料翻译成 6 种官方语言以外的语言；为国家主管部门进行的能力建设很有限；普遍缺乏人力资源。

(d) 禁化武组织有材料可供国家主管部门使用，但需要有可获得的且实用的关于如何使用材料的指导，其中包括对与个人和群体进行互动的最有效的互动方法。

4.21 这些努力提供了关于国家主管部门认为其需要开展的教育和外联的整体情况。尽管非常宽泛，但可以将其划分如下：能够使国家主管部门得以获得相关知识和技能的*程序*；与国家主管部门确定的用以提高其与特定利益攸关方进行互动的能力的*需求*；用以开展教育和外联活动的必要*材料和资源*。

流程

4.22 教育和外联应成为国家主管部门区域和年度会议的例行议程项目。创造这种系统化的流程是确保教育和外联成为《公约》履约的有机组成部分的最佳方式之一。在时间上应包括如下的机会：获得和补充知识和技能；及分享教训和最佳做法。这类机会将进一步推动能力建设的努力。重要的是应注意到在会议期间增加关于教育和外联的时间，且不得将其从国家主管部门的其它基本职责中移走。正如教联咨委会第三届会议所建议的那样，在下一届国家主管部门年会前举办关于教育和外联的特别讲习班将是所期待的初期步骤[59]。讲习班将汇集各区域在教育和外联中活跃的国家主管部门以及更多的专家进行经验分享，诸如与最近的二十周年庆祝有关的内容以及吸取的经验教训。在此方面，将来自西欧和其它国家组的国家主管部门包括在内将至关重要。该讲习班的结论将为今后

[59] ABEO-3/1。可查阅：https://www.opcw.org/fileadmin/OPCW/ABEO/abeo-3-01_e_.pdf。

的活动提供实际的指导，其中包括本报告所建议的内容。诸如此类的讲习班还将成为用以进行经验交流的有助益的论坛，而开展了最先进的教育和外联方案的国家主管部门可在其中介绍其获得的经验教训，这可成为资源不甚充足的国家主管部门的动力来源。

4.23 如本报告的上文所讨论的那样，国家主管部门开展教育和外联活动的能力因国家的不同而有天壤之别。如在教联咨委会的协助下由技秘处组织，在区域或次区域层面开展教员培训讲习班可为开展教育和外联活动提供基本技能，并在各区域中促成一个网络，以成为其他人的资源。

4.24 另一种支持区域能力建设的可能性是在各区域找出一或两个作为开展教育和外联的“倡导者”的国家主管部门，使其提供建议、实例和甚至潜在的资源。大部分区域都已有了促成这种做法的足够的经验。随着时间的推移，其将为技秘处提供的援助带来重要的补充。

需求

4.25 在 2016 年与国家主管部门的代表进行讨论期间，一个常见的主题是缺乏技能或资源，故难以向关键的区域利益攸关方进行宣传以支持全面的《公约》履约。国家主管部门表示了在如下方面需要援助：设计外联战略；组织活动；为特定的目标受众编制信息，其中包括行业、政策制定者、民间社团、媒体和公众。例如，在国家主管部门定期与其国家化工行业 — 特别是那些接受视察或作出宣布的行业 — 进行互动时，这些行业感兴趣的是关于如何有效地向更广泛的行业主动宣传有关有毒化学品的潜在滥用（特别是在将氯用作武器的情况）的建议。这些行业还看到：化工行业的机构和协会的参与和宣传可为与有关实体进行互动提供有效的渠道，这反过来能通过协会的期刊、新闻简报和讲习班/培训活动等向其成员传播信息。尽管如此，许多国家主管部门并不清楚应如何最有效地与这些机构进行互动。

4.26 原则上说，民间社团应是国家主管部门在防范化学武器死灰复燃方面的重要受众和合作伙伴。在较发达的缔约国中，民间社团组织经常协助国家主管部门提高认识并推广教育和外联，并提供技术援助或开展公共宣传。然而对于欠发达的缔约国，民间社团对于国家主管部门通常并不发挥活跃的作用。这类国家主管部门表示需要接受有关以下方面的培训：如何最有效地与不同的相关机构进行接触；如何通过宣传来与其互动。另外，还有兴趣了解更多有关专业文化组织（如博物馆和专门从事儿童教育和成人学习的机构）的宣传战略的情况。

4.27 国家主管部门认识到与公众的成功交流将强化其向其它利益攸关方传递的信息，但其表示需有关于最佳外联方式的培训。在此方面，不同缔约国通过其开展《公约》二十周年的国家纪念活动所获得的经验可以作为分享教训和最佳做法的良好起点。在更广泛的意义上，对国家主管部门向关键利益攸关方开展外联的需求做出回应提供了绝佳的契机，以展示并推广在各类活动中采用互动方式的优势。

材料和资源

4.28 禁化武组织有幸拥有若干为互动式教育和外联场景而编制的材料，其中包括“战火”系列短片、化学品的多重用途网站及《海牙伦理准则》。但国家主管部门希望有可获得的且实用的关于如何使用这些材料的指导，其中包括演练实例和与个人和群体进行互动的其它互动方式。在现实中，教育活动更有可能与学术界专家合作开展，但国家主管部门理解并接受最佳方法依然十分重要。在外联中，更有可能的情况是国家主管部门将自行开展活动，包括个人讲演和与当地机构联合举办的会议。国家主管部门表示在此方面特别需要援助。

4.29 现已有有关提供所请求的指导的若干种备选方案，例如：提供附带核对清单的基础手册；进行建议的演练；提供潜在的外联活动实例；可用以展示具体方法的简短视频。新的禁化武组织网站可为国家主管部门的教育和外联资源提供专用空间，而且只需借助与更一般化的资源的链接便可提供大多数的内容。应鼓励对提供的材料进行个性化处理，并由国家主管部门与国家教育者一道确定目标受众和当地资源。要有效地落实这些指导，将至少需要为禁化武组织的主要教育资源编制辅助性材料。教联咨委会也可在这方面协助技秘处。

4.30 在关于材料的讨论中，一个持续性主题就是需要将这些材料以英文之外的更多语言予以提供。材料应至少以禁化武组织的所有官方语言提供。教联咨委会已提出了具体建议来解决这一问题，例如找到特殊的资金来源（特别是在区域层面）来协助进行翻译[60]。

List of References（参考文献）（仅以英文提供）

附件（仅以英文提供）：

附件 1：

Director-General’s Request to the Advisory Board on Education and Outreach to Provide Advice on the Incorporation of Education and Outreach (E&O) Theory or Practice into the E&O Activities of the OPCW, as the Organisation Transitions to a Focus on Preventing the Re-emergence of Chemical Weapons（随着本组织的关注重点转向防范化学武器死灰复燃，总干事请教育和外联咨询委员会就将教育和外联理论或实践纳入禁化武组织教育和外联活动提供建议）

附件 2：

Portfolio of Recommended Education and Outreach Activities（建议进行的教育和外联活动的组合）

[60] ABEO-3/1。可查阅：https://www.opcw.org/fileadmin/OPCW/ABEO/abeo-3-01_e_.pdf。

附件 3：

The Development of Education and Outreach at the OPCW（禁化武组织的教育和外联的发展沿革）

附件 4：

Vision, Mission, and Objectives: Current Roles and Future Goals for Education and Outreach（愿景、任务和目标：教育和外联的当前作用和未来目标）

附件 5：

Education and Outreach Activities of Other International Organisations for Non-proliferation and Disarmament（其它不扩散和裁军国际组织开展的教育和外联活动）

附件 6：

Members of the Advisory Board on Education and Outreach（教育和外联咨询委员会的委员名单）

附件 7：

Abbreviations and Acronyms（缩写与略语）

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Annex 1

DIRECTOR-GENERAL'S REQUEST TO THE ADVISORY BOARD ON EDUCATION AND OUTREACH TO PROVIDE ADVICE ON THE INCORPORATION OF EDUCATION AND OUTREACH (E&O) THEORY OR PRACTICE INTO THE E&O ACTIVITIES OF THE OPCW, AS THE ORGANISATION TRANSITIONS TO A FOCUS ON PREVENTING THE RE-EMERGENCE OF CHEMICAL WEAPONS[61]

1. As the Organisation for the Prohibition of Chemical Weapons (OPCW) shifts its focus, in the short to medium term, from chemical disarmament to preventing the re-emergence of chemical weapons, the role of education and outreach (E&O) in implementing the Convention takes on greater importance (EC-79/DG.11, dated 29 May 2015). A holistic approach to preventing the re-emergence of chemical weapons could affect verification activities, capacity development, engagement with a broad range of stakeholders, as well as the governance of the Organisation (S/1252/2015, dated 6 March 2015).

2. The mandate of the Advisory Board on Education and Outreach (ABEO) has at its core the provision to ensure that the Organisation's E&O activities, and those of States Parties, are effective, sustainable, cost-effective, and benefit from the latest advances in education and outreach theory or practice (C-20/DEC.9, dated 3 December 2015).

3. The Director-General therefore requests the ABEO to address the following questions in a written report to be submitted to him by the end of 2017:

   (a) Given the mandate of the ABEO (as mentioned in paragraph 2), what are current best practices as well as the latest advances in education and outreach theory or practice that are of relevance to the E&O activities of the OPCW?

   (b) How could the practices and advances identified in the ABEO's answer to question (a) be best utilised to enhance the Organisation's E&O activities in support of the different aspects of preventing the re-emergence of chemical weapons identified in paragraph 1 above?

   (c) Based on the answer to question (b), which concrete action (both conduct of activities and development of educational tools) should the Organisation, States Parties, as well as the ABEO and its members pursue as a matter of priority from 2018 onward, so as to enhance both the scope and the reach of the OPCW's E&O activities?

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61 Originally contained in Annex 2 to ABEO-3/1.

Annex 2

PORTFOLIO OF RECOMMENDED EDUCATION AND OUTREACH ACTIVITIES

INTRODUCTION

The Director-General requested the Advisory Board on Education and Outreach (ABEO) at its Third Session to address a number of questions about engaging key stakeholders, including industry, civil society, scientists, academia, and policymakers (see Annex 2 to ABEO-3/1, dated 16 March 2017). In response to this request, the ABEO has prepared a series of activity templates for each category of stakeholder. An additional template addresses the media, which is an essential target for public diplomacy. Scientists are also included because of the emphasis the ABEO is placing on the role of the National Authorities (NAs), even though engagement with this community is already well established through the education and outreach (E&O) activities of the Scientific Advisory Board (SAB) and the OPCW Science Policy Adviser, and the longstanding relationship with the International Union of Pure and Applied Chemistry (IUPAC). However, engagement with the NAs is one area in which the SAB and the Science Policy Adviser have not been deeply involved, and in which there is a particularly good opportunity for collaboration.

1. INDUSTRY

Audiences and messages

Who are they?

1.1 Recent global events, and the use of chlorine as a weapon in particular, have demonstrated the need to define the scope of "industry" broadly to cover all dimensions along the value chain: the manufacture, transportation, storage, and trade of chemicals with potential applications as weapons or that present significant risks to industrial safety. In addition, the scope and scale of the chemical industry constitutes a complex grid of enterprises ranging from micro-, mini-, small-, medium-, and large-scale operations in the organised formal sector, to the decentralised and unorganised entrepreneurial activity of the "informal" sector.

Why is it important to engage industry?

1.2 The chemical industry has been one of the most relevant stakeholders in the Chemical Weapons Convention (hereinafter "the Convention") and its successful implementation, ever since the negotiations on a chemical weapons ban started to make progress in the late 1980s and ratification of the Convention was championed by important States Parties.

1.3 The chemical industry's support of the Convention has recently been elevated to a higher level of engagement, through more formalised cooperation in the Joint Steering Committee of the OPCW and the International Council of Chemical Associations (ICCA) and the establishment of the Chemical Industry Coordination Group (CICG). However, with the transition of the Organisation's focus from chemical weapons destruction to the prevention of the re-emergence of chemical weapons, the relationship with chemical industry will also have to evolve and be further

strengthened. ICCA can play a key role in supporting engagement with industry; it is already one of the two formal observers of the ABEO (the other being IUPAC).

1.4 Industry plays a particularly important role in preventing the re-emergence of chemical weapons since, for example, there is a need to expand attention beyond the chemicals listed in the Annexes to the Convention and a growing need for chemical risk mitigation. Industry offers additional advantages as a key partner. Cultural similarities among industries relevant to the Convention grow because of the globalised mobility of technology and trade. As an interested partner, industry can also exert its influence to mobilise support for the responsible use of science and technology in States Parties to the Convention. In addition, in view of industry's highly structured nature—in fact, the highest among the OPCW's stakeholders—it may be easier, more cost-effective, and more sustainable to organise E&O activities.

Why would industry engage with the Convention and chemical disarmament?

1.5 The chemical industry often describes itself as "the industry of the industries", or as a "solution provider" or "part of the solution" for a sustainable future. Preventing the re-emergence of chemical weapons contributes to global peace and helps to ensure a sustainable future. Misuse of chemical substances as weapons tarnishes the chemical industry's reputation. The sector has a clear stake in conducting its businesses for purposes not prohibited by the Convention. Successfully doing so could also enable more limited regulatory requirements, which would reduce the financial and organisational costs of compliance. However, the scope of implementation requirements should drive the OPCW's E&O activities.

Which messages should be delivered?

1.6 The chemical industry already undertakes extensive education and training activities for its own purposes, such as regulatory compliance and health and safety practices. From an industry perspective, E&O have to create value for money, enhance employees' self-esteem and generate benefit for the structure in which they work. To produce expected results, a general course on the OPCW and the Convention should relate to employees and their current activity in the structure; that is, not only describe what the OPCW and the Convention are, but also why, how, and to what extent the OPCW and the Convention affect their activities. They should be knowledgeable about the conditions, requirements, and consequences of working in domains that fall under the Convention or are controlled by the OPCW. To be effective, the choice of topics for courses and their content will be critical, and may vary from one company to the other.

1.7 Small and medium-sized enterprises (SMEs) need attention as well. These companies tend to have less training and awareness-raising activities than the larger companies. SMEs will most likely cover training for employees to ensure adherence to regulations and basic safety principles. They may be less familiar with matters like the Convention and OPCW mandates.

1.8 Strategies for increasing engagement with industry can take advantage of a number of already well-established initiatives and concepts—Responsible Care®, Green Chemistry, and chemical safety and security—to frame relevant messages across the full extent of the chemical industry.

Projects

Outreach projects

For major chemical-producing nations that are part of Responsible Care® and/or ICCA

Actions

1.9 Assuming that ICCA will formally endorse The Hague Ethical Guidelines in the near future, draft a letter from the Director-General should be addressed to national chemical associations with a copy of the Guidelines. The letter should:

(a) offer support for activities to promulgate the Guidelines; and

(b) direct associations to the relevant portions of the OPCW website with materials to be used in outreach.

1.10 Work with ICCA and the CICG to expand Convention-relevant outreach should be undertaken via the type of workshops that are already commonly used by industry for outreach activities. These workshops are generally organised by national chemical federations and can be sponsored by ICCA.[62] Current cooperation could be strengthened for countries where strategic alignment can be found. IUPAC's expertise could also be engaged.[63]

1.11 Work should be undertaken with ICCA and the CICG, as well as with key regional or national industry associations, to identify resource people from industry who can participate in or assist with E&O activities and capacity-building.

1.12 The OPCW could encourage the CICG to foster partnerships between key national industry associations and States Parties, perhaps via a memorandum of understanding or more informally, to spread the message among individual industries of the transition in focus to the prevention of the re-emergence of chemical weapons.

1.13 In cooperation with the CICG and ICCA, industry leaders within each region who could become "OPCW Ambassadors" should be identified.

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[62] ICCA currently funds capacity-building events in about 25 different countries each year. Top priorities areas are China, India, and Africa. Many more events are scheduled each year across ICCA membership, but are not reported at the level of ICCA.

[63] IUPAC has a Committee on Chemistry and Industry and the organisation's membership includes chemists employed in industry, not just academia.

For small and medium-sized enterprises not subject to inspections or the reporting requirements of the Convention, including those in major chemical-producing nations

Actions

1.14 The letter from the Director-General to national chemical associations, with a copy of the Hague Ethical Guidelines enclosed, should include a message that the Guidelines are relevant beyond companies that are subject to the Convention. An effort should be made to identify additional organisations that can reach out to SMEs to which the Director-General could write a targeted letter. The letter should:

(a) offer support for activities to promulgate the Guidelines; and

(b) direct associations to the relevant portions of the OPCW website with materials to be used in outreach.

1.15 Work with organisations involved with SMEs should be undertaken to develop or augment outreach about the Convention. It could be undertaken as part of industry association conferences to include material on preventing the re-emergence of chemical weapons, including The Hague Guidelines. This could be done either as part of the regular programme or through specialised activities in conjunction with the primary event.

1.16 Support could be given to the establishment of help desks for SMEs, along the model used in India, perhaps with initial pilot programmes in different regions.

Who takes responsibility for the projects?

1.17 Better coordination is needed between OPCW and industry efforts on topics of mutual interest in the area of E&O. As E&O is part of their respective mandates, the CICG and the ABEO could identify, discuss, and agree on actions of mutual interest.

1.18 Both ICCA and IUPAC should be engaged to receive suggestions about the kinds of training and outreach that their constituencies need most. For the OPCW, this will be an important part of the planning process.

1.19 The Technical Secretariat (hereinafter "the Secretariat") and States Parties, via their NAs, would have an essential role in implementation.

Education projects

For industries subject to certain provisions of the Convention (e.g., declarations)

Actions

1.20 Training materials used by industry associations and initiatives such as Responsible Care® should be reviewed to identify opportunities to augment or add to material relevant to preventing the re-emergence of chemical weapons, in addition to the material provided about compliance with formal treaty requirements.

1.21 Efforts should be made to identify companies whose training could serve as a model for both content and method, and ways should be found to showcase them, such as through a feature on the OPCW website.

For industries, including small and medium-sized enterprises, not subject to certain provisions of the Convention

Actions

1.22 Any opportunities should be explored to introduce the Convention and the prevention of the re-emergence of chemical weapons into the materials that relevant associations offer to member companies. Topics could include compliance with relevant regulations or the broader social responsibilities of the industry, such as Green Chemistry.

Who takes responsibility for the projects?

1.23 The exploration and development of possible E&O strategies could be a cooperative activity between the CICG and the ABEO, with input from IUPAC and ICCA.

1.24 The Secretariat and States Parties, via their NAs, could adapt the suggestions to their specific needs and implement the activities.

2. SCIENTISTS

Audiences and messages

Who are they?

2.1 Scientists include individuals with scientific, engineering, or other technical backgrounds working in any sector relevant to the implementation of the Convention and to the broader challenge of preventing the re-emergence of chemical weapons.

Why is it important to engage scientists?

2.2 Scientists constitute one of the supporting pillars of the Convention. They therefore represent a community whose engagement is crucial to preventing the re-emergence of chemical weapons. The negotiators of the Convention recognised developments in science and technology (S&T) and provided for the establishment of the SAB.[64] It is therefore not surprising that, perhaps apart from the chemical industry, scientists have been the group most targeted for engagement in the Convention.

2.3 Given their multiple roles, scientists work in academic and scientific settings as well as in industry and for governments. Scientific researchers can thus provide expert opinions to government agencies, educational institutions, industry, or other organisations. They can also exert influence on future generations as mentors,

[64] See: subparagraph 21(h) and paragraph 45 of Article VIII of the Convention.

scientific leaders, or educators. Finally, because scientists play a crucial role in society, encouraging them to base their research on the highest ethical standards supports preventing the re-emergence of chemical weapons.

Why would scientists engage with the Convention and chemical disarmament?

2.4 Scientists are a cross-cutting category and may be reached as a group or as members of other stakeholder communities.

2.5 Some scientists will engage with these issues because they are directly involved in or affected by the implementation of the Convention. This includes, for example, scientists in industries working with scheduled chemicals or otherwise subject to inspection, government scientists charged with responsibilities for national implementation or development of Convention-related policies, or researchers whose experiments or teaching involve scheduled chemicals.

2.6 For chemists and chemical engineers, preventing the re-emergence of chemical weapons can be framed as part of their broader professional responsibility. This forms the foundation of The Hague Ethical Guidelines.

2.7 For the wider community of scientists, regardless of whether their work relates to chemical disarmament, preventing the re-emergence of chemical weapons bears on the broader responsibilities of science in society. As such, programmes such as the United Nations Sustainable Development Goals or Green Chemistry may introduce those scientists to viable alternatives for multiple use chemicals.

Which messages should be delivered?

2.8 Specific messages should be based on awareness-raising about Convention-related issues, as well as the potential dual use of chemical knowledge and related technologies. The overall approach should be based on an ethical perspective, taking advantage of existing frameworks such as the Responsible Conduct of Science, Green Chemistry, chemical safety and security, and Responsible Care® to develop messages that will be relevant to specific groups of scientists.

Projects

Outreach projects

Enhancing and broadening the OPCW's efforts to reach the scientific community

2.9 Even though the OPCW already carries out a number of activities aimed at the scientific community, additional engagement with this critical audience is recommended.

Actions

2.10 Actions to reach the scientific community could include:

(a) continuation or even an incremental increase of the OPCW's participation in international scientific meetings by means of lectures, posters, or any other relevant activity;

(b) engagement of other international scientific associations in addition to IUPAC and ICCA, for example in fields such as biochemistry;

(c) engagement of scientific associations at the regional level;

(d) increased efforts to raise awareness through publishing in relevant scientific journals, including:

(i) technical articles about the scientific work carried out by the OPCW; and

(ii) awareness-raising about chemical safety and security policies;

(e) greater awareness-raising about the Research Projects Support Programme at scientific meetings and through chemistry and related sciences journals; and

(f) identification of scientific leaders within each region who could become "OPCW Ambassadors."

Who takes responsibility for the projects?

2.11 The responsibility for outreach projects to engage the scientific community falls with:

(a) the Secretariat, namely the International Cooperation and Assistance Division (ICA), and in particular through the International Cooperation Branch (ICB);

(b) States Parties, through their NAs at the local level; and

(c) the SAB and the ABEO, in collaboration with and through individual members in support of the ICB and NAs.

Education projects

Presenting the Convention to the scientific community

2.12 The OPCW could reach the scientific community by means of workshops based on interactive learning methodologies.

Actions

2.13 Workshops for scientists could be organised at OPCW Headquarters, focusing on Convention implementation, how the OPCW functions, and the importance of a culture of responsibility. An example that emerged in discussions with the Director-General during the Third Session of the ABEO was a workshop on ethics in science to bring together a group of experts to discuss how framings such as the Responsible Conduct of Science and resources such as The Hague Ethical Guidelines

could be used to engage chemists, chemical engineers, and the wider community of scientists.

2.14 Workshops could be organised at OPCW Headquarters exclusively for young scientists (covering the same subjects as above), but taking advantage of the participants' early stage careers and providing specific, tailored content, along with ideas for how to remain engaged.

2.15 Regional activities to consider the same content and issues could also be organised once "OPCW Ambassadors" are identified.

2.16 Regional workshops could be organised about laboratory chemical safety and security, during which the importance of a culture of responsibility regarding scientific work could also be instilled.

Who takes responsibility for the projects?

2.17 The responsibility for education projects to engage the scientific community falls with:

(a) the Secretariat, namely the ICA, and in particular through the ICB;

(b) States Parties, through their NAs at the local level;

(c) the SAB and the ABEO, in collaboration with and through individual members in support of the ICB and NAs.

3. ACADEMIA

Audiences and messages

Who are they?

3.1 For the purposes of this document, "academia" includes all persons involved in an institution of higher learning (e.g., universities and colleges) across fields ranging from science and technology to law, international relations, social sciences, humanities, business, and others.

3.2 Educators in secondary and even primary schools are also potential audiences with whom the OPCW can engage and for whom it has developed materials relevant to E&O. Going forward, the OPCW could explore partnerships with other international organisations—the United Nations Office for Disarmament Affairs (UNODA), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and so on—that already work in primary and secondary education, to leverage those capacities rather than undertake separate initiatives. Here, however, the focus is on higher education.

Why is it important to engage academia?

3.3 In general, academics are a respected group of individuals in society and are often opinion formers through their research, writing (journalism), blogs, websites, or appearances in front of a camera.

3.4 They are influencers of the next generation—a hugely important role—since preventing the re-emergence of chemical weapons is an ongoing and never-ending mission.

3.5 Some may be future policymakers, scientists, engineers, or ecologists dealing with disarmament in general and chemical weapons issues in particular. Others may work directly or indirectly with chemicals.

3.6 As professionals, academics are a relatively easy group to reach, and they are more likely to be influenced by evidence than some other audiences. Those employed in institutions are easier to reach (and measure) as a percentage of society, so that outreach efforts can be assessed and evaluated.

Why would academics engage with the Convention and chemical disarmament?

3.7 As a very broad audience that may or may not reach others involved in chemical weapons issues, any message must be a broad one. Nevertheless, one must bear in mind that academics are usually swamped with information. Therefore, targeting this group will always affect or influence a small percentage only. But this may be all that is necessary.

3.8 The message needs to be multifaceted, and may depend in part on the field in which the academics in question are working. The general approach proposed for scientists working in academia is discussed above, and some additional specific suggestions may be found below. Several cross-cutting narratives that can engage academics in a variety of disciplines are described below.

(a) The Convention is the most successful disarmament treaty ever, with global elimination of declared chemical weapons stockpiles under OPCW supervision within reach. The world is safer as a result. But getting to this position has taken decades of work by many actors, including the chemical industry, governments, academics, and non-governmental organisations (NGOs), benefiting from increasing public distaste for these indiscriminate weapons. This is the global picture, but much is to be gained by studying the brushstrokes that make up this canvas. There is the horror of chemical weapons arising from their use in World War I. And yet, between this post-World War I aversion and the Convention there was an interregnum of 80 years. Why so long? And what happened to bring about the new thinking? Many attitudes changed in those eight decades. The chemical industry changed from being the manufacturer of chemical weapons to an active partner in pressing for disarmament. Military attitudes to chemical weapons also shifted with a growing acceptance of their limited value. And there is more recent awareness that the use of chemical weapons in conflicts in the Middle East is causing more civilian than military casualties.

(b) Converting these attitudinal changes and awareness into a programme to actively neutralise chemical weapons required input from a wide cast of characters from politics, law, and international affairs, as well as the sciences, including chemistry, physics, and biology. Mathematicians, engineers, and bomb disposal experts were needed too, to craft a programme for the physical destruction of existing munitions. How the input from each discipline helped mould the language of the Convention is a valuable teaching tool for others in the field, and for new generations. The Convention has inbuilt strength and ubiquity through its general purpose criterion, which covers any chemical that might be used to deliberately harm others. The elegance of the language bears scrutiny by anyone contemplating disarmament in other fields.

(c) On the practical side, there are many cases, some for general and others for specialised audiences:

(i) The physical destruction of old (and possibly unstable) weapons, requiring first the disarming of fuses and removal of explosives, followed by the extraction of toxic chemicals either for incineration or neutralisation, and the subsequent detonation of the munitions, is a hugely complex exercise. Understanding the thinking behind this work and the design of physical infrastructure is rich in content for chemists and chemical engineers.

(ii) The prevention of damaging emissions from destruction facilities requires active monitoring and engagement with local communities to alleviate environmental and health concerns. These experiences again provide lessons for all those who may have to engage with communities on difficult, potentially life-altering activities.

(iii) Industry inspections require trained scientists. The process, considering all its security implications and the need to protect industrial intellectual property, carries lessons for others. Key to ensuring the non-production of chemical weapons is the ability to inspect chemical facilities. But the chemicals used to make weapons are a small subset of all those manufactured globally, and chemical companies were understandably nervous about inspections encroaching on perfectly legal operations. The way the OPCW has managed these inspections and retained the active support of the chemical industry provides evidence that preventing the re-emergence of chemical weapons rests on a mutual recognition of disarmament and business interests. This offers vital lessons for those in chemistry and chemical engineering, law and international relations, and security studies. It also makes an instructive case for business students who may work in any number of regulated industries.

(iv) More recently, the OPCW’s investigations into the use of chlorine and sarin-based chemical weapons in the Syrian Arab Republic provide another urgent, contemporary case study to engage wider audiences. The evidentiary process followed by the Organisation and the

robustness of its findings are models for others to follow and discuss. Communicating those experiences to a wider public in an informative manner will help the OPCW to engage a wider audience in preventing the re-emergence of chemical weapons.

Which messages should be delivered?

3.9 The messages proposed for scientists in the previous section rooted in the Responsible Conduct of Science and the role of science in society also apply to academics. In addition, preventing the re-emergence of chemical weapons can serve as a key example of the challenges facing the current international system for those in law, politics, international relations, or security studies. More generally, preventing the re-emergence of chemical weapons requires insights from many fields. Understanding the multi- and interdisciplinary approaches will help to prepare students to understand and address complex international problems.

Projects

Outreach projects

Engaging audiences in politics, international relations, social sciences, humanities, etc.

Actions

3.10 Professional societies should be contacted and provided with a brief introduction to the OPCW and the Convention, stressing their importance and global reach, the importance of disarmament, and the need to prevent re-emergence. This could be achieved by:

(a) providing links to relevant websites;

(b) offering to provide details of speakers for events, conferences, etc. and material for articles in professional journals, including those focused on education or relevant societal issues;

(c) highlighting opportunities for interns at the OPCW to learn about international affairs;

(d) providing details about upcoming OPCW events of possible interest; and

(e) presenting the possibility of visits or workshops at the OPCW to discuss relevant issues.

3.11 Academic leaders within each region who could become “OPCW Ambassadors” should be identified.

Who takes responsibility for the projects?

3.12 States Parties and NAs can identify candidate societies and contacts and advise the Secretariat on the preparation or packaging of appropriate material, perhaps with the assistance of the ABEO. If appropriate, the Director-General could send a letter to the leadership of the association.

Engaging other academic disciplines, e.g., other sciences, mathematics, engineering, etc.

Actions

3.13 Actions for this project are similar to those in the first project, but the emphasis would be placed on scientific achievements as well as the need to prevent the re-emergence of chemical weapons.

Who takes responsibility for the projects?

3.14 The same actors listed above would take responsibility for the projects.

Introducing the Convention to student audiences

Actions

3.15 Student newspapers could be contacted with any topical information relating to chemical weapons. A brief about the OPCW and the Convention, stressing their importance for a safer world, could also be provided.

3.16 Student associations on campus could be contacted to offer speakers or share information about upcoming relevant events.

3.17 The OPCW could participate in "career days" to introduce students to the potential of working in the field of disarmament.

Who takes responsibility for the projects?

3.18 The same actors as those listed above would be responsible for carrying out this out activity, if possible in cooperation with the Ministry of Education or relevant academic associations in each country.

Education projects

Getting the Convention into university curricula (and possibly high school curricula, although this group is not covered by the scope of the present report)

3.19 Cooperation will be necessary between relevant government departments, particularly ministries of defence, foreign affairs, and education. This is a long-term goal and opportunities will vary between countries, depending on how independent or closely linked universities are to the central government and how curricular material is developed and approved.

Actions

3.20 Direct contact with academic departments (dealing with international affairs, etc.) should be considered in order to develop collaborative courses with OPCW involvement (and when possible, support students visiting the OPCW for debates, etc.).

Who takes responsibility for the projects?

3.21 Responsibility for the projects lies with the States Parties through their NAs, who could begin discussions.

4. CIVIL SOCIETY

Audiences and messages

Who are they?

4.1 The OPCW has developed relationships with various civil society organisations, particularly through the Chemical Weapons Convention Coalition (CWCC), an umbrella grouping of national and international NGOs established in 2009. Other disarmament, security and environmental NGOs are also potential targets for engagement in preventing the re-emergence of chemical weapons. The social roles of academics and scientists have already been discussed, but other but other civil society constituencies, including policy think tanks and groupings representing specific demographics such as youth or women, could also be target audiences, even though some will be captured by other initiatives.

Why is it important to engage civil society?

4.2 Civil society is an important source of support for chemical weapons disarmament and can play significant roles in the prevention of the re-emergence of chemical weapons.

(a) First, civil society contributes to awareness-raising. These constituencies are not only recipients of relevant information, but they also transmit such information to their membership or the society and communities of which they are part. In a more general sense, civil society constituencies help preserve the legitimacy of disarmament as a viable security policy, which in turn supports the efforts to maintain and strengthen the norm against chemical weapons use and acquisition.

(b) Second, civil society can identify challenges and raise new issues for the Convention.

(c) Third, the more academic civil society representatives can provide foresight, meaning that they can identify and critically evaluate social, political, economic, scientific, and technological trends that may affect the future relevance of the Convention and the operations of the OPCW.

4.3 To maximise those opportunities, the OPCW needs to identify key stakeholders within civil society and actively engage with them.

Why would civil society engage with the Convention and chemical disarmament?

4.4 In the case of the members of the CWCC, a commitment to the Convention and chemical disarmament already exists, so the goal regarding these NGOs is to maintain and strengthen their engagement.

4.5 For NGOs whose core mandate is focused on other issues, the challenge is to provide reasons and rationales that are relevant to them. For example, beyond the risks that chemical weapons use may pose to the environment, preventing the re-emergence of chemical weapons will require the successful development of Green Chemistry and the continued extension of the Responsible Care® initiative. Green Chemistry's relevance to both the Sustainable Development Goals and preventing the re-emergence of chemical weapons may provide an opportunity to engage environmental and development NGOs.

4.6 For security and disarmament NGOs, the challenge is not to raise awareness about the Convention and chemical disarmament but to raise their priority among other, competing issues. This is not a new challenge, and the recent use of chemical weapons in the Syrian Arab Republic has underscored the importance of preventing the re-emergence of chemical weapons in the broader agenda of preserving disarmament as a viable part of international security. For NGOs focused on security issues in the Middle East, the approach needs to show how successful action to address chemical weapons use supports broader security goals in the region.

Which messages should be delivered?

4.7 For CWCC members, the message would be to recognize the vital role that civil society plays in preventing the re-emergence of chemical weapons. For other security and disarmament NGOs, the message could focus on the current challenges to disarmament and non-proliferation as vital components of international security by showing how the Convention supports peace and security. For environmental NGOs, the message could be the risks to the environment posed by chemical weapons use and toxic chemicals more generally, and the mutual benefits to be gained through the continued successful implementation of the Convention for advancing Green Chemistry and chemical safety and security.

Projects

Outreach projects

Promoting civil society's engagement with the Convention

Actions

4.8 Active support should be given to the participation of civil society organisations in major OPCW events and activities at Headquarters and in Member States.

4.9 Civil society representatives should be invited to hearings, seminars, and more technical events whenever desirable and appropriate to solicit their input and insights.

4.10 In cooperation with the CWCC, civil society leaders within each region who could become "OPCW Ambassadors" should be identified.

Education projects

Actions

4.11 Materials and courses should be provided on the functioning of the OPCW in its different aspects and the implementation of the Convention at the national and international levels.

Public diplomacy projects

Actions

4.12 A policy of continuously engaging with key civil society constituencies should be maintained through briefings and updates, e.g. via teleconference sessions or through the organisation of briefing sessions during visits by senior OPCW officials to Member States.

Who takes responsibility for the projects?

4.13 The Secretariat would be responsible for the projects through:

(a) the External Relations Division (ERD) and the Office of Strategy and Policy (OSP), which could be the primary interfaces between the OPCW and civil society; and

(b) other divisions and branches, which should incorporate civil society outreach whenever their E&O activities allow for such a possibility.

4.14 Civil society constituencies and some of their representatives act as social entrepreneurs on the international or local level. Their assistance should be actively sought by the OPCW whenever setting up E&O activities directed at broader audiences.

5. POLICYMAKERS

Audiences and messages

Who are they?

5.1 Policymakers are individuals who are able to make or influence policy at the national, regional, and international level. They may be government ministers, ministry officials, diplomats, or parliamentarians. In view of their respective capacities and responsibilities, they can affect implementation of the Convention in many settings.

Why is it important to engage policymakers?

5.2 As the definition above indicates, policymakers constitute a broad group, but the key to their importance is that they are in the most immediate position to influence how the Convention operates and what its reach will be.

5.3 Diplomats who participate in influential bodies of the OPCW have a specific responsibility for directing the actions of the OPCW, and many have an encyclopedic knowledge of the Convention and the operation of the OPCW. However, newer diplomats have much to learn, and it is essential that they receive regular and accurate briefings and, where necessary, training, on all aspects of the OPCW's work. In turn, they can feed this back to their governments. If governments are to continue to finance the activities of the OPCW as its actions shift towards preventing the re-emergence of chemical weapons, they need to appreciate the value of their investment.

5.4 Policymakers who are directly employed in government ministries, whether as government employees, or advisers brought in to help individual ministers, or as part of the NAs, or who may interact with the NAs, are critical to the successful implementation of the Convention at the national level. This is the core group who will advise ministers, help to set national policy, liaise with industry, universities, and research institutions that develop, produce, or consume chemicals, provide chemical manufacturing data to the OPCW, organise OPCW inspections, and engage in a broader educational programme to promote and safeguard the Convention. The skill set required to undertake all these roles is considerable and should be available to and deployed by many players. The reality for many countries is quite different and often there are only a few individuals responsible for this work. Those tasked to work in NAs therefore require multifaceted information on the workings of the OPCW and the Convention, training on legal measures to achieve successful implementation, guidance on chemical information returns, and tutoring on engagement techniques to persuade academics to run courses on the Convention and its requirements.

5.5 Government ministers who oversee foreign, domestic, trade, defence, and education policy are those who will make the key decisions on chemical weapons policy in countries. They will introduce and have parliamentarians vote on enabling legislation and financial resources for the OPCW. They will frame the policy on how chemicals are dealt with at the national level. These individuals will have considerable portfolios of work to deal with and many issues that require immediate action. Unless there is an immediate challenge to the Convention, such as the situation in the Syrian Arab Republic, it will require ingenuity to get the Convention discussed. But it is important to stress to these individuals that the work of the Convention is only partly done, that treaties need nurturing if they are to remain relevant, and that ministerial involvement will be necessary to move the emphasis of the Convention to the prevention of the re-emergence of chemical weapons as many more actors will become involved in achieving this objective.

Why would policymakers engage with the Convention and chemical disarmament?

5.6 The Convention has been in force for 20 years, with over 96% of declared chemical weapons destroyed under its requirements. Few would deny that with a class of weapons no longer available there is more security from attacks with indiscriminate weapons. Unparalleled cooperation among States and determined action in countries to meet their obligations have contributed to this outcome. The financial resources allocated to eliminate chemical weapons, which have been provided by former possessor States or offered in the form of destruction assistance by other States Parties, underline the global commitment to chemical weapons disarmament. Policymakers are also key to reaching out to the national chemical industry, scientists, and academia to facilitate monitoring and auditing of chemicals, to set national standards for responsible science, and to promote the norm embedded in the Convention.

5.7 Successful disarmament can be very visibly demonstrated by the destruction of weapons, statistics of inspections, and the number of countries that have joined the Convention. More difficult to showcase is the non-emergence of chemical weapons. Preventing the re-emergence of this class of weapons requires continued engagement and cooperation by an even broader cast of characters. Terrorist or criminal acquisition of chemical weapons follows different pathways than the traditional weapons in military stockpiles. The discussion on how to sustain the unrelenting goal of no new chemical weapons will need to take place on many levels, include many disciplines, and require the sharing of ideas on good practice within and between countries. Policymakers need to be conscious that actions in their country involving, for example, teaching in universities about the Convention through curricula changes can be best communicated to other States Parties through the OPCW. They can also transmit or reinforce messages about the chemical industry's activities to produce chemicals safely and securely. These conscious transfers of knowledge and expertise need to be increased, as there are many smaller companies and research units that may not be hearing the messages about how to prevent the re-emergence of chemical weapons.

Which messages should be delivered?

5.8 The Convention has been, and continues to be, a great success. The awarding of the Nobel Peace Prize in 2013 demonstrates that those concerned about world peace and not directly involved with the chemical weapons disarmament nevertheless approve of the OPCW's activities. But the work is far from over. Future vigilance and activity by many stakeholders, as noted above, is needed to ensure that the treaty is upheld under fast-changing circumstances. Political, intellectual, and financial support for the OPCW and its partners will be needed indefinitely if the Convention is to meet its promises. Herein lies a major responsibility for policymakers.

Projects

Outreach projects

Expanded efforts to engage government ministers and key decision makers

Actions

5.9 Work should be undertaken with and through States Parties to inform governments that moving to a programme to prevent the re-emergence of chemical weapons will require the cooperation of many more partners, as well as continued resourcing; the elimination of declared chemical weapons is just the first phase of the disarmament process.

5.10 Individual decision makers should be specifically targeted, brought together, and made aware of what is required to effectively implement the Convention. In cases where fundamental work has not been completed, the focus could be on creating an NA, as well as the drafting and adoption of national Convention implementing legislation. The OPCW held such a meeting with officials from Timor-Leste in September 2015, where senior decision makers and key stakeholders were gathered to discuss the issues referred to above. Similar events can play a crucial role in those regions where States Parties are having difficulty implementing the Convention.

5.11 Cooperation between the OPCW, States Parties, and civil society should be increased to help bring the Convention to a wider range of society, which will be essential to ensure continued support for the OPCW and implementation of the Convention.

5.12 Links should be established with the media in all countries and local spokespersons able to comment on all aspects of the OPCWs work should be found; this will help to ensure visibility of the activities of the Organisation. The proposed "OPCW Ambassadors" drawn from key sectors could also assist with this outreach.

5.13 Work should be undertaken with States Parties to encourage more publications by OPCW staff in peer-reviewed scientific and policy journals, to demonstrate to the world the quality of the work done by the Organisation. For example, the Head of the OPCW Laboratory, Marc-Michael Blum, was a guest editor of a special edition of *Analytical and Bioanalytical Chemistry* in August 2014 entitled "Analytical chemistry and the Chemical Weapons Convention."[65] Having the OPCW's work, including its methodology, reviewed by other professionals is an important professional validation which could lead to much greater support in the scientific community for the OPCW.

Who takes responsibility for the projects?

5.14 The responsibility for such projects falls with the Secretariat working in conjunction with States Parties, when necessary with the Director-General and other senior OPCW officials, and with the information and advice from the ABEO when required.

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[65] Blum, M.M., and R.V.S.M. Mamidanna, "Analytical Chemistry and the Chemical Weapons Convention", *Anal Bioanal Chem* Vol. 406 (2014): 5067-69, https://doi.org/10.1007/s00216-014-7931-4

Education projects

Providing diplomats and National Authorities with relevant information

Actions

5.15 The approach to government ministers, particularly in education, should be strengthened, to impress upon them the need to engage with relevant audiences on the importance of safe and secure use of chemicals, as well as government obligations under the Convention.

5.16 The message should be impressed upon government ministers that introducing the discussion of the Convention in chemistry course curricula along with responsible use of chemicals would help to encourage a debate about ethical actions in chemistry and help the drive to prevent the re-emergence of chemical weapons.

5.17 The following should be maintained, increased, or introduced:

(a) training programmes for diplomats and NAs on the operation of the Convention and its multifaceted activities;

(b) courses on science relevant to the Convention for diplomats; and

(c) awareness of how education around "Multiple Uses of Chemicals", The Hague Ethical Guidelines, safe use of chemicals, etc., can be used to promote discussion in a wide range of forums about the responsible conduct of science and use of chemicals; government ministers must also be made aware of this.

Who takes responsibility for the projects?

5.18 In general, responsibility for these projects lies with the Secretariat, along with the Director-General and other senior officials, with informational support from the ABEO. The Secretariat would be responsible for the first and second recommended actions, and should work with members of the ABEO or other invited individuals on the third set of actions.

6. MEDIA

Audiences and messages

Who are they?

6.1 With the rise of the Internet and social media, the concept of "media" has broadened beyond the traditional press outlets—newspapers, magazines, television, and radio. The dissemination of information and opinions is no longer the preserve of professionally trained journalists and expert commentators whose contributions are vetted by news producers. Anybody seeking to communicate an insight or opinion on certain issues, however marginal they may be socially, can now launch a blog or simply respond to Internet postings by other people.

6.2 The more traditional written and audio-visual press retains an interest in broad-based reporting on international security events. However, in the 24-hour news cycle, the rapid succession of events raises impediments for more profound analysis of issues and trends. Moreover, to reach the headlines—internationally and domestically—an event has to be rather dramatic, highly visual, or involve prominent individuals. The Internet and social media offer access to far wider and more diverse sources of information than was previously possible. Time and space exists for more substantive reflection, and for professionals to interact with broader audiences. New media also allow much broader access to specialised news, including that primarily produced for industrial sectors, businesses, professional and scientific communications, or specific social interests.

6.3 At the same time, new media also create opportunities for selective exposure to information that tends to confirm existing belief systems or biases. As a result, they may contribute to international or national social fragmentation. Such trends run counter to the aims of E&O as presented in this report, and may complicate the achievement of its objectives. Furthermore, deliberate misinformation campaigns can exploit weaknesses in the validation of the accuracy of information or seek to reinforce certain belief systems in the pursuit of specific objectives.

Why is it important to engage the media?

6.4 The OPCW generates significant media interest in two sets of situations. First, major achievements tend to generate positive news. This was for instance the case with the awarding of the Nobel Peace Prize in 2013; the successes in the removal and elimination of Syrian chemical weapons under hostile circumstances; the achievement by States Parties of significant milestones in the destruction of their arsenals; or the commemoration events for the twentieth anniversary of the Convention’s entry into force. Second, challenges to the core norm may lead to public questioning of the efficacy of mechanisms foreseen in the Convention, while partisan interests may split opinion and ultimately undermine the legitimacy of procedures and findings by the Secretariat.

6.5 The OPCW, however, cannot control or dominate the news cycle for however short a time. The issues it covers, most of which involve routine implementation operations, are complex, technical, or legalistic. Activities and information are also often covered by confidentiality, a characteristic that does not favour spontaneous public outreach. Consequently, media communications tend to be terse, contextually uninformative, and in a few cases, ruinous. Moreover, legitimate queries by stakeholder communities about, for example, health, safety, or the environmental impacts of certain operations, remain unaddressed. Taken together, these elements create an environment for selective leaks, communications by other international organisations with different media policies, or confidentiality standards. The public debate about the OPCW, if and when it happens, falls outside the control of the OPCW.

6.6 To enhance effective communication, especially when attention is focused on the Organisation, the OPCW should develop a clear public diplomacy policy. The core components of public diplomacy are summarised and discussed in paragraphs 3.45 to

3.50 of the main report (under the section "Public Diplomacy as a Special Form of Outreach").

Why would the media engage with the OPCW and be interested in chemical disarmament?

6.7 Chemical weapons remain an emotional subject and will therefore generate media interest. Successes will be celebrated in the media, whereas acts of war or terrorism involving toxic substances will feed a fear cycle that is difficult to control.

6.8 Responsible journalists and authors will contact the OPCW as a source of authoritative information. If the OPCW cannot fulfil that role, they will turn to other informants. Engagement with the OPCW will continue and even expand if journalists and other authors continue to interact with the Organisation in meaningful ways. It is consequently in the interest of the OPCW to develop meaningful relations with various global, regional, and national media outlets, as well as other types of news providers (e.g. commentators, bloggers, etc.) to reliably inform the public—and its key stakeholder communities in particular—about current events and other developments. Public diplomacy actions contribute significantly to the prevention of the re-emergence of chemical weapons.

Which messages should be delivered?

6.9 The messages to be delivered are essentially like those listed under other projects. The role of public diplomacy, however, is to ensure that the messages can be communicated against a background of reliable and substantive information on the multiple goals and tasks of the OPCW, irrespective of the complexity or technicality of these operations.

Projects

Public diplomacy projects

Actions

6.10 A review should be undertaken and improvements made to the Note by the Director-General on the "Public Diplomacy Strategy" (S/1215/2014, dated 23 September 2014), so that it features core elements of public diplomacy.

6.11 Regular dialogue should be developed with stakeholder communities, particularly representatives of the media and civil society constituencies. Its purpose is to build mutual trust and deepen understanding of issues, processes and concerns, as a general background against which specific issues can be placed in context by those stakeholder representatives.

6.12 Sets of tools that can be immediately deployed whenever a particular situation occurs should be developed. For example, a series of issue briefs can be prepared and published on the new OPCW website. They will enable the OPCW to offer meaningful responses to specific queries, while avoiding potential sensitivities.

6.13 A global network should be built to comprise reliable interlocutors (e.g., the "OPCW Ambassadors", local stakeholder representatives, and relevant civil society constituencies) who can address international and national media on issues affecting the Convention or related to preventing the re-emergence of chemical weapons.

6.14 A series of informal, off-the-record meetings (lunches, teleconferences, etc.) should be organised with members of the press and stakeholder representatives to have discussions on the functioning of the OPCW, challenges facing the Convention, the future ambitions covered by the overarching theme of "prevention of the re-emergence of chemical weapons", etc., with a view of deepening their understanding and providing authoritative information through a process of dialogue.

6.15 An international stakeholder network with representatives from different States Parties should be established. Whenever an OPCW official visits a State Party, a press briefing (targeting primarily local media) should be organised or the stakeholder in question could be asked to set up an informal, off-the-record briefing, such as that suggested above, with other national or local stakeholders. One could think of academic institutions or certain civil society representatives.

Who takes responsibility for the projects?

6.16 The Secretariat should:

(a) prepare and publish via the OPCW website a series of issue briefs that highlight different facets of the OPCW's operations, decision-making processes, and institutional aspects. These briefs are intended as a backbone for the public diplomacy strategy, and should therefore be updated regularly or whenever opportune. To meet the core purpose of public diplomacy, they should also be developed in function of and establish direct and pertinent links to the overarching theme of "preventing the re-emergence of chemical weapons";

(b) for each engagement of a strategic stakeholder community, set a core objective under the umbrella of "preventing the re-emergence of chemical weapons", and decide on and develop a core message to be transmitted during the interaction (general statements have no role in these types of activities);

(c) identify and actively engage strategic stakeholder communities on a regular basis. This action also serves to organise public diplomacy events whenever senior OPCW officials travel abroad. It should present a clear theme and establish links to the overarching theme of "preventing the re-emergence of chemical weapons"; and

(d) prepare select staff members for a specific public diplomacy engagement to ensure cohesion of the communication and maximal effect.

6.17 The ABEO and its members can also assist in the development of a range of public diplomacy tools and strategies.

Annex 3

THE DEVELOPMENT OF EDUCATION AND OUTREACH AT THE OPCW

1. The OPCW began to undertake education and outreach (E&O) activities early in its history. In 2001, the "Ethics Project" was launched to raise awareness of the OPCW and it goals.[66] The primary audiences were the professions that would be directly affected by the new regime being created for chemical disarmament, that is, chemists, chemical engineers, and life scientists. Recognising early the importance of fostering the next generation, the Ethics Project also targeted students in those fields. The OPCW's collaboration with the International Union for Pure and Applied Chemistry (IUPAC) began in 2000, with the planning of a workshop requested by the Scientific Advisory Board (SAB) on trends in science and technology (S&T) to inform its recommendations to the First Special Session of the Conference of the States Parties to Review the Operation of the Chemical Weapons Convention (hereinafter "the First Review Conference").[67] In addition to the 2002 workshop's review of S&T developments, participants recognised the importance of E&O to the successful implementation of the Convention.[68] The SAB's own report to the First Review Conference concluded that:

> … efforts in the area of education and outreach are important to further the objectives of the Convention; these efforts include raising awareness, assuring that the principles of the Convention become firmly anchored in professional ethics and teaching, and promoting international cooperation in the field of chemistry.[69]

2. The SAB continued to recommend further activities in E&O, leading to an agreement in 2004 on a joint project with IUPAC for a workshop on "The Chemical Weapons Convention, Chemistry Education and the Professional Conduct of Chemists."[70] The meeting was held at Oxford University in 2005, with 27 participants from 18 countries who worked in a combination of plenary sessions and specialised breakout groups.[71] The workshop recommended that chemists should develop their own codes

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66 OPCW, *Education and Engagement*, 11.

67 L. Sydnes, "IUPAC, OPCW and the Chemical Weapons Convention", *Chemistry International*, Vol.35, No. 4 (July-August 2013).

68 G.W. Parshall *et al*., "Impact of Scientific Developments on the Chemical Weapons Convention", (IUPAC Technical Report), *Pure and Applied Chemistry*, Vol. 74, No. 12 (2002).

69 "Report of the Scientific Advisory Board on Developments in Science and Technology", (RC-1/DG.2, dated 23 April 2003). Available at: https://www.opcw.org/fileadmin/OPCW/CSP/RC-1/en/RC-1_DG.2-EN.pdf

70 As early as 2004, the SAB also recommended in the report of its Sixth Session that "the Director-General establish a temporary working group on education and outreach, which would discuss further the contribution that the SAB might make to enhancing awareness of the Convention" (subparagraph 10.1(c) of SAB/6-1, dated 18 February 2004). Available at: https://www.opcw.org/fileadmin/OPCW/SAB/en/sabVI01.pdf

71 G. Pearson and P. Mahaffy. "Education, outreach, and codes of conduct to further the norms and obligations of the Chemical Weapons Convention" (IUPAC Technical Report), *Pure and Applied Chemistry*, Vol. 78, No. 11 (2006): 2169-2192.

of conduct, and also that educational materials should be developed to raise awareness of the Convention and place chemical weapons disarmament in a larger framework of the multiple uses of chemicals, both beneficial and harmful. The recommendation for educational materials led to the joint IUPAC-OPCW project that produced the first version of "Multiple Uses of Chemicals." IUPAC also undertook a project to create a code of conduct, which eventually led to a set of principles that should underlie any code, and to its active participation in the development of The Hague Ethical Guidelines.[72]

3. Although the primary focus of the OPCW's activities in E&O has been on the scientific community, it has undertaken other initiatives. Since 2010, for example, the OPCW has collaborated with the T.M.C. Asser Institute in The Hague on an annual Summer Programme on weapons of mass destruction (WMD) disarmament and non-proliferation. The event is specifically designed for advanced graduate students and professionals who are interested in pursuing careers in the field of non-proliferation and WMD disarmament. Its primary objectives are to:

   (a) provide an understanding of the diplomatic, legal, and technical aspects of organisations dealing with WMD;

   (b) explore how WMD treaties are implemented at the national level; and

   (c) create networking opportunities for participants by bringing them into direct contact with officials of leading organisations in the field of WMD.[73]

4. In November 2013, the OPCW and the Vienna Center for Disarmament and Non-Proliferation (VCDNP) organised an "International Workshop on Disarmament and Non-Proliferation Education and Capacity Development" in Vienna to share experiences and lessons learned from a range of international organisations and practitioners in the field of non-proliferation and disarmament education.[74] The workshop was supported financially by the Foreign and Commonwealth Office of the United Kingdom of Great Britain and Northern Ireland and the Federal Ministry for European and International Affairs of Austria. It brought together practitioners in the field of disarmament and non-proliferation education, particularly from the international organisations described above, as well as experts from selected leading academic centres and professional networks.

5. And in September 2014, the OPCW hosted a major international conference on *Education for Peace: New Pathways for Securing Chemical Disarmament*, in an effort "to go beyond previous OPCW activities, which ha[d] been to date largely focused on science and technology."[75] The conference, intended to be the first in a

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72 See: G.S. Pearson, E.D. Becker, and L.K. Sydnes, "Why Codes of Conduct Matter", *Chemistry International*, Vol. 33, No. 6 (November-December 2011).

73 See: https://www.opcw.org/programme2016/about-the-programme/

74 See: http://vcdnp.org/international-workshop-on-disarmament-and-non-proliferation-education-and-capacity-development/

75 See: https://www.opcw.org/special-sections/education/education-for-peace/themes-and-objectives/

series, sought to provide a forum for wide-ranging discussion and exchange of ideas and best practices on ways to raise awareness about disarmament and non-proliferation issues, especially in educational institutions. This included demonstrations of materials and tools in various media formats. The objective was to identify new approaches and synergies arising from discussions between different groups to better inform the OPCW's future efforts.

6. The most significant single activity undertaken by the OPCW in E&O was the creation by the Director-General in 2012 of a temporary working group (TWG) on education and outreach, under the auspices of the SAB. In his discussions with the SAB about such a working group, the Director-General noted that "the education and outreach activities of the OPCW are not limited only to chemistry, and the group's efforts should be seen in this context".[76] The group, chaired by SAB member Djafer Benachour from Algeria, began its work in 2012 and produced its report in late 2014.[77] As part of its activities, the TWG participated in the projects to develop several new OPCW resources, including the first "FIRES" film and the updated "Multiple Uses of Chemicals" website. Among its recommendations was the creation of an Advisory Board on Education and Outreach to provide a continuing source of expertise and support for E&O as a fundamental part of the OPCW's mission.

[76] Director-General's "Response to the Report of the Seventeenth Session of the Scientific Advisory Board", (paragraph 24 of EC-67/DG.11, dated 9 February 2012).
Available at: https://www.opcw.org/fileadmin/OPCW/EC/67/en/ec67dg11_e_.pdf

[77] OPCW, *Education and Engagement: Promoting a Culture of Responsible Chemistry* (The Hague, 2014), https://www.opcw.org/fileadmin/OPCW/SAB/en/Education_and_Engagement-v2.pdf

Annex 4

VISION, MISSION, AND OBJECTIVES: CURRENT ROLES AND FUTURE GOALS FOR EDUCATION AND OUTREACH

1. The Third Special Session of the Conference of the States Parties to Review the Operation of the Chemical Weapons Convention was the first to formally recognise the contribution of education and outreach (E&O) to the full and continuing implementation of the Chemical Weapons Convention (hereinafter "the Convention") and the norm against chemical weapons. Its final report[78] contained four recommendations, which:

   (a) Encouraged the Secretariat, in concert with the SAB Temporary Working Group on Education and Outreach, to assist States Parties, upon request, in implementing E&O activities, including by disseminating materials, conducting workshops and regional meetings (subparagraph 9.103(e));

   (b) Encouraged the Secretariat to continue to develop relationships and partnerships with other relevant bodies, national and international, that are working to promote the peaceful and responsible use of chemistry, including capacity building (subparagraph 9.131(j));

   (c) Encouraged the Secretariat to continue to develop relations and partnerships as appropriate with relevant regional and international organisations, as well as chemical industry associations, the private sector, academia, and civil society, in order to raise awareness of the activities of the OPCW (subparagraph 9.131(l)); and

   (d) Called upon States Parties and the Secretariat, as part of efforts to promote the ethical norms of the Convention, to encourage and promote efforts by the appropriate national and international professional bodies to inculcate awareness among scientists and engineers at an early stage in their training that the knowledge and technologies used for beneficial purposes should only be used for purposes not prohibited under this Convention (subparagraph 9.155(d)).

[78] RC3/3*, dated 19 April 2013. Available at: https://www.opcw.org/fileadmin/OPCW/CSP/RC-3/en/rc303__e_.pdf

2. E&O activities support the vision and mission of the OPCW. Their most recent articulation may be found in the medium-term plan (MTP) of the Organisation for 2017 to 2021,[79] published in the second quarter of 2016:

(a) The Organisation's vision is … to continue to be the premier international organisation working for a world free of chemical weapons, with a focus on preventing their re-emergence, by implementing all provisions of the Convention in an effective, efficient, and non-discriminatory manner.

(b) … the mission of the Organisation is to contribute, as a treaty-based international organisation, to the disarmament of chemical weapons, to preventing their re-emergence, to providing assistance and protection against them, to supporting national implementation of the Convention, and to facilitating peaceful uses of chemistry through verification, capacity development, or engagement activities.

3. To fulfil the above, the MTP sets out a series of medium-term goals. One set envisions "Engagement to Utilise Others' Capabilities," of which the most relevant to E&O is goal 10: "Strengthened engagement with broader group of relevant stakeholders."

4. Successful implementation of the Convention cannot be achieved simply through a regulatory approach by national governments. It also requires instilling a sense of ownership into relevant stakeholders in the chemical industry, research, academia, NGOs, and civil society in order to garner their support and active collaboration. Generating and sustaining such support from a broader base of relevant stakeholders will require that the Organisation establish more regular interaction with them with a view to soliciting their views, putting it in a better position to utilise their capabilities. The Advisory Board on Education and Outreach, established in accordance with a decision by the Conference of the States Parties at its Twentieth Session (C-20/DEC.9, dated 3 December 2015), will support this process. The Organisation will further develop effective networks and new partnerships with different stakeholder communities in order to leverage their expertise to help it address new implementation challenges as they emerge.[80]

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[79] EC-83/S/1 C-21/S/1, dated 8 April 2016. Available at: https://www.opcw.org/fileadmin/OPCW/EC/83/en/ec83s01_c21s01_e_.pdf

[80] *Ibid.*

Annex 5

EDUCATION AND OUTREACH ACTIVITIES OF OTHER INTERNATIONAL ORGANISATIONS FOR NON-PROLIFERATION AND DISARMAMENT

1. The most ambitious education and outreach (E&O) initiatives by international organisations are in the realm of nuclear non-proliferation and disarmament. The International Nuclear Security Education Network (INSEN) of the International Atomic Energy Agency (IAEA) has grown since its creation in 2010 to include over 90 universities and research institutes from all over the world.[81] The IAEA supported the development and publication of a guidance document that provides the model for both a masters-level graduate programme and a certificate programme in nuclear security.[82] INSEN continues to sponsor and support a variety of workshops and other training and collaborative activities.

2. In addition to providing more traditional short courses and training, the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) has put particular emphasis on the use of innovative approaches, such as the growth of online education through the creation of an e-learning platform. CTBTO's goal is "building and maintaining the necessary capacity in the technical, scientific, legal and political aspects of the Treaty and its verification regime." As part of its outreach to the broader public, it has an "iTunes U" page to provide access to lectures, briefings, and materials from CTBTO staff and other experts.[83] CTBTO has also created a Youth Group, an example of the "next generation" initiatives that could provide the potential for collaboration across regimes.[84]

3. The United Nations Educational, Scientific and Cultural Organization (UNESCO) has activities related to encouraging innovative approaches to teaching and also to ethics in science, in particular through its World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) (http://www.unesco.org/new/en/social-and-human-sciences/themes/comest/). Every two years, in partnership with the International Council for Science (ICSU), UNESCO organises the World Science Forum: the theme for the 2017 event was "Science for Peace," and included partners

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81 J. Harris, "Networking for nuclear security: The International Nuclear Security Education Network", OPCW Today, Vol. 2, No. 5 (December 2013), 40-41. See: https://www.opcw.org/fileadmin/OPCW/OPCW_Today/OPCW_Today_-_Vol_2_No_5.pdf. See also: http://www-ns.iaea.org/security/workshops/insen-wshop.asp#1

82 International Atomic Energy Agency, Educational Programme in Nuclear Security (Vienna, 2010), http://www-pub.iaea.org/MTCD/publications/PDF/Pub1439_web.pdf

83 See: http://www.ctbto.org/specials/ctbto-cdi/. Created by Apple, "iTunes U provides everything an instructor needs to bring the classroom together on iPad—build lessons with apps and your own materials, collect and grade assignments from students, start class discussions or talk with students one-on-one to answer questions and provide feedback" (https://itunes.apple.com/us/app/itunes-u/id490217893?mt%3D8).

84 See: https://youthgroup.ctbto.org/

from a number of scientific organisations.[85] The broader UNESCO vision is outlined in "Science for Peace and Sustainable Development".[86]

4. A new cooperative project between the German commission to UNESCO (DUK) and the German Chemical Society (GDCh) began in 2017. GDCh, represented by ABEO member Hans-Georg Weinig, is establishing a small working group with representatives from DUK, GDCh (chemistry didactics), the German Physical Society (DPG) and VBIO—the German Life Sciences Association. The goal is to create educational material that includes aspects from chemical, biological, and nuclear weapons. This educational material will be developed as a dedicated contribution to Sustainable Development Goal on Education 4.7: global citizenship education (GCED) and education for sustainable development (ESD). A first concept drafted by DUK includes four options for the establishment of a teaching unit on "disarmament as a success story of global collaboration" in textbooks:

   (a) option 1: interdisciplinary teaching unit (4 to 6 hours per week) including lessons in history, chemistry, physics, biology, politics, and social sciences;

   (b) option 2: interdisciplinary project week (10 to 15 hours in one week, content the same as option 1);

   (c) option 3: recommended coverage text only: two double pages in secondary school textbooks (ca. 5,000 characters); and

   (d) option 4: minimum coverage text only: one box in secondary school textbooks (ca. 1,000 characters).

5. The German pilot project could then serve as a blueprint for broader international implementation of the new educational material. It could be an example of how the OPCW could effectively reach a wider range of students, particularly at the primary and secondary level, by working through organisations for which such education is a basic part of their missions.

6. The Biological Weapons Convention (BWC) has long recognised the importance of education as part of the "web of prevention" to counter biological threats.[87] Endorsements of education are routinely included in the final documents of BWC review conferences, and education was a topic of annual discussions in 2005 and 2008 and a standing agenda item in the intersessional period between the Seventh and Eighth Review Conferences (BWC, 2011 and 2016). In this case, BWC-relevant education projects and programmes are largely the result of initiatives by individuals and NGOs supported by foundations and governments, except for some projects under the regional Chemical, Biological, Radiological, and Nuclear (CBRN) Centres of

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85 See: http://worldscienceforum.org/

86 UNESCO. Science for Peace and Sustainable Development. (Paris: UNESCO, 2013).

87 The term was coined by the International Committee of the Red Cross as part of its "Biotechnology, Weapons and Humanity" campaign in the early 1990s. More information is available at: http://www.icrc.org/eng/resources/documents/misc/5vdj7s.htm

Excellence supported by the European Union (EU).[88] The current EU Council Decision in support of the BWC includes funding for education for:

> **Enabling tools for awareness-raising, education and engagement** to increase awareness of the issues of biological weapons, responsible conduct of science, and ethical issues among students and their teachers. The project will also promote the use of the tools produced using previous EU voluntary contributions.[89]

7. In recent years, the OPCW has also held several side events and panel discussions during the annual BWC meetings of experts and States Parties, reflecting common interests in E&O and in the implications of increasing convergence in some areas of chemistry and the life sciences. The BWC Implementation Support Unit (ISU) has also participated in relevant events in The Hague, and an ISU staff member participated in the temporary working group (TWG) on convergence.

8. In November 2013, the OPCW and the Vienna Center for Disarmament and Non-Proliferation (VCDNP) organised an "International Workshop on Disarmament and Non-Proliferation Education and Capacity Development" in Vienna.[90] The workshop provided an opportunity for this broad range of professionals to share experiences and best practices—particularly with regard to specific tools and methods—and to explore potential collaboration and synergies between international organisations and other key stakeholders in the areas of disarmament and non-proliferation education and training, awareness-raising, and outreach. Workshop participants identified several challenges that are relevant to the OPCW, including:

   (a) Audiences. Participants underlined that disarmament and non-proliferation education and training efforts need to be tailored to the audience and noted that specific accommodation needs to be made for different types of audiences (of different age, profession, educational background, as well as country- and region-specific audiences), different levels of technical expertise, different generations and learning preferences, and even different technical capabilities (e.g. download capacities).

   (b) Framing. Framing the issues of disarmament and non-proliferation to maximise interest and acceptance was discussed, with some suggestions including framing the issues as either a component of human or environmental security, or of responsible conduct of science. The issue of framing was mentioned as being particularly challenging when attempting to add disarmament and non-proliferation education into an existing curriculum, especially in grade schools and high schools whose curriculum is often controlled by state authorities.

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88 Information about the Centres of Excellence may be found at: http://www.unicri.it/topics/cbrn/coe/

89 See: https://www.unog.ch/80256EE600585943/(httpPages)/7EA198C35415C020C1257F9B003E1BB1?OpenDocument

90 A link to a description of the workshop may be found on the OPCW website at: https://www.opcw.org/special-sections/education/other-resources/

(c) Funding. Many participants, especially those from NGOs and academia, spoke of the challenges of managing programmes within funding limitations, with E&O often being one of the first programmes to be cut from budgets. International organisations also discussed experiencing funding limitations, especially when funds allocated to E&O do not come from regular budgets, but instead rely on voluntary contributions.

(d) Programme management and leadership. Participants pointed to the difficulties of measuring programme effectiveness and success, especially because of the lack of sufficient resources to devote to these efforts. It was made clear that measuring the impact and the effectiveness of education and training should be a long-term endeavour. Participants also spoke of the need for leaders and champions, which can often come from international organisations.

(e) Promotion. Many participants spoke about the challenges presented by trying to develop interest and incentivise students to undertake training in disarmament and non-proliferation.

(f) Tools and methods. Educational tools and methods were discussed by participants as both a challenge and a solution, with the challenge being learning how to use the new tools and methods and employ them.

(g) Sustainability. Programme and message sustainability were mentioned by several participants as challenges. Many of the attendees expressed concern that educational initiatives, to be truly successful, must not be one-time occurrences and must have a long-term impact.

(h) Synergies and collaboration. Several workshop participants underlined that many artificial barriers exist between disarmament and non-proliferation education within the main weapons of mass destruction (WMD) regimes: chemical, biological, and nuclear. Participants specifically spoke of the challenge to overcome the invisible "silos" that exist, separating chemical-, biological-, and nuclear-focused organisations, including international organisations. It was mentioned that identifying a set of core competencies or functional competencies common to these three areas could be a first step.[91]

9. As the OPCW gives more systematic attention to developing its capabilities for E&O, it may be able to learn lessons from the experience of others and perhaps find ways to form productive collaborations to support common goals.

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[91] Vienna Center for Disarmament and Non-proliferation, *International Workshop on Disarmament and Non-Proliferation Education and Capacity Development*. (Vienna: VCND, 2013), 2-5.

Annex 6

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Annex 7

ABBREVIATIONS AND ACRONYMS

ABEO	Advisory Board on Education and Outreach
BWC	Biological Weapons Convention
CBRN	Chemical, biological, radiological and nuclear
CCE	Committee on Chemistry Education
CICG	Chemical Industry Coordination Group
COMEST	Commission on the Ethics of Science and Technology
CTBTO	Comprehensive Nuclear-Test-Ban Treaty Organization
CWCC	Chemical Weapons Convention Coalition
E&O	Education and outreach
IAEA	International Atomic Energy Agency
ICB	International Cooperation Branch
ICCA	International Council of Chemical Associations
INSEN	International Nuclear Security Education Network
ISU	Implementation Support Unit
IUPAC	International Union of Pure and Applied Chemistry
KCS	Kenya Chemical Society
MTP	Medium-Term Plan
OPCW	Organisation for the Prohibition of Chemical Weapons
OSP	Office of Strategy and Policy
RBM	Results-based management
RSC	Royal Society of Chemistry
S&T	Science and technology
SAB	Scientific Advisory Board
SMEs	Small and medium-sized enterprises
SNL	Sandia National Laboratories
TWG	Temporary Working Group
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNODA	United Nations Office for Disarmament Affairs
VCDNP	Vienna Center for Disarmament and Non-Proliferation
WEOG	Western European and Others Group
WMD	Weapons of mass destruction

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