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REPORT BY THE DIRECTOR-GENERAL

PROGRESS MADE AND REVIEW OF THE STATUS OF IMPLEMENTATION OF ARTICLE XI OF THE CHEMICAL WEAPONS CONVENTION

EC-110/DG.10 C-30/DG.10 page ii

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TABLE OF CONTENTS

1.	EXECUTIVE SUMMARY 1
2.	INTRODUCTION3
3.	ACTIVITIES UNDER CONFERENCE DECISION C-16/DEC.10 ON THE FULL IMPLEMENTATION OF ARTICLE XI OF THE CONVENTION 3
4.	NATIONAL CAPACITY BUILDING FOR THE RESEARCH, DEVELOPMENT, STORAGE, PRODUCTION, AND SAFE USE OF CHEMICALS FOR PURPOSES NOT PROHIBITED UNDER THE CONVENTION4
5.	INTEGRATED CHEMICALS MANAGEMENT 5
	ASSOCIATE PROGRAMME
6.	ENHANCEMENT OF LABORATORY CAPABILITIES 10
	ANALYTICAL CHEMISTRY COURSES AND PROFICIENCY TEST TRAINING11 SPECIALISED LABORATORY TRAINING
	LABORATORIES IN STATES PARTIES IN THE AFRICA AND THE LATIN AMERICA AND CARIBBEAN REGIONS, FUNDED BY THE UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND
	EQUIPMENT EXCHANGE PROGRAMME
7.	CHEMICAL KNOWLEDGE PROMOTION AND EXCHANGE
•	FELLOWSHIP PROGRAMME
	PROGRAMME FOR SUPPORT OF RESEARCH PROJECTS
	CONFERENCE SUPPORT PROGRAMME
	BUILDING A KNOWLEDGE SOCIETY18
8.	ENHANCING THE EFFECTIVENESS OF OPCW INTERNATIONAL COOPERATION PROGRAMMES
9.	MEASURES BY STATES PARTIES AND THE OPCW TO FACILITATE THE PARTICIPATION OF STATES PARTIES IN THE FULLEST POSSIBLE EXCHANGE OF CHEMICALS, EQUIPMENT, AND SCIENTIFIC AND TECHNICAL INFORMATION RELATING TO THE DEVELOPMENT AND APPLICATION OF CHEMISTRY, IN ACCORDANCE WITH THE PROVISIONS OF THE CONVENTION
10.	FINANCIAL ASPECTS23
11.	OVERSIGHT BY THE CONFERENCE OF THE STATES PARTIES AND
-	THE EXECUTIVE COUNCIL

ANNEXES (ENGLISH ONLY)

Annex 1:	CONFERENCES SUPPORTED UNDER THE CONFERENCE SUPPORT PROGRAMME, 26 AUGUST 2024 – 25 AUGUST 2025	24
Annex 2:	PROJECTS CONDUCTED UNDER THE FELLOWSHIP PROGRAMME	26
Annex 3:	RESEARCH PROJECTS FUNDED BY THE OPCW, 26 AUGUST 2024 – 25 AUGUST 2025	28
Annex 4:	EVALUATION OF INTERNATIONAL COOPERATION PROGRAMMES	
Annex 5:	IMPACT ASSESSMENT OF INTERNATIONAL COOPERATION PROGRAMMES – CHEMICAL SAFETY AND SECURITY MANAGEMENT PROGRAMME (2022-2024)	45

1. EXECUTIVE SUMMARY

- 1.1 This report has been produced for the 110th Session of the Executive Council (the Council) in response to a decision by the Conference of the States Parties (the Conference) at its Sixteenth Session (C-16/DEC.10, dated 1 December 2011) entitled "Components of an Agreed Framework for the Full Implementation of Article XI", in which the Conference requested that the Technical Secretariat (the Secretariat) provide annual reports to the Council and the Conference on the progress of concrete measures undertaken in implementing the decision, and on the status of implementation of Article XI of the Chemical Weapons Convention (the Convention). The reporting period for this report is 26 August 2024 to 25 August 2025.
- 1.2 During the reporting period, the Secretariat continued to develop and reinforce its portfolio of programmes and activities designed to support the implementation of Article XI and respond to the four key areas identified in decision C-16/DEC.10. The Secretariat sustained delivery of ongoing programmes, while also introducing new initiatives focusing on the three thematic areas of integrated chemicals management, enhancement of laboratory capabilities, and chemical knowledge promotion and exchange.
- 1.3 All programmes and initiatives continued to be implemented using a results-based approach, while considering the cost-effectiveness and the needs and priorities of the States Parties. The resources utilised came from the regular budget, supplemented by voluntary contributions, both financial and in-kind, provided by various States Parties and entities for specific activities.
- 1.4 Building on lessons from the Covid-19 pandemic, the Secretariat continued to improve the delivery of its capacity-building training and events by utilising a combination of online, hybrid, and in-person formats. This approach enabled more effective implementation and had greater impact across its wide array of programmes and activities under Article XI.
- 1.5 Equipped with state-of-the-art facilities, the OPCW Centre for Chemistry and Technology (ChemTech Centre) continues to support the delivery of enhanced capacity-building activities for the benefit of States Parties; these activities are aligned with the ChemTech Centre's foundational vision and address the unique needs of States Parties. With pilot efforts to test, adapt, and transition the operational formats to maximise the potential of the facilities at the ChemTech Centre following its inauguration, it has since evolved into a regular and effective platform for hosting various capacity-building activities under Article XI.
- 1.6 During the reporting period, the Secretariat organised 35 capacity-building programmes (training activities, seminars, and workshops) with 882 participants from 122 States Parties. The Secretariat supported 23 research projects, 10 fellowships, and 12 conferences.
- 1.7 In the area of integrated chemicals management, during the reporting period the Secretariat completed the twenty-fifth edition of the Associate Programme, which was held in person and benefited 29 participants from 29 States Parties. The twenty-sixth edition of the Programme began in July 2025 in The Hague, with 31 participants from 31 States Parties, and is due to conclude in September 2025. A special focus continued

to be placed on chemical safety and security management, with the organisation of 14 training courses and workshops benefiting some 324 participants from 98 States Parties. Notably, this year these efforts were further expanded to the field of emerging technologies, marked by the first-ever capacity-building workshop dedicated to the intersection of artificial intelligence (AI) and chemical safety and security management.

- 1.8 In the area of the enhancement of laboratory capabilities, the Secretariat delivered 17 analytical skills development courses, proficiency test training courses, and specialised laboratory training courses, benefiting 209 participants from 58 States Parties.
- 1.9 Under the group of programmes on chemical knowledge promotion and exchange, various opportunities were provided to further enhance networking and the exchange of information and knowledge among scientific communities, academic institutions, chemical industry associations, and non-governmental organisations (NGOs), as well as regional and international institutions.
- 1.10 During the reporting period, the Secretariat sponsored 12 scientific conferences with participants from 26 States Parties under the Conference Support Programme, funded 23 research projects in 12 States Parties under the Programme for Support of Research Projects, and provided 10 fellowships for junior scientists under the Fellowship Programme.
- 1.11 Continuously enhancing the effectiveness and impact of international cooperation programmes under Article XI has remained a key focus of the Secretariat. To this end, a results-based and cost-effective approach continued to be strengthened and applied across all activities to ensure maximum benefit to States Parties. Special attention was given to the advancement of alumni networks of the programmes. In addition to the vibrant alumni network of the Associate Programme, alumni networks have been established for the Chemical Safety and Security Management Programme, the Integrated Chemicals Management Programme, and the Women in Chemistry initiative, which offer the Secretariat additional channels to follow up with former participants, support their initiatives, and monitor and assess the post-programme impact.
- 1.12 Furthermore, the Secretariat continued to place due emphasis on strengthening capacity-building needs assessments for the effective delivery of programmes. Within this context, during the reporting period, the Secretariat continued its efforts to conduct an annual needs assessment in the area of chemical safety and security. In 2024, the needs assessment exercise gathered input from 50 States Parties. This input has been analysed and integrated into the Secretariat's ongoing capacity-building activities in chemical safety and security management, including for influencing the selection of topics for future indicative guidelines.
- 1.13 The evaluation and impact assessment approach and techniques continued to be institutionalised during the reporting period. The assessment of all programmes was based on structured feedback from various stakeholders, including participants, relevant institutions, and National Authorities of States Parties. Assessments also took into account regular follow-up of participants' career paths and academic development vis-à-vis the impact of the respective programmes in which they participated. During the reporting period, the Secretariat carried out a comprehensive survey of the Chemical Safety and Security Management Programme (2022 to 2024).

2. INTRODUCTION

- 2.1 The Conference at its Sixteenth Session adopted a decision regarding the components of an agreed framework for the full implementation of Article XI of the Convention (C-16/DEC.10) and requested that the Secretariat report to the Conference at each regular session on the progress of concrete measures undertaken in implementing the decision, and on the status of implementation of Article XI. This report is submitted in accordance with the Conference request, with the reporting period being 26 August 2024 to 25 August 2025.
- 2.2 The components included in the agreed framework identified concrete measures in the following areas:
 - (a) national capacity building for the research, development, storage, production, and safe use of chemicals for purposes not prohibited under the Convention;
 - (b) promoting networking and exchange among scientific communities, academic institutions, chemical industry associations, NGOs, and regional and international institutions;
 - (c) enhancing the effectiveness of the current international cooperation programmes of the OPCW; and
 - (d) measures by States Parties and the OPCW to facilitate States Parties' participation in the fullest possible exchange of chemicals, equipment, and scientific and technical information relating to the development and application of chemistry, in accordance with the provisions of the Convention.

3. ACTIVITIES UNDER CONFERENCE DECISION C-16/DEC.10 ON THE FULL IMPLEMENTATION OF ARTICLE XI OF THE CONVENTION

- 3.1 During the reporting period, the Secretariat continued to provide capacity-building support and technical assistance to States Parties in the implementation of Article XI of the Convention through the various programmes and activities that were identified in decision C-16/DEC.10. The needs and priorities of the States Parties were taken into consideration throughout the continued implementation of the programmes, with resources provided from the regular budget, as well as voluntary contributions, both financial and in-kind.
- 3.2 In accordance with the results-based approach that the Secretariat continued to apply during the reporting period, the effectiveness of these programmes was assessed according to whether skills and capabilities were enhanced in the three focal areas relating to the peaceful application of chemistry: integrated chemicals management, enhancement of laboratory capabilities, and chemical knowledge promotion and exchange.
- 3.3 The assessment of all programmes was based on feedback from the participants and from States Parties, as well as on observation of the evolution of participants' career paths or academic development following their participation in the various programmes.

4. NATIONAL CAPACITY BUILDING FOR THE RESEARCH, DEVELOPMENT, STORAGE, PRODUCTION, AND SAFE USE OF CHEMICALS FOR PURPOSES NOT PROHIBITED UNDER THE CONVENTION

- 4.1 National capacity building for the research, development, storage, production, and safe use of chemicals for purposes not prohibited under the Convention has been supported through a number of programmes, including but not limited to the Associate Programme, the Laboratory Twinning and Assistance Programme, analytical skills development courses, training courses for the OPCW proficiency tests, and the Chemical Safety and Security Management Programme.
- 4.2 The portfolio of international cooperation programmes under Article XI features the following:
 - (a) Integrated chemicals management:
 - (i) Associate Programme;
 - (ii) Chemical Safety and Security Management Programme;
 - (iii) Executive Programme;
 - (iv) green and sustainable chemistry initiative; and
 - (v) development of tools and guidance on chemical safety and security management.
 - (b) Enhancemnt of laboratory capabilities:
 - (i) analytical chemistry and analytical skills development courses;
 - (ii) enhancement of laboratory skills courses;
 - (iii) proficiency test training;
 - (iv) customs laboratory training;
 - (v) Laboratory Twinning and Assistance Programme; and
 - (vi) Equipment Exchange Programme.
 - (c) Chemical knowledge promotion and exchange:
 - (i) Fellowship Programme;
 - (ii) Programme for Support of Research Projects;
 - (iii) Conference Support Programme;
 - (iv) Forum on Peaceful Uses of Chemistry;
 - (v) Education and Training Programme for Youth on Peaceful Uses of Chemistry;
 - (vi) Women in Chemistry initiative; and
 - (vii) policy and diplomacy for scientists.

5. INTEGRATED CHEMICALS MANAGEMENT

5.1 The integrated chemicals management concept is based on a holistic and comprehensive approach, considering multiple factors such as policy, practices, science, and engineering to address various facets of chemical management from a health, safety, and security standpoint, towards the ultimate goal of ensuring the safe and secure management of chemicals throughout their life cycle.

Associate Programme

- 5.2 The Associate Programme aims to address the objectives set out in Article XI of the Convention in terms of capacity building and implementation of the Convention, with a focus on peaceful uses of chemistry, in particular in developing countries and countries with economies in transition.
- 5.3 The Programme facilitates capacity building in States Parties by imparting requisite skills to qualified chemists and chemical engineers, and by exposing them to the modern chemical industry to learn to operate effectively and safely. Moreover, it enhances the ability of States Parties to implement the industry-related provisions of the Convention and broadens the talent pool of those assuming responsibility for implementation at National Authorities and other relevant institutions. The Programme also facilitates trade in chemicals by disseminating best practices in the field, and supports chemical safety and security in an industrial environment.
- 5.4 The Programme has become the flagship initiative of the OPCW for fostering international cooperation. It comprises three distinct segments: an induction—intermediate—final segment at OPCW Headquarters; a university segment in the United Kingdom of Great Britain and Northern Ireland; and an industry segment in different locations. During the three-week intermittent segment, held at the University of Surrey in the United Kingdom, participants learn about the theory of mass balance and practice at the university's model plant. Subsequently, for the industry segment, participants are paired up and deployed to selected chemical industry sites in participating States Parties for first-hand exposure to and training in various industrial operations. Upon the completion of the Programme, all participants present their research projects on topics related to the Convention, in addition to an industry assignment.
- 5.5 The twenty-fifth edition of the Associate Programme was conducted from 29 July to 26 September 2024, with 29 participants from the following 29 States Parties: Argentina, Armenia, the Bahamas, Bangladesh, Bhutan, Botswana, Brazil, Burundi, China, Colombia, Côte d'Ivoire, Cuba, Guatemala, India, Iran (Islamic Republic of), Jordan, Kenya, Malaysia, Morocco, Nicaragua, Nigeria, Pakistan, the Philippines, Sierra Leone, Sri Lanka, the Sudan, Uganda, Zambia, and Zimbabwe. For the industry segment, the participants were deployed to 14 selected chemical industry sites in 11 States Parties: Brazil, China, Germany, India, Italy, Malaysia, Poland, South Africa, Spain, Sri Lanka, and the United Kingdom of Great Britain and Northern Ireland. The Programme helped raise awareness of participants about the Convention, its history, and its implementation by States Parties, with a particular focus on modern chemical industry operations. The Programme also covered a wide range of relevant topics,

including chemical safety and security in industry, the audit of chemical plants, and emerging threats and trends.

- The twenty-sixth edition of the Associate Programme began on 28 July 2025 in The Hague, the Netherlands, and is ongoing and due to conclude on 25 September 2025. The Programme is hosting a total of 31 participants from 31 States Parties: Argentina, Bahrain, Botswana, Brazil, Cameroon, China, Colombia, Cuba, India, Indonesia, Iraq, Kenya, Kuwait, Malawi, Malaysia, Mongolia, Morocco, North Macedonia, Pakistan, the Philippines, Seychelles, Sierra Leone, South Africa, Sri Lanka, the State of Palestine, Suriname, Togo, Uganda, the United Republic of Tanzania, Venezuela (Bolivarian Republic of), and Zimbabwe. For the industry segment this year, the participants will be paired and deployed to 17 chemical industry sites hosted by 15 States Parties: Brazil, China, the Czech Republic, India, Indonesia, Italy, Malaysia, Poland, Portugal, the Republic of Korea, Saudi Arabia, South Africa, Spain, Switzerland, and the United Kingdom of Great Britain and Northern Ireland.
- 5.7 To date, a total of twenty-six editions of the Associate Programme have taken place, with 639 participants from 124 States Parties now engaged in an active alumni network. Special attention has been given to the participation of women professionals, with more than 200 women from 80 States Parties having enrolled in the Programme thus far. Feedback received from participants has indicated their great appreciation of the training, which has considerably upgraded their knowledge, technical skills, and experience regarding the Convention and the role of the OPCW as well as chemical industry operations, with a focus on chemical safety and security management. Following the completion of the Programme, participants serve as resource persons for their National Authorities and often offer valuable support regarding the implementation of the Convention at the national and regional levels. It is noteworthy that over the years, a number of associates have later become Secretariat staff members. Furthermore, in 2025, the Secretariat continued to strengthen its outreach efforts and enhance geographical representation in the Programme. As a result of such efforts, the twenty-sixth edition received participants from Bahrain, Kuwait, and the State of Palestine for the first time.
- 5.8 The Alumni Association of the Associate Programme was established on social media in 2012 and has continued to provide a highly interactive forum among current and former participants to share views, scientific information, and experience in the field of chemistry. In addition, the Association has continued to serve as a reliable channel for receiving feedback regarding the Associate Programme and to provide updates on the work of the OPCW. This exchange of information ensures continuous improvement of the Programme for a longer-term impact. The Association also offers opportunities for professional networking, as participants can get together for joint projects and help each other with various professional issues.

Chemical safety and security management

5.9 During the reporting period, the Secretariat organised 14 capacity-building activities on chemical safety and security management, 8 of which were either in person or in hybrid format. Relevant training activities at global and regional levels were conducted to meet the needs of participating countries; this has given impetus to the promotion of chemical safety and security in participating States Parties, especially in terms of sharing

experiences and best practices.¹ The activities that took place during the reporting period benefited from voluntary and in-kind contributions from China, Germany, the Republic of Korea, and the European Union.

- 5.10 From 30 August to 7 October 2024, the Secretariat, in collaboration with the University of Wuppertal and with support from the Government of Germany, organised the online "Wuppertal Course on Explosion Protection and Safety Management in the Chemical Process Industries". This technical course aimed to improve chemical safety practices of OPCW Member States in the Asia, Africa, and Latin America and the Caribbean regions by improving the knowledge and skills of participants in preventing explosions and other related accidents at chemical industry facilities. The course was attended by 24 participants representing 21 Member States: Barbados, Botswana, Brazil, Burkina Faso, Chile, Colombia, Ethiopia, India, Iraq, Kenya, Kuwait, Myanmar, Namibia, Nicaragua, Nigeria, Panama, the Philippines, Togo, Uganda, the United Arab Emirates, and Uruguay.
- 5.11 The Secretariat, in cooperation with the International Union of Pure and Applied Chemistry (IUPAC) and the Chemical Industries Association of Uruguay, organised an e-learning safety training programme in Spanish for States Parties of the Latin American and Caribbean Group (GRULAC) from 30 September to 29 November 2024. The training course provided an update on the current standards, policies, and best practices in occupational safety and chemical hazard management, as well as in the handling, storage, and transport of chemicals, and waste management. The training was attended by 13 chemistry experts from seven States Parties: Argentina, Brazil, Chile, Colombia, Nicaragua, Paraguay, and Peru.
- 5.12 From 8 to 11 October 2024, the Secretariat, in cooperation with the Institute of Chemical Sciences and Technologies "Giulio Natta" of the Italian National Research Council, organised a workshop on the general aspects of chemical safety and security in laboratories. The core objectives of the workshop were to provide an update on the current standards, policies, know-how, and best practices in chemical safety and security, in both research laboratories and at small industrial production sites. The workshop was designed for specialised personnel, such as safety coordinators and environmental health and safety and/or security managers, as well as representatives of related policymaking institutions from OPCW Member States. The workshop was attended by 20 participants from the following 20 Member States: Azerbaijan, the Bahamas, Botswana, Brazil, Burundi, Cambodia, Kazakhstan, Kenya, Malaysia, Morocco, Nicaragua, Nigeria, Pakistan, Panama, Senegal, South Africa, Tunisia, Uganda, the United Republic of Tanzania, and Zimbabwe.
- 5.13 On 15 October 2024, the Secretariat organised an online regional seminar on the Convention and chemical safety and security management for OPCW Member States in the Asia region. The aim of the seminar was to promote a culture of chemical safety and security in the chemical industry and to prevent the misuse of dual-use chemicals. The seminar promoted the exchange of best practices in chemical safety and security,

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Launched in 2009, the Chemical Safety and Security Management Programme is an international cooperation programme designed initially to focus on the chemical industry and industry-related aspects of the implementation of the Convention, specifically on chemical safety and security at the plant level in the development, storage, production, handling, transport, and distribution of chemicals.

EC-110/DG.10 C-30/DG.10 page 8

boosting the expertise of industry professionals, and enhancing the capabilities of National Authorities and associations in Member States. The seminar was attended by 31 participants representing 10 Member States: Bangladesh, India, Indonesia, Jordan, Lebanon, Malaysia, Myanmar, Pakistan, Sri Lanka, and Thailand.

- 5.14 On 16 October 2024, the Secretariat organised a hybrid-format launching event for the Indicative Guidelines for Safe and Secure Transport of Hazardous Chemicals by Road. The Guidelines were developed by participating experts at two preceding workshops under the Chemical Safety and Security Tools Development Programme. The Guidelines aim to provide accessible tools and guidance for the safe and secure transport of hazardous chemicals for Member States with limited resources and/or small and medium-sized enterprises. In doing so, the Guidelines showcase the best practices in the safe and secure transport of hazardous chemicals. This event was attended by 56 participants from 43 OPCW Member States: Albania, Angola, Argentina, Armenia, Australia, Belarus, Burundi, China, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, France, the Gambia, Germany, Ghana, Hungary, Iran (Islamic Republic of), Kenya, Lithuania, Malaysia, Malta, Mauritania, Mexico, the Netherlands, Panama, the Philippines, Portugal, the Republic of Korea, Romania, the Russian Federation, Rwanda, Singapore, South Africa, Sri Lanka, the Sudan, the United Kingdom of Great Britain and Northern Ireland, the United Republic of Tanzania, the United States of America, Uruguay, Venezuela (Bolivarian Republic of), and Viet Nam.
- 5.15 From 29 October to 1 November 2024, the Secretariat organised a course on chemical safety and security management in laboratories for GRULAC States with the support of the National Authority of Argentina and the National Institute of Industrial Technology in Buenos Aires, Argentina. The objective of this course was to enhance the knowledge and skill set of personnel working on the application of occupational safety measures in chemical, biochemical, microbiological, and other relevant laboratories, in addition to laboratory safety and security measures. The course was attended by 18 participants from nine States Parties: Argentina, Bolivia (Plurinational State of), Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Paraguay, and Uruguay.
- 5.16 From 12 to 14 November 2024 in Seoul, the Republic of Korea, the Secretariat organised the Seoul Workshop on the Peaceful Development and Use of Chemistry for OPCW Member States in the Asia region. The workshop, funded by the Republic of Korea, aimed to promote peaceful uses of chemistry and enhance capacities in chemical safety and security in Asia. During the workshop, participants learned about dual-use chemicals, chemical management regulatory regimes, and customer and process safety management systems from leading experts in the fields. The course was attended by 25 international participants from 15 Member States: Bhutan, Cambodia, India, Iraq, Iran (Islamic Republic of), Kazakhstan, Malaysia, Maldives, Nepal, Pakistan, the Philippines, Qatar, Sri Lanka, the United Arab Emirates, and Viet Nam. Additionally, six local participants from the Republic of Korea took part in the workshop.
- 5.17 On 12 December 2024, the Secretariat organised an online regional seminar on the Convention and chemical safety and security management for OPCW Member States in the Eastern Europe region. The aim of the seminar was to support chemical safety and security management in the region's chemical industry. The seminar delivered essential tools for assessing, mitigating, and responding to chemical accident risks,

while preventing the misuse of dual-use chemicals in the region. It also raised awareness of the impact of emerging technologies and AI on the implementation of the Convention. The seminar was attended by nine participants from five Member States: Croatia, the Czech Republic, Serbia, Slovakia, and Slovenia.

- 5.18 The Secretariat organised a workshop on developing indicative guidelines for "Know Your Customer" from 18 to 21 February 2025 in Nairobi, Kenya. The workshop aimed to produce the final draft version of the guidelines following the first workshop held in Sri Lanka in 2024, at which the zero draft version was developed. This workshop proceeded with a comprehensive review and revision of the initial version, ensuring consistency and clarity throughout the document. In addition, participants worked on harmonising the sections of the text and identifying the most appropriate terminology. The workshop hosted 16 experts (12 international and 4 from Kenya) from 12 OPCW Member States: Brazil, Chile, Costa Rica, Croatia, Germany, Kenya, Malaysia, Nigeria, Pakistan, the Philippines, South Africa, and the United Kingdom of Great Britain and Northern Ireland.
- 5.19 The Secretariat organised an online regional seminar on the Convention and chemical safety and security management for OPCW Member States in the Africa region on 18 March 2025. This seminar promoted the adoption of an integrated chemicals management culture to drive continuous improvement in chemical safety and security in the region and achieve excellence in environmental, health, safety, and security management. During the seminar, the participants learned about dual-use chemicals and their industrial applications, and the potential risks that emerging technologies such as AI might present to the implementation of the Convention. The seminar was attended by 19 participants, representing 12 Member States: Botswana, Burundi, the Gambia, Ghana, Mauritius, Morocco, Nigeria, Senegal, Sierra Leone, the Sudan, Uganda, and Zimbabwe.
- 5.20 From 28 April to 27 June 2025, the Secretariat, in cooperation with the Chemical Industries Association of Uruguay, and with support from the Ministry of Foreign Affairs of Uruguay, organised the third edition of the e-learning safety training programme in English. The course provided an update on the current standards, policies, and best practices in occupational safety and chemical hazard management, in addition to addressing the handling, storage, and transport of chemicals, and waste management. The training was attended by 12 chemistry experts from 12 OPCW Member States: Algeria, Brazil, India, Jordan, Kuwait, Malawi, Mauritius, Saudi Arabia, Sierra Leone, Sri Lanka, Uganda, and the United Republic of Tanzania.
- 5.21 From 20 to 23 May 2025, the Secretariat, in cooperation with the Italian National Research Council, organised a workshop on the general aspects of chemical safety and security in laboratories. The workshop focused on best practices and knowledge about hazardous chemicals and related risk assessments, personal protective equipment, emergency management, environmental impact, and sustainability. Attendees participated in a tabletop exercise using a scenario involving hazardous chemicals to test emergency response and risk assessment. Participants also visited forensic chemistry and toxicology laboratories at the University of Milan, and spoke with scientists about safety and security protocols in the management of forensic samples. The event was attended by 20 participants from 18 OPCW Member States: Bangladesh,

EC-110/DG.10 C-30/DG.10 page 10

Botswana, Brazil, Burundi, Cambodia, Costa Rica, Ghana, Iraq, Jordan, Kenya, Malawi, Nigeria, the Philippines, the State of Palestine, Suriname, Uganda, the United Republic of Tanzania, and Zimbabwe.

- 5.22 The Secretariat organised a regional seminar on the Convention and chemical safety and security management for OPCW Member States in the Eastern Europe region in Tirana, Albania, from 17 to 19 June 2025. The seminar was aimed at preventing chemical accidents and the misuse of dual-use chemicals in the region by sharing risk management tools and knowledge among the participants. In view of increasing interest in AI among Member States, one session focused on the potential risks of emerging technologies, including AI. The seminar was attended by 22 participants from governmental and private chemical laboratories, the chemical industry, academia, and National Authorities, representing seven Member States: Albania, Azerbaijan, Bosnia and Herzegovina, Croatia, North Macedonia, Romania, and Slovakia.
- 5.23 From 17 to 20 June 2025, the Secretariat, in collaboration with the Government of China, organised a workshop on AI and chemical safety and security management in Shanghai, China. This was the first capacity-building programme dedicated to AI and provided a platform for States Parties—particularly those with developing and transitioning economies—to learn about valuable tools and gain knowledge to better understand AI technology for the peaceful uses of chemistry, to promote participation of States Parties in global governance on AI, and to contribute to the effective implementation of the Convention. In so doing, the workshop brought diverse experts across the AI and chemical industries, as well as representatives from government, academia, the United Nations, and other key stakeholders, to examine the growing impact of AI on chemical safety and security within the framework of the Convention. Additionally, the four-day workshop served as a platform to showcase the best practices of the host institution and various tools related to AI applications in chemistry, chemical research, and industry. The workshop was attended by 39 participants from 28 States Parties: Albania, Algeria, Argentina, Azerbaijan, Brazil, Canada, Chile, China, Colombia, Costa Rica, France, India, Jordan, Kenya, Madagascar, Malaysia, Mauritius, Pakistan, Peru, Saudi Arabia, Seychelles, Tajikistan, the United Arab Emirates, the United Kingdom of Great Britain and Northern Ireland, the United Republic of Tanzania, the United States of America, Viet Nam, and Zimbabwe.

6. ENHANCEMENT OF LABORATORY CAPABILITIES

6.1 The Secretariat continued to provide capacity-building activities for participants from developing countries and countries with economies in transition to assist their efforts in building or further enhancing their laboratory capacities. The activities included a range of general analytical chemistry courses, proficiency test training, specialised laboratory training, the Laboratory Twinning and Assistance Programme, and the Equipment Exchange Programme, which benefited or were supported by 209 participants from the following 59 OPCW Member States: Algeria, Argentina, Botswana, Brazil, Burkina Faso, Burundi, Cambodia, Chile, China, Colombia, Costa Rica, Côte d'Ivoire, Cyprus, Finland, the Gambia, Germany, Ghana, Greece, Guatemala, India, Iran (Islamic Republic of), Jordan, Kenya, Lesotho, Libya, Malawi, Malaysia, Mauritania, Mauritius, Mexico, Mongolia, Morocco, Namibia, Nicaragua, Nigeria, Pakistan, Paraguay, Peru, the Philippines, Poland, Portugal, Romania,

Slovakia, Spain, the Sudan, Suriname, the Syrian Arab Republic, South Africa, Sri Lanka, Togo, Tunisia, Uganda, Ukraine, the United Kingdom of Great Britain and Northern Ireland, the United Republic of Tanzania, Uganda, Uruguay, Zambia, and Zimbabwe.

Analytical chemistry courses and proficiency test training

- 6.2 The analytical chemistry courses aim to assist qualified analytical chemists in acquiring further experience and practical skills in the analysis of chemicals related to the Convention and to enhance the national capacities of States Parties in analytical chemistry for personnel from industry, academia, and government. They also aim to improve the quality and proficiency of laboratory work through sound management practices; to facilitate the adoption of good practices in laboratories supporting national implementation of the Convention, trade, and economic development; and to broaden the pool of human resources from which National Authorities and the Secretariat can draw in future.
- 6.3 The courses focus either on building skills in using specific techniques, such as mass spectrometry (MS) and nuclear magnetic resonance (NMR), to analyse chemicals related to the Convention, or improving the quality and proficiency of laboratory work through sound management practices. These are two-week courses, each for a maximum of four participants who already have practical experience in liquid chromatography (LC), gas chromatography (GC), MS, NMR, or a combination of these techniques. Participants are introduced to the preparation of samples by means of demonstrations and practical exercises. The courses also address theoretical aspects of LC and GC, LC-MS, MS, and NMR, as well as those of quantitative MS, quality assurance, and instrument maintenance.
- 6.4 From 2 to 13 September 2024, the Secretariat, in collaboration with the Indian Institute of Chemical Technology, organised an analytical skills development course in Hyderabad, India for analytical chemists and laboratory specialists from OPCW Member States with economies that are developing or in transition. The two-week training provided chemistry professionals with the requisite theoretical knowledge and practical skills in techniques used to analyse chemicals subject to the Convention. The training addressed methods of sample preparation and derivatisation, and had participants engage in practical exercises using GC and GC-MS techniques. The course was attended by 20 participants representing 20 Member States: Algeria, Botswana, Burkina Faso, Burundi, Costa Rica, Côte d'Ivoire, Ghana, Jordan, Kenya, Malawi, Mauritania, Mauritius, Morocco, the Philippines, the Sudan, Suriname, the Syrian Arab Republic, Togo, Uganda, and Zimbabwe.
- 6.5 From 16 to 27 September 2024, the Secretariat, together with the Finnish Institute for Verification of the Chemical Weapons Convention (VERIFIN), delivered two training courses in Helsinki for analytical chemists from countries with economies that are developing or in transition. The two parallel courses were aimed at enhancing laboratory management and advancing national chemical analysis capacities. In one course, participants improved their practical skills in the analysis of Convention-related chemicals using LC-MS. The other course focused on laboratory management practices related to achieving accreditation under Standard 17025:2017 of the International

Organization for Standardization/International Electrotechnical Commission, a qualification that demonstrates competency in laboratory operations and the generation of valid and internationally recognised results. The two courses were co-funded by the Government of Finland and were attended by 10 participants from the following 10 OPCW Member States: Algeria, Botswana, Burkina Faso, Burundi, Chile, China, Colombia, Costa Rica, Paraguay, and Sri Lanka.

- 6.6 From 23 September to 4 October 2024, the Secretariat organised an online basic analytical chemistry course that assisted qualified analytical chemists from Member States with economies that are developing or in transition in acquiring further knowledge and experience, specifically in the analysis of chemicals related to the Convention. This course aimed to facilitate the adoption of good laboratory practices and quality standards among OPCW Member States. The course was attended by 30 participants from 12 Member States: Brazil, Colombia, the Gambia, India, Kenya, Nigeria, Pakistan, the Philippines, Poland, Sri Lanka, the Sudan, and Uganda.
- 6.7 From 10 to 21 February 2025, the Secretariat organised an online basic analytical chemistry course that was conducted from the ChemTech Centre. The course started with one week of self-study of training materials, which were made available online. It was followed by live interactive discussions online and question-and-answer sessions. The course included lectures covering areas such as the general aspects of the OPCW and the Convention, the chemical structure and properties of scheduled chemicals, and the application of analytical techniques for chemicals related to the Convention. Aspects of sample preparation and the applications of the OPCW Central Analytical Database for compound identification were also covered. The course was attended by a total of 24 participants representing the following 15 OPCW Member States: Botswana, Brazil, India, Iran (the Islamic Republic of), Lesotho, Malaysia, Morocco, Nicaragua, Nigeria, Pakistan, Portugal, Slovakia, Sri Lanka, Uganda, and Ukraine.
- 6.8 The Secretariat also organised an online proficiency test course that took place from 9 to 20 June 2025 at the ChemTech Centre. This course assisted qualified analytical chemists from laboratories in OPCW Member States in acquiring further knowledge and experience necessary for successful participation in OPCW proficiency tests. The training was attended by 35 participants representing the following 16 OPCW Member States: Algeria, Argentina, Australia, Brazil, Chile, Colombia, India, Malawi, Malaysia, Morocco, Namibia, Portugal, Slovakia, South Africa, Sri Lanka, and Uganda.
- 6.9 The Secretariat held a basic analytical chemistry course for women chemists at the ChemTech Centre from 1 to 4 July 2025. The course bolstered the knowledge and proficiency of women analytical chemists in the analysis of Convention-related chemicals. The course, as part of the OPCW Women in Chemistry initiative, is aimed at equipping and empowering women specialists with basic knowledge and practical skills in the analysis of chemicals related to the Convention. The training was attended by 10 women chemists representing the following 10 OPCW Member States: Argentina, Brazil, Burundi, Cambodia, Colombia, India, Malaysia, Morocco, Ukraine, and the United Republic of Tanzania.

Specialised laboratory training

- 6.10 The Secretariat organised a course at the ChemTech Centre from 19 to 22 November 2024 for analytical chemists from laboratories supporting customs services. The course was cofunded by a voluntary contribution from Germany for the participation of African chemists, and received an in-kind contribution from China in the form of human resources for the training. The course assisted qualified analytical chemists from laboratories that support, or plan to support, customs services or offices in acquiring further experience and practical knowledge of the analysis of chemicals related to the Convention. In addition, the course facilitated the adoption of good laboratory practices for the implementation of the Convention. The course was attended by 12 participants from 12 OPCW Member States: Argentina, Chile, Côte d'Ivoire, Cyprus, Ghana, Malaysia, Mexico, Mongolia, Nigeria, the Philippines, Romania, and Uganda.
- 6.11 From 9 to 13 December 2024, the Secretariat, in collaboration with Wrocław University of Science and Technology, held a laboratory equipment maintenance course in Wrocław, Poland for African Member States of the OPCW. The course was co-funded by Germany and the European Union. The course assisted qualified personnel in acquiring the experience and practical knowledge to perform basic preventive and curative maintenance of laboratory equipment, and aimed to facilitate the adoption of good practices in the area of preventive equipment maintenance at analytical chemistry laboratories. The course was attended by seven participants from seven Member States: Algeria, Botswana, Ghana, Libya, Malawi, Namibia, and the United Republic of Tanzania.
- 6.12 From 12 to 16 May 2025, the Secretariat, in cooperation with the General Chemical State Laboratory of Greece, held a course in Athens for analytical chemists from laboratories supporting customs services in Africa. The course, fully funded through a voluntary contribution by Germany, assisted qualified analytical chemists from laboratories that support, or plan to support, customs services or offices in acquiring further experience and practical knowledge of the analysis of chemicals related to the Convention. The course was attended by 12 participants from 12 Member States: Botswana, Burundi, Côte d'Ivoire, Ghana, Kenya, Libya, Mauritania, Tunisia, Uganda, the United Republic of Tanzania, Zambia, and Zimbabwe.

Laboratory Twinning and Assistance Programme

- 6.13 In addition to the established training programmes in the area of enhancing laboratory capabilities, the Secretariat has continued the Laboratory Twinning and Assistance Programme (merging the former Laboratory Twinning Initiative and Laboratory Assistance Programme), co-funded through a voluntary contribution from the European Union. The Programme is aimed at improving the technical competencies of laboratories in States Parties with economies that are either developing or in transition for participation in OPCW proficiency tests. The Programme is based on the provision of mentorship and exchange of knowledge from more advanced laboratories, which preferably already hold OPCW designated laboratory status.
- 6.14 On 10 and 11 November 2024, the Secretariat implemented a technical evaluation visit to the Moroccan National Laboratory of Scientific and Technical Police (LNPST) the first activity under the new twinning project between the LNPST (the assisted laboratory) and Lawrence Livermore National Laboratory in the United States of

America (the assisting laboratory) within the Laboratory Twinning and Assistance Programme. During the visit, the laboratory management was engaged in discussions during which information previously provided by the LNPST was verified; the scope, objectives and assistance plan of the project were confirmed; and gaps in the project and the specific needs of the LNPST were identified.

- 6.15 Further progress was made in the preparation of another new twinning project between the Department of Chemistry in Malaysia and the Chemical Agents Analysis Facility of the Defence Science and Technology Group in Australia; a draft agreement is under review by the participating laboratories.
- 6.16 Activities were ongoing within the twinning project between the Bundeswehr Research Institute for Protective Technologies and CBRN² Protection in Germany (the assisting laboratory) and the National Institute of Criminalistics and Criminology of the National Gendarmerie (NICC/GN) in Algeria (the assisted laboratory). Following the key outcome from this project—the achievement by the Algerian laboratory of OPCW designation for the analysis of authentic environmental samples on 4 April 2024—the project was successfully wrapped up with the last training taking place in January 2025.
- 6.17 Activities are also ongoing within the twinning project between the Netherlands Organisation for Applied Scientific Research–TNO, Defence, Security and Safety (the assisting laboratory) and Protechnik Laboratories, a division of Armscor Ltd, in South Africa (the assisted laboratory). This project includes online consultations as well as on-site trainings.

Assessing and enhancing the capacity of analytical laboratories in States Parties in the Africa and Latin America and the Caribbean regions, funded by the United Kingdom of Great Britain and Northern Ireland

6.18 The Secretariat continued to expand institutional support to laboratories in the Africa and GRULAC regions. With a voluntary contribution from the Government of the United Kingdom of Great Britain and Northern Ireland, the project to assess and enhance the capacities of analytical laboratories in States Parties in the African Group and GRULAC seeking OPCW designation entered its sixth phase, assisting four laboratories from Brazil, Chile, Kenya, and Nigeria. Other integrated assistance projects funded by Germany and Spain, targeting African and GRULAC laboratories, have also been actively progressing. In cooperation with two OPCW designated laboratories, VERIFIN in Finland and the Laboratorio de Verificación de Armas Químicas (LAVEMA) in Spain, a series of activities took place from November 2024 to March 2025 to enhance the analytical capacities of participating laboratories and help them improve performance in OPCW proficiency tests. Three types of online and face-to-face activities included interlaboratory exercises, face-to-face training and online workshops, and mentorship visits by assisting laboratory experts to assisted laboratories.

² CBRN = chemical, biological, radiological, and nuclear.

- 6.19 During the reporting period, all assisted laboratories participated in the interlaboratory exercises organised by the assisting laboratories, which provided samples to be analysed by each assisted laboratory, evaluated the results obtained, and provided evaluation reports. The exercises were followed by online workshops to discuss results and issues encountered during the exercises.
- 6.20 From 3 to 7 February 2025, two technical evaluation and mentorship visits to the assisted laboratories in the Latin America and the Caribbean region took place under the framework of the project. The visiting delegation assessed the progress made by the laboratories towards achieving OPCW designation, identified remaining gaps and needs, and provided hands-on training to the laboratory staff, using their own equipment. The visits also provided opportunities for consultations on technical matters related to the analysis of Convention-related chemicals. The visits were conducted at the Chemical Analysis Laboratory of the Brazilian Navy Nuclear, Biological, Chemical, and Radiological Defense Centre and a laboratory of the Investigations Police of Chile by a representative from the Secretariat and two experts from LAVEMA of Spain, the assisting laboratory for this project.
- 6.21 From 10 to 14 February 2025, an analytical skills development course for the African laboratories participating in the project took place in Helsinki, Finland, in cooperation with VERIFIN. The training further enhanced participating laboratories' experience and practical knowledge on analysis of chemicals related to the Convention. Four participants from Kenya (2) and Nigeria (2) attended the course.
- 6.22 From 11 to 15 March 2025, four scientists and technicians representing analytical laboratories from the Brazilian Navy (2) and the Investigations Police of Chile (2)—assisted laboratories under the project—participated in a week-long training visit to LAVEMA in Madrid, Spain. The visit featured individual hands-on training programmes tailored to the specific needs of the assisted laboratories in order to enhance their skills in the analysis of Convention-related chemicals and familiarise them with the specific procedures of OPCW proficiency tests.
- 6.23 From 24 to 28 March 2025, proficiency test training took place at the ChemTech Centre under the project. The training was provided by the OPCW Laboratory and had six participants from Brazil (2), Kenya (2), and Nigeria (2) representing the assisted laboratories.
- 6.24 From 17 to 21 March 2025, within the framework of the assistance project the Secretariat, in close cooperation with LAVEMA, held an analytical skills development course in Madrid, Spain. The course improved the theoretical knowledge and practical skills of participants in advanced analytical techniques, sample preparation, and interpretation of mass spectra of chemicals, in addition to covering other aspects related to maintenance of laboratory equipment, quality assurance systems in chemical analysis, and procedures for participation in proficiency testing. The training was attended by four participants from Brazil (2) and Chile (2).
- 6.25 On 31 March 2025, an online workshop was held to mark the conclusion of the sixth phase of the project. The event was attended by 10 participants, representing four participating laboratories in Brazil, Chile, Kenya, and Nigeria, and two assisting institutions in Finland and Spain.

Projects on enhancing the capacities of analytical laboratories in States Parties in the Africa and Latin America and the Caribbean regions, through voluntary funding from Germany and Spain

- 6.26 The project to build in Spanish-speaking States Parties a network of laboratories for the analysis of Convention-related chemicals, funded through voluntary contributions from Spain, continued during the reporting period. The project aimed to improve skills in the analysis of Convention-related chemicals for laboratories from Spanish-speaking Member States seeking OPCW designation status. LAVEMA of Spain has partnered with the Secretariat in this five-year project to establish the network, conduct assessments, and provide capacity building to selected network participants.
- 6.27 From 7 to 9 October 2024, the Secretariat, in collaboration with LAVEMA of Spain, conducted an online induction workshop with five laboratories from the Latin America and the Caribbean region under the assistance project, including the National Institute of Industrial Technology (Argentina), the Tax and Customs Authority (Colombia), the Directorate General for Environmental Health (Peru), the Division of Criminalistic Laboratories of the National Police (Peru), and the Litoral Chemistry Department at the Regional University Centre of the Republican State University of Uruguay. The workshop provided information and assessed the capacity of the selected institutions in terms of preparation for upcoming Convention Chemical Analysis Competency Testing (CCACT).
- 6.28 From 10 to 14 March 2025, the Secretariat, together with LAVEMA of Spain, conducted a one-week online training exercise with five laboratories selected to participate in the project from GRULAC States: Argentina, Guatemala, Peru (2), and Uruguay. This one-week training exercise consisted of interlaboratory exercises, with subsequent evaluation of the results in order to prepare and encourage the assisted laboratory to participate in CCACT in 2025.
- 6.29 Under the project to enhance the capacities of analytical laboratories from African Member States, funded by Germany, a series of activities were organised in combination with regular programmes in the area of laboratory capacity enhancement during the reporting period.
- 6.30 In addition, under the same project funded by Germany, tailor-made support for a laboratory in the Africa region seeking OPCW designation status through a twinning scheme was under active preparation. Progress was made in identifying the assisting and assisted laboratories: the Laboratório de Análises Químicas of the Instituto de Defesa Química, Biológica, Radiológica e Nuclear under the Centro Tecnológico do Exército (CTEx) as the assisting laboratory, and the laboratory of the Administration de la Defense Nationale Gendarmerie Royale, Institut de Criminalistique (ICGR), as the assisted laboratory. The process of finalising the memorandum of understanding between the two laboratories is ongoing.

Equipment Exchange Programme

6.31 The Equipment Exchange Programme aims to support the transfer of used, but still functional, equipment from institutions in one State Party to those in another. As this Programme is based primarily on donations of equipment by States Parties, the Secretariat continues to maintain contact with potential donors to encourage such donations.

7. CHEMICAL KNOWLEDGE PROMOTION AND EXCHANGE

7.1 The Secretariat continued to promote and advance networking and exchange among the scientific community, academic institutions, chemical industry associations, NGOs, and regional and international institutions through standing programmes, such as the Fellowship Programme, the Programme for Support of Research Projects, the Conference Support Programme, and a series of awareness-raising programmes entitled "Building a Knowledge Society". With a view to enhancing networking among scientists and their institutions, these programmes have provided a platform to a wide range of experts in the field of chemistry, from both developing and developed countries, to share their experience, knowledge, and insight.

Fellowship Programme

- 7.2 The Fellowship Programme assists scientists and engineers from States Parties with economies that are either developing or in transition in gaining experience by working in more advanced research laboratories and facilities in other States Parties for a limited period of time. A key objective of this Programme is to facilitate the exchange of scientific and technical information, while at the same time strengthening the institutions in the targeted countries through capacity building.
- 7.3 Ten fellowships were sponsored during the reporting period. Details of the fellowships can be found in Annex 2 hereto.
- 7.4 In addition, a new project for African States Parties under the OPCW Fellowship Programme—a research fellowship on biotoxin analysis—was launched by the Secretariat in July 2025 (S/2427/2025, dated 23 July 2025). This project is designed for chemists with relevant practical and theoretical experience in the field of biotoxin analysis and LC-MS analysis. The research fellow will be stationed at the ChemTech Centre. The objective of the fellowship is to provide experience in the use of analytical methods, such as sample preparation and liquid chromatography-tandem mass spectrometry (LC-MS/MS) for the analysis of biotoxin degradation products. The fellowship will also include aspects of quality assurance and work safety. The project will be co-funded by Monaco and the Republic of Korea.

Programme for Support of Research Projects

- 7.5 Under the Programme for Support of Research Projects, support is extended to small-scale research projects in States Parties to promote the development of scientific and technical knowledge in chemistry for industrial, agricultural, research, medical, pharmaceutical, and other peaceful purposes relevant to the Convention. Funding for such projects may be provided either solely by the OPCW, or jointly with another organisation.
- 7.6 During the reporting period, the Secretariat continued to support 23 research projects undertaken by nationals of Algeria (2), Argentina, Brazil (2), Italy (2), Kenya, Malaysia (6), Nigeria, Poland (2), Serbia (3), Sri Lanka, South Africa, and Uruguay.

Conference Support Programme

- 7.7 The Convention encourages the fullest possible exchange of scientific and technical information relating to the development and application of chemistry for peaceful purposes. The Conference Support Programme provides financial support for conferences, workshops, and seminars on special topics relevant to the Convention by sponsoring scientists, technical personnel, and resource persons from States Parties to attend relevant events and by subsidising the cost of publications. Sponsorship is channelled through scientific institutions and conference organisers in States Parties.
- 7.8 During the period under review, a total of 12 events were supported to facilitate the exchange of scientific and technical information in areas relating to the peaceful use of chemistry. A list of these conferences and the countries of sponsored participants is provided in Annex 1 hereto.

Building a Knowledge Society

Global Conference on the Role of AI in Advancing the Implementation of Chemical Weapons Convention

- 7.9 From 22 to 24 October 2024, the "Global Conference on the Role of Artificial Intelligence in Advancing the Implementation of Chemical Weapons Convention" was held in Rabat, Morocco. The Global Conference was jointly organised by Morocco and the Secretariat, with voluntary contributions from OPCW Member States, including China, France, Germany, Qatar, the Republic of Korea, and the United Kingdom of Great Britain and Northern Ireland.
- The Global Conference was aimed at exploring the transformative role of AI within the 7.10 framework of the Convention. Leading AI specialists, scientists, industry experts, and policymakers discussed and shared knowledge about the impact of AI on chemistry and its industrial applications while exploring both potential opportunities and risks that the technology may pose to humanity, including from the perspectives of chemical safety and security, counterterrorism, and disarmament. In so doing, the Global Conference fostered a deeper understanding of the implications of AI for international security, and informed policy frameworks aligned with peaceful and ethical AI application in the chemical sciences. It was attended by 190 participants representing Albania, Armenia, Bangladesh, Belgium, Brazil, Canada, China, Côte d'Ivoire, Cuba, the Czech Republic, Ecuador, Finland, France, Germany, Ghana, Greece, Guatemala, Hungary, India, Iran (Islamic Republic of), Iraq, Ireland, Italy, Japan, Kenya, Kuwait, Malaysia, Malta, Mexico, the Netherlands, Pakistan, Peru, the Philippines, Portugal, Qatar, the Russian Federation, Saudi Arabia, Singapore, Spain, Sweden, Türkiye, Ukraine, the United Arab Emirates, the United Kingdom of Great Britain and Northern Ireland, the United Republic of Tanzania, and the United States of America, along with delegates from the International Criminal Police Organization (INTERPOL), the United Nations (represented by the United Nations Interregional Crime and Justice Research Institute and the United Nations Office for Disarmament Affairs), and the European Union.

Empowering women in chemistry

7.11 On 26 and 27 March 2025, the Secretariat organised the Symposium on Women in Chemistry, which was held at the ChemTech Centre in hybrid mode. The two-day workshop strengthened the skills of professionals operating in the field of chemistry and highlighted the contribution of women to the implementation of the Convention. The Symposium provided an opportunity to explore strategies for promoting gender balance, enhancing opportunities, and overcoming barriers that hinder women's progress in scientific fields. Participants highlighted the significant contributions of women to the peaceful uses of chemistry and their crucial role in advancing scientific knowledge and in technological advancements. The Symposium was attended by 91 participants from 39 Member States: Algeria, Argentina, Armenia, Azerbaijan, Bangladesh, Botswana, Brazil, Burundi, Cambodia, Cameroon, Colombia, Côte d'Ivoire, the Czech Republic, Ghana, Guatemala, Indonesia, Iraq, Kenya, Kuwait, Malawi, Malaysia, Maldives, Mauritania, Mexico, Morocco, Myanmar, Nigeria, Pakistan, the Philippines, Slovakia, Sri Lanka, the Sudan, Tajikistan, Thailand, Togo, Tunisia, Uganda, the United Republic of Tanzania, and Zimbabwe.

Review and evaluation workshop of the components of an agreed framework for the full implementation of Article XI

- 7.12 The Secretariat continued the series of workshops on Article XI, which provided an opportunity for stakeholders to review and evaluate the activities run by the Secretariat and States Parties to promote peaceful uses of chemistry.
- On 19 November 2024, the Secretariat organised the ninth edition of the review and 7.13 evaluation workshop of the components of an agreed framework for the full implementation of Article XI (C-16/DEC.10) in hybrid format. The workshop aims to provide a forum for discussion and exchange of views among States Parties and relevant stakeholders to further the full implementation of Article XI of the Convention. During the workshop, the Secretariat and panel experts disseminated information on the current international cooperation programmes of the OPCW in the three strategic areas of focus under Article XI—namely, integrated chemicals management, enhancement of laboratory capabilities, and promoting chemical knowledge. The Secretariat briefed States Parties on its sustained efforts to strengthen and advance capacity-building programmes in all thematic areas. Following the plenary sessions, the participants engaged in thematic breakout groups on the three focus areas to share ideas and discuss lessons learned and best practices. The workshop was attended by 60 representatives from 42 OPCW Member States: Algeria, Argentina, Armenia, Belarus, Bolivia (Plurinational State of), Brazil, Burundi, Canada, Chile, China, Colombia, Croatia, Cuba, the Dominican Republic, Ecuador, France, the Gambia, Germany, India, Indonesia, Iran (Islamic Republic of), Iraq, Malaysia, Mexico, Morocco, the Netherlands, Pakistan, Panama, the Philippines, Qatar, the Republic of Korea, the Russian Federation, Saudi Arabia, Serbia, Slovenia, South Africa, Sri Lanka, the Syrian Arab Republic, Thailand, the United Kingdom of Great Britain and Northern Ireland, the United States of America, and Venezuela (Bolivarian Republic of).

Interaction with the chemical industry

7.14 The chemical industry has been recognised as a key stakeholder with regard to the full and effective implementation of the Convention. In accordance with the recommendations made in the report of the Third Special Session of the Conference of the States Parties to Review the Operation of the Chemical Weapons Convention (RC-3/3*, dated 19 April 2013) and in decision C-16/DEC.10, the Secretariat has continued to strengthen partnerships between the OPCW and chemical industry associations, in particular the International Council of Chemical Associations and the International Chemical Trade Association. Within the context of Article XI, cooperation with the chemical industry includes the exchange of information within the framework of the Chemical Industry Coordination Group, as well as receiving support from the chemical industry for capacity-building activities related to integrated chemicals management and the Chemical Safety and Security Management Programme. More information on cooperation with chemical industry associations is available in the most recent annual Note by the Director-General on engaging the chemical industry associations (C-29/DG.15, dated 14 November 2024).

8. ENHANCING THE EFFECTIVENESS OF OPCW INTERNATIONAL COOPERATION PROGRAMMES

- 8.1 During the reporting period, the Secretariat continued to strengthen the alumni networks of the programmes conducted under Article XI by engaging with former participants on social media network platforms. These networks facilitate the exchange of best practices and knowledge among alumni of the various programmes during the post-implementation phase.
- 8.2 Since its inauguration in May 2023, the ChemTech Centre has been instrumental in advancing some of the key Article XI capacity-building initiatives, including the proficiency and advanced proficiency test training and analytical chemistry courses, including for women. The success of these programmes has showcased the Centre's strengths in the delivery of capacity-building programmes and technical assistance with in-house expertise and infrastructure. Additionally, the Centre's dedication to leveraging the Secretariat's expertise ensures that training is tailored to the assessed needs of States Parties and adheres to global quality standards.
- 8.3 To reflect the priorities and the needs of States Parties in programme delivery, the Secretariat launched the tenth edition of the survey on needs assessment and best practices in chemical safety and security management, inviting States Parties to share their specific needs in the area and to provide information about their existing tools and best practices in chemical safety and security management. The input received will be utilised to reflect the needs of States Parties in current and future initiatives and programmes.
- 8.4 The Secretariat continued to engage with and provide support to the facilitator for Article XI issues, Mr Jamal Nasir, First Secretary of the Permanent Representation of Pakistan to the OPCW. This support included organising informal consultations to provide States Parties with updates on the progress of the capacity-building programmes offered by the Secretariat to promote the peaceful uses of chemistry.

- 8.5 The Secretariat maintained its efforts to strengthen the evaluation systems and tools that allow for the continual review and improvement of its programmes to further enhance the design, delivery, and effectiveness of the international cooperation programmes and activities of the OPCW. Evaluation questionnaires address the content and continued relevance of the programmes, and feedback is taken into account when designing and updating the activities for the following year. Details of the evaluation of international cooperation programmes during the reporting period are provided in Annex 4 to this report.
- 8.6 The flagship OPCW capacity-building programme, the Associate Programme, is meticulously evaluated by both participants and trainers. All components of the Programme are comprehensively and fully assessed as part of a 360-degree evaluation mechanism. With a view to assessing the effectiveness of the Programme, participants are also evaluated by lecturers, trainers, and industry supervisors on the knowledge they have acquired and their performance during the Programme. Based on the feedback received, the Programme curriculum and delivery are continually enhanced.
- 8.7 With regard to the Programme for Support of Research Projects, research proposals are assessed and evaluated by a review committee composed of a number of experts representing different Secretariat units, including two members of the Scientific Advisory Board. The criteria used to assess new project proposals and the final reports of completed projects include an examination of their scientific quality, the level of achievement of the stated objectives, financial planning, performance, and—for proposals—managerial and logistical feasibility and relevance to the Convention.
- 8.8 For the Fellowship Programme, a continuous evaluation is undertaken by the Secretariat, both at the proposal stage and upon conclusion of the fellowship. In addition to the final scientific report on the fellowship, evaluation reports are also received from the fellowship supervisor at the host institution.
- 8.9 Regarding the Chemical Safety and Security Management Programme, feedback is routinely requested at the end of workshops or training events, and then reviewed in order to explore any areas for improvement in the delivery of future activities.
- 8.10 Analytical skills development courses are evaluated through test exercises, including both theoretical and practical assignments, during and/or at the end of each course, and by means of a post-course evaluation meeting held with participants and trainers. Intermediate and final tests verify the knowledge participants have acquired, while questionnaires and post-course meetings collect feedback on the courses themselves and their perceived benefits for participants.
- 8.11 This year, the impact assessment review focused on the Chemical Safety and Security Management Programme.
- 8.12 To assess the impact of the Chemical Safety and Security Management Programme in the period 2022 to 2024, the Secretariat conducted a structured online survey using a well-developed questionnaire. This survey targeted all participants who had attended activities organised under the Programme, as well as National Authorities. The comprehensive participation of all involved stakeholders provided valuable insight into and enhanced understanding of the strengths of the Programme, as well as areas for further attention.

- 8.13 Overall, the impact assessment highlighted that the Programme has significantly enhanced the capabilities of participants in the area of chemical safety and security. Participants rated the chemical safety and security management activities very positively, acknowledging that they effectively facilitated and improved their understanding of chemical safety and security management practices and tools. Participants also indicated that the technical skills and knowledge acquired through the training courses were relevant to their background and professional responsibilities. In terms of learning methodologies and approaches, the step-by-step, practical learning approach, based on case studies and exercises, received particular praise by participants, who also suggested making further use of case studies during future courses. Participants also routinely indicated that the technical skills and knowledge acquired during the Programme are shared with colleagues and circulated within their respective institutions via seminars, knowledge-sharing programmes, and other tools.
- 8.14 Participants were also asked to describe the most useful aspects of the Chemical Safety and Security Management Programme and to provide recommendations on how to improve and strengthen the Programme in future. Participant feedback indicated the importance of incorporating more practical components—including field visits, simulations, and crisis emergency response exercises—into the structure of the Programme. The possibility of diversifying the offerings to include regional and online training opportunities was also mentioned. Other suggestions included introducing more case studies as part of course curricula and extending the overall training duration.
- 8.15 In their assessment, National Authorities also rated the Programme very positively, indicating that national priorities were reflected in the Programme content. National Authorities view the Programme as important in terms of its impact on the development of national capabilities and the implementation of the Convention at the domestic level, including in the overall enhancement of safety and security procedures. In addition, National Authorities have reported that participation in the Programme has led to improved collaboration with national stakeholders.
- 8.16 While the overall assessment of the Chemical Safety and Security Management Programme has been highly positive, the impact assessment review has also highlighted recommendations for further improvement of the Programme's coverage and delivery.
- 8.17 Participants and National Authorities alike indicated interest in seeing further emphasis on practical components as part of course curricula, including field and study visits and more case studies. Additionally, participants recommended incorporating new challenges and opportunities provided by AI and similar emerging technologies as part of the learning objectives.
- 8.18 All these recommendations are being considered and will be taken into account to further strengthen and fine-tune the Chemical Safety and Security Management Programme.

- 9. MEASURES BY STATES PARTIES AND THE OPCW TO FACILITATE THE PARTICIPATION OF STATES PARTIES IN THE FULLEST POSSIBLE EXCHANGE OF CHEMICALS, EQUIPMENT, AND SCIENTIFIC AND TECHNICAL INFORMATION RELATING TO THE DEVELOPMENT AND APPLICATION OF CHEMISTRY, IN ACCORDANCE WITH THE PROVISIONS OF THE CONVENTION
- 9.1 Throughout the reporting period, the Secretariat continued to actively support the facilitator for Article XI issues, including during the informal consultations between States Parties regarding the full implementation of this specific article of the Convention, which is aimed at the economic and technological development of the States Parties.
- 9.2 In order to enhance communication among all stakeholders, information about programmes, activities, and outcomes relating to the Convention, specifically Article XI, was shared through various platforms such as seminars and workshops, especially those organised by the Secretariat.

10. FINANCIAL ASPECTS

The activities covered during the reporting period were funded through the annual Programme and Budget of the OPCW. In addition, voluntary contributions were received from States Parties for specific events.

11. OVERSIGHT BY THE CONFERENCE OF THE STATES PARTIES AND THE EXECUTIVE COUNCIL

- 11.1 In accordance with decision C-16/DEC.10, the Secretariat reports to the Conference at each annual session on the progress made in implementing the decision and the status of implementation of Article XI, in order for the Conference to consider and take appropriate measures, if necessary, to further promote its full implementation.
- 11.2 During the 109th Session of the Council (8 to 11 July 2025), the Secretariat circulated a presentation to update the Council on the programme of activities related to the implementation of Article XI.

Annex 1

CONFERENCES SUPPORTED UNDER THE CONFERENCE SUPPORT PROGRAMME 26 AUGUST 2024 – 25 AUGUST 2025

No.	Conference Title	Location	Duration	State Party of Sponsored Participants	No. of Sponsored Participants
1.	XIX Chemometrics in Analytical Chemistry (XIXCAC-2024)	Santa Fe, Argentina	9 – 12 Sep 2024	Spain	1
2.	Conference Support Programme: Dioxin 2024 – 44th International Symposium on Halogenated Persistent Organic Pollutants	Singapore	29 Sep – 4 Oct 2024	India Viet Nam	2
3.	5th Latin American Symposium on Biocatalysis and Biotransformations	Montevideo, Uruguay	4 – 7 Nov 2024	Argentina (2) Brazil (2)	4
4.	22nd Scientific Congress of the Asia Pacific Association of Medical Toxicology	Penang, Malaysia	11 – 14 Nov 2024	India Iran (Islamic Republic of) (2) Italy State of Palestine	5
5.	Conference Support Programme: 6th Annual Days of Chemistry of Senegal and 9th FASC Congress (FASC JACS 2024)	Dakar, Senegal	19 – 21 Nov 2024	Burkina Faso Cameroon Morocco Nigeria United Republic of Tanzania Tunisia (2)	7
6.	CIBION course: Drug Discovery Mission	Buenos Aires, Argentina	16 – 21 Feb 2025	-	Publication only
7.	10th Annual Symposium of ACS Nigeria: Advancing Sustainability through AI-Driven Chemistry	Abuja, Nigeria	4 – 7 May 2025	-	Publication only
8.	61st Quantum Crystallography Course	Erice, Italy	30 May – 7 Jun 2025	Brazil Colombia India	3
9.	48th Annual Meeting of the Brazilian Chemical Society	Sao Paulo, Brazil	8 – 11 Jun 2025	Bangladesh	1

No.	Conference Title	Location	Duration	State Party of Sponsored Participants	No. of Sponsored Participants
10.	Summer school: state-of- the-art wastewater treatment in closed loop cycles	Wrocław, Poland	30 Jun – 4 Jul 2025	Malaysia Tunisia	2
11.	XVII International Postgraduate Summer School on Green Chemistry (GCSS 2025)	Venice, Italy	7 – 11 Jul 2025	Face-to-face (7): Argentina China Colombia Ghana India Morocco Uzbekistan Online (15): India (3) Indonesia Malaysia Morocco Nigeria (6) Pakistan Philippines South Africa	22
12.	Virtual Conference on Chemistry and its Applications (VCCA- 2025) – Empowering Interdisciplinary Research to Unlock Innovative Solutions	Mauritius (online)	11 – 15 Aug 2025	Africa region (list to be communicated at a later stage)	30

Annex 2
PROJECTS CONDUCTED UNDER THE FELLOWSHIP PROGRAMME

No.	Title of Project	Location of Fellowship	Duration	State Party of Fellow
1.	Fellowship for Mass Spectrometry Specialist	VERIFIN, University of Helsinki, Finland	13 Jan – 11 Jul 2025	Colombia
2.	Fellowship for Organic Synthesis	VERIFIN, University of Helsinki, Finland	17 Feb – 17 Aug 2025	Brazil
3.	Organoclay and organohydroxyapatite-carbon nanotubes nanocomposites as electrode modifiers for the electrochemical detection of some drugs in pharmaceuticals as well as in hospital and slaughterhouse waste waters	CNRS ³ , LCPME, ⁴ University of Lorraine, France	26 Feb – 25 Aug 2024	Cameroon
4.	Biomedical applications of undoped and copper-doped cobalt ferrite	Physics Department, University of Pavia, Italy	3 Apr – 30 Sep 2024	Cameroon
5.	Late-Stage Functionalization of Amino Acids and Peptides	Institut de Chimie des Substances Naturelles, CNRS, Gif-sur-Yvette Cedex, France	31 Mar – 27 Jun 2025	Colombia
6.	NHC-Gold catalayzed cycloisomerization of amino acid derivatives: A novel approach to nitrogen-containing heterocycles	University of Ghent, Campus Sterre, Ghent, Belgium	1 Apr – 29 Jun 2025	Argentina
7.	Discovery of novel compounds from marine and desert microorganisms with activity against neglected diseases	University of Aberdeen, Scotland, United Kingdom of Great Britain and Northern Ireland	1 Apr – 29 Sep 2025	Cameroon

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³ CNRS = National Centre for Scientific Research (Centre national de la recherche scientifique).

LCPME = Laboratory of Physical Chemistry and Microbiology for Materials and the Environment.

No.	Title of Project	Location of Fellowship	Duration	State Party of Fellow
8.	Polyphosphoester prodrug formulation of natural products with anticancer activity	University College London, School of Pharmacy, London, United Kingdom of Great Britain and	30 Jun – 29 Sep 2025	Sri Lanka
		Northern Ireland		
9.	Assessment of selected pharmaceuticals and personal care products in Lake Victoria, Uganda, and the whole of East Africa	Slovak University of Technology, Bratislava, Slovakia	30 Jun – 26 Sep 2025	Uganda
10.	Phytochemical studies of Pterocarpus mildbraedii and Buchholzia coriacea leaves and evaluation of their bioactivity	University of Botswana, Gaborone, Botswana	1 Jul – 27 Sep 2025	Nigeria

Annex 3 RESEARCH PROJECTS FUNDED BY THE OPCW

26 AUGUST 2024 – 25 AUGUST 2025

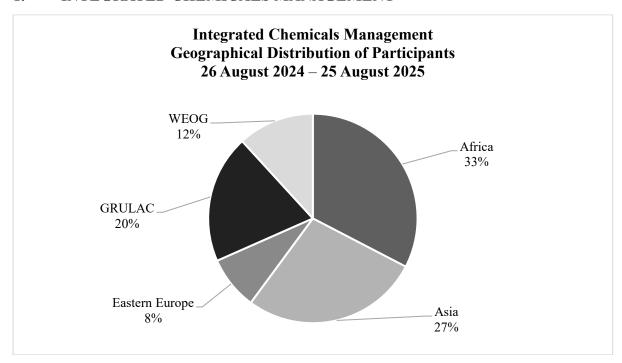
No.	Title	State Party of Researcher	Status
1.	Development and validation of LC-Qtof (MS/MS) qualitative method for ricin analysis	Algeria	Ongoing
2.	Phenotyping and genotyping of cytochrome P450 isoenzyme 2D6 (CYP2D6) in Algerian adults treated with risperidone	Algeria	Ongoing
3.	Hybrid bio-nanomaterials: tools for the development of highly sensitive analytical methods applied to the determination of toxic elements in baby food	Argentina	Ongoing
4.	Development of polymer-based nanostructured sensors for detection of hydrogen sulphide (H2S)	Brazil	Ongoing
5.	Synthesis and evaluation of small molecules as potential medical countermeasures towards classical and new nerve agents and biological agents	Brazil	Ongoing
6.	Chemistry beyond chlorine: dialkyl carbonates for biomass upgrading and synthesis of heterocycles	Italy	Ongoing
7.	Application of miniaturised sensors and sampler to remotely controlled mini aerial vehicles (payload less than 25 kg), a new pathway for the survey of critical areas	Italy	Ongoing
8.	Design and fabrication of chemo-sensor for food-borne mycotoxins as potential chemical warfare agents	Kenya	Ongoing
9.	Mesoporous silica nanoparticles extracted from oil palm fronds for the development of magnetic solid phase extraction method for efficient separation of organochlorine pesticides in water samples	Malaysia	Ongoing
10.	Development and validation of electromembrane extraction with a new conductive polymer inclusion membrane sampling probe for simultaneous determination of cationic and anionic pesticides in environmental waters	Malaysia	Ongoing
11.	Investigation on the use of fabricated metals impregnated on pectin biopolymeric material as sustainable absorbents in solid phase extraction for pre-concentration of mycotoxins in cassava product samples	Malaysia	Ongoing

No.	Title	State Party of Researcher	Status
12.	Green synthesis of silver doped zinc oxide nanoparticles	Malaysia	Ongoing
	using aqueous leaves extract incorporated with		
	activated carbon from oil palm kernel shell (Ag-ZnO-		
	NPs/AC) and its mechanistic study towards		
	photodegradation of organochlorine pesticide (OCPs) in water samples		
13.	Determination of trace level chemical warfare	Malaysia	Ongoing
	agents in water with an effervescent tablet based		
	on carboxylated graphene nanoplatelet:		
	preconcentration, method development and		
1.4	computational elucidation	N/ 1 '	
14.	Adsorption and detection of model compounds	Malaysia	Ongoing
	analogous to chemical warfare agents by metal-organic framework CAU-1		
15.	Green-route synthesis of metal-organic framework	Nigeria	Ongoing
	adsorbents using terephthalic acid recovered from		
	plastic wastes for remediation of heavy metals,		
	pesticides and pharmaceuticals and personal care		
	products (PPCPs) from contaminated water		
16.	Arsenic removal from the Baltic Sea on modified 3D	Poland	Ongoing
	printed structure		
17.	Biomass valorization to enhance efficiency of toxic	Poland	Ongoing
1.0	metals bioremediation from military and industry areas	0.1:	
18.	Diagnosis of schizophrenia and bipolar disorder by	Serbia	Ongoing
10	NMR-based metabolomics and lipidomics	Serbia	0
19.	Detection of herbs and dietary supplements fraud using metabolomics approach	Serbia	Ongoing
20.	Metabolomic fingerprints of schizophrenia and bipolar	Serbia	Ongoing
20.	disorder	Seroia	Oligoling
21.	Monitoring the distribution of emerging micropollutants	South Africa	Ongoing
	in food crops irrigated with reclaimed water		
22.	Turning industrial waste into value-added chemical	Uruguay	Ongoing
22	products	G: T 1	0
23.	Assessment of the chemical impact for the marine	Sri Lanka	Ongoing
	environment in western coastal line in Sri Lanka: the		
	post impact of the X-press Pearl shipwreck at the west		
	coast		

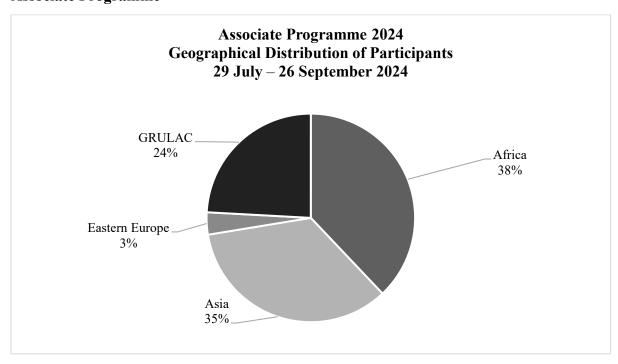
Annex 4

EVALUATION OF INTERNATIONAL COOPERATION PROGRAMMES

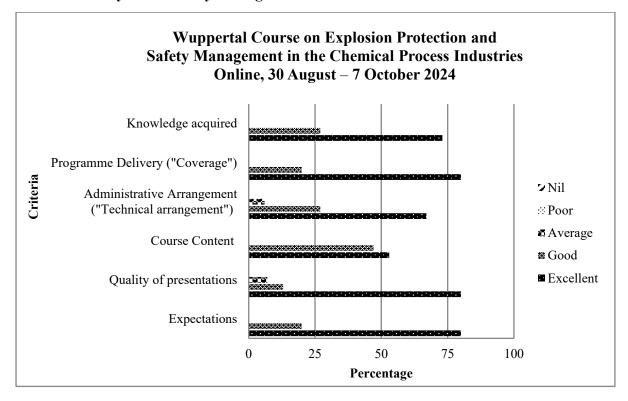
1. INTEGRATED CHEMICALS MANAGEMENT

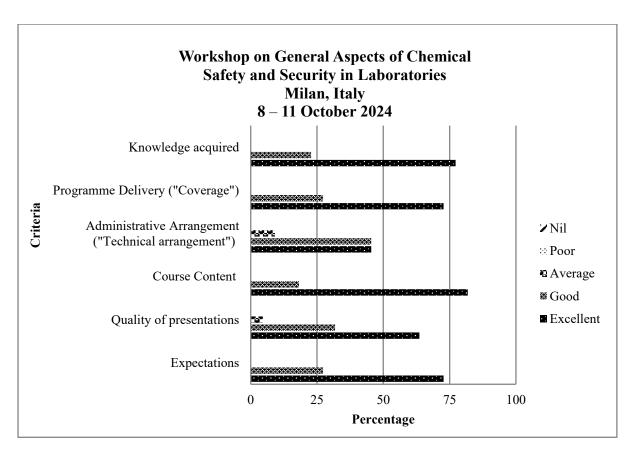


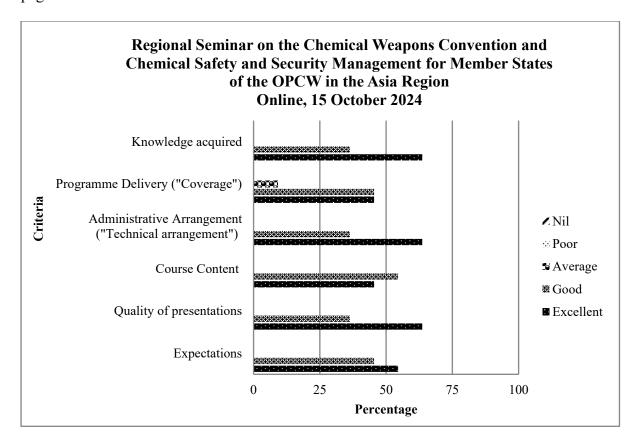
Associate Programme

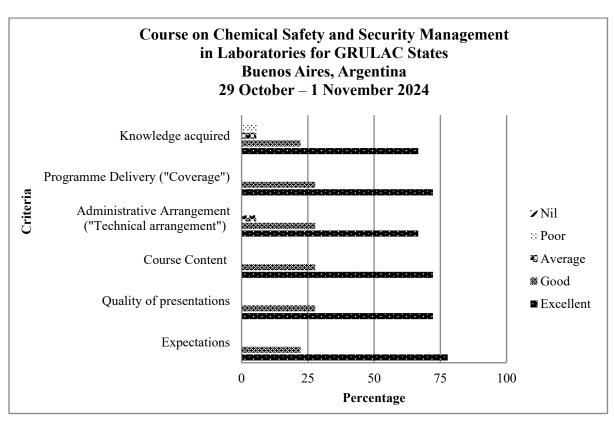


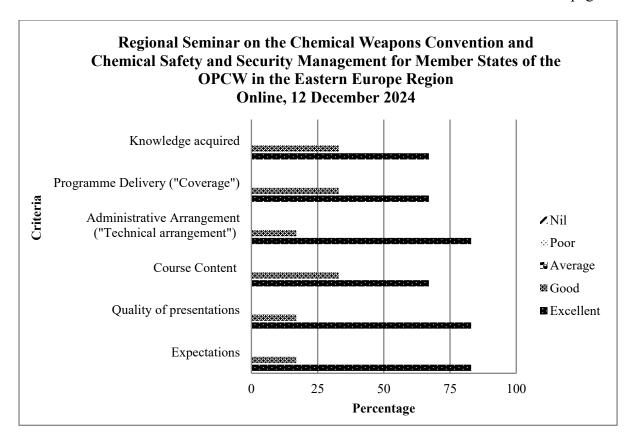
Chemical safety and security management

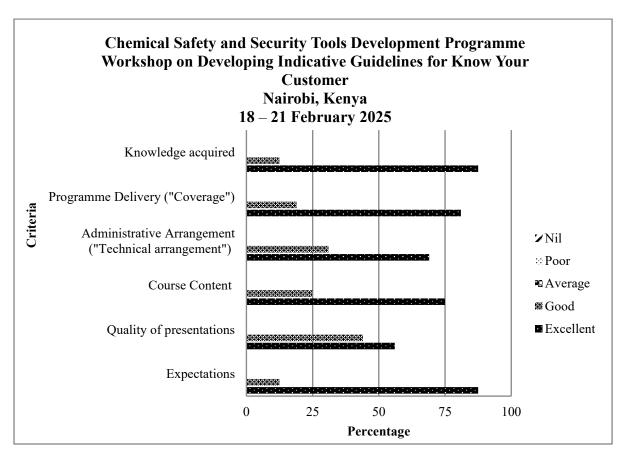


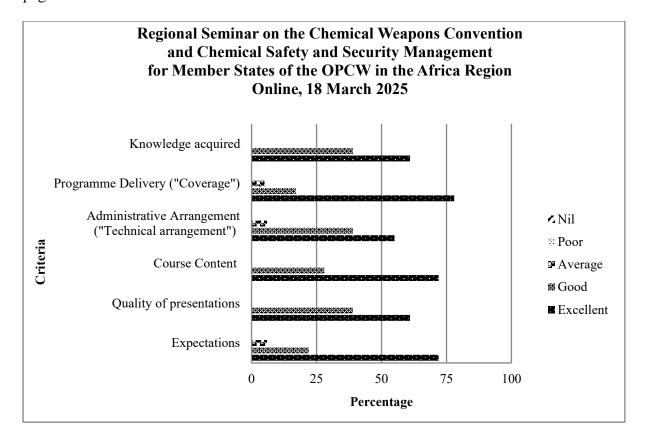


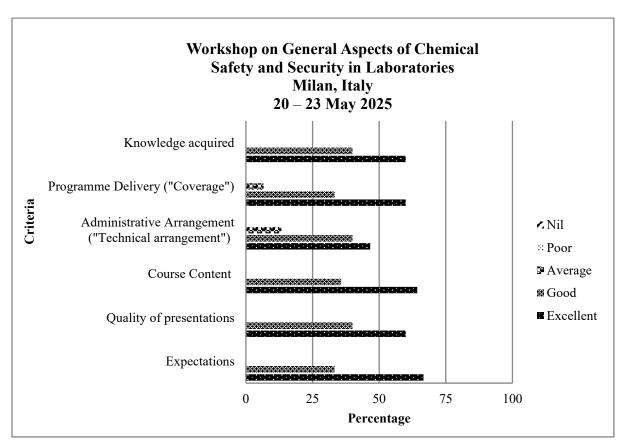


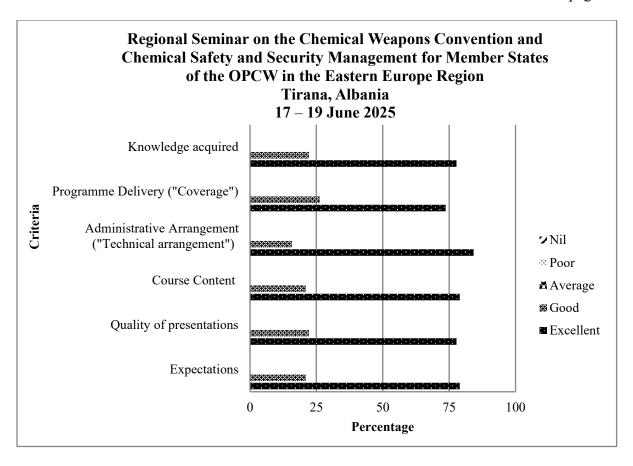






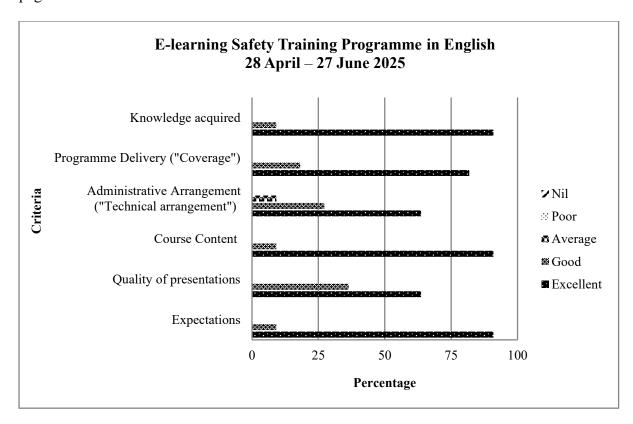


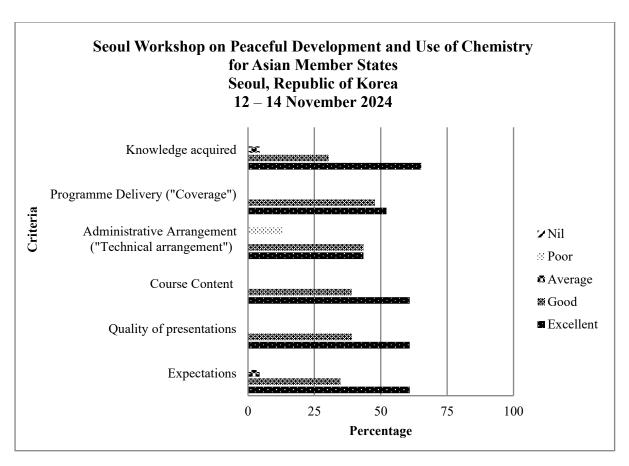


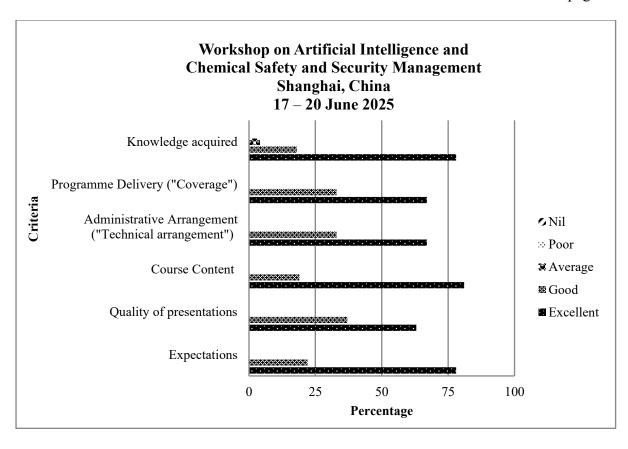


Other activities within the integrated chemicals management category

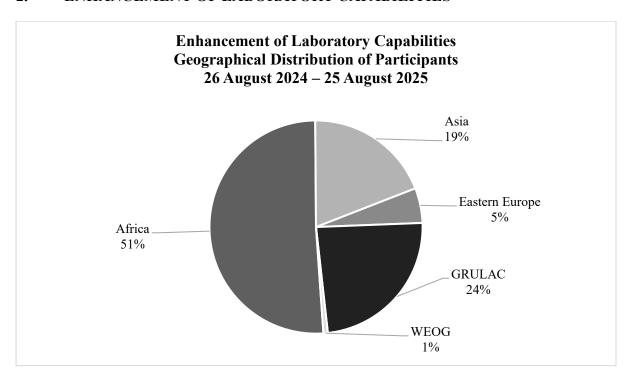




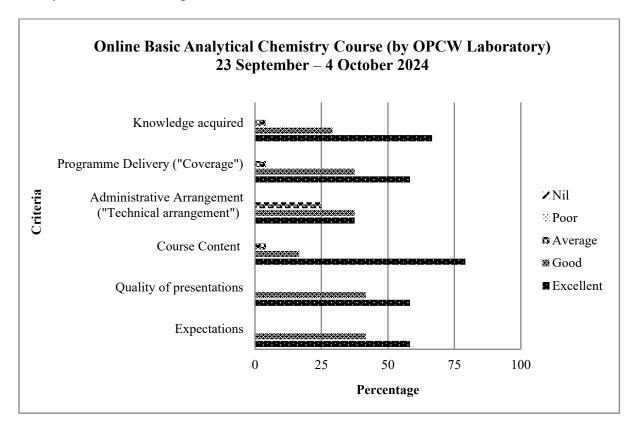


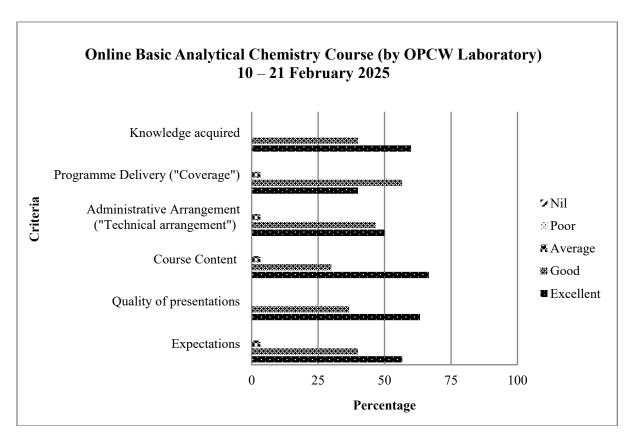


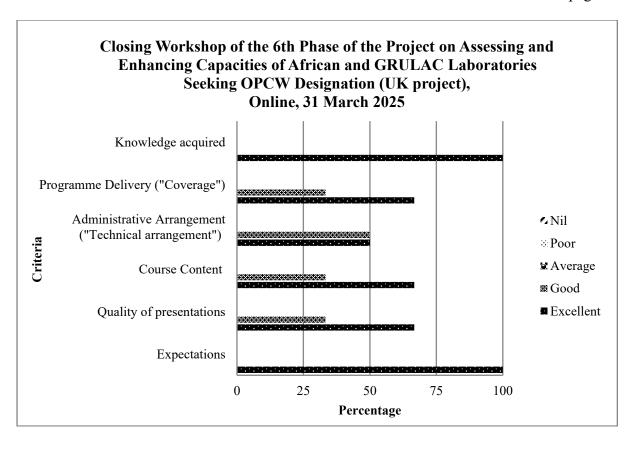
2. ENHANCEMENT OF LABORATORY CAPABILITIES

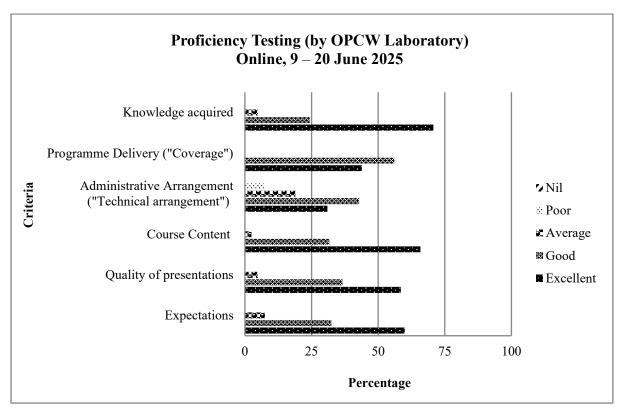


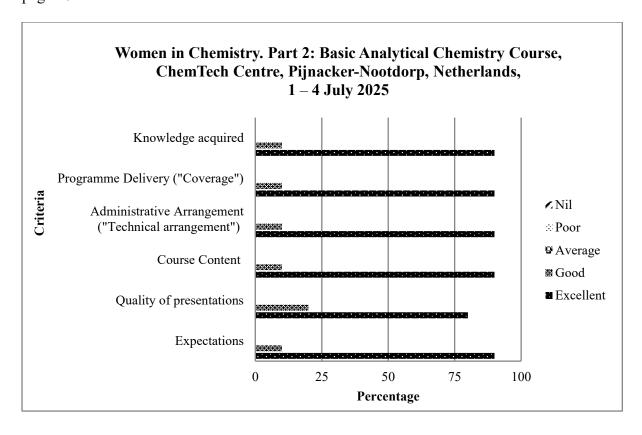
Analytical Skills Development Course



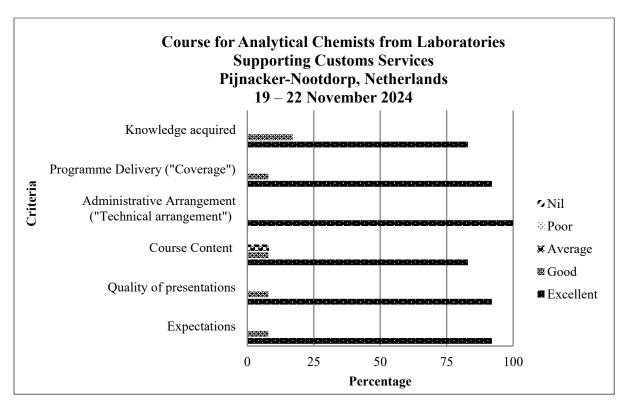


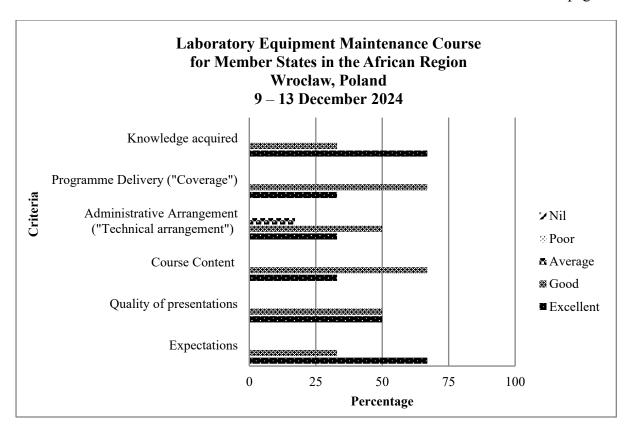




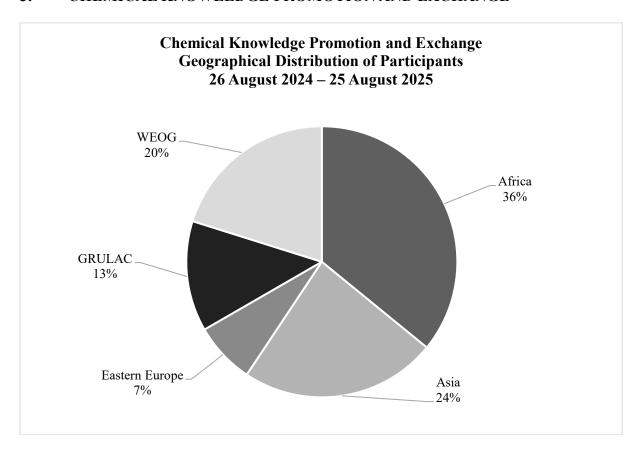


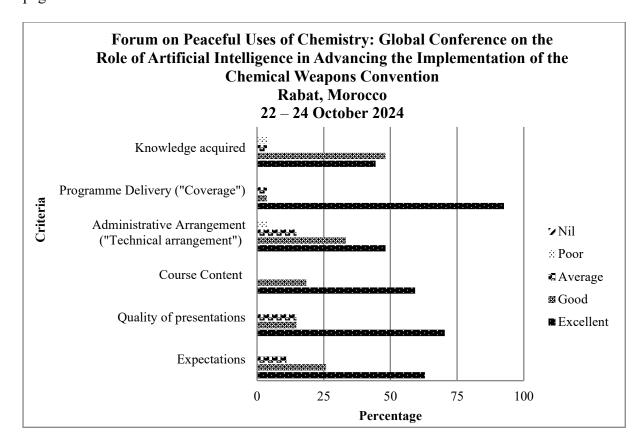
Other activities within the enhancement of laboratory capabilities category

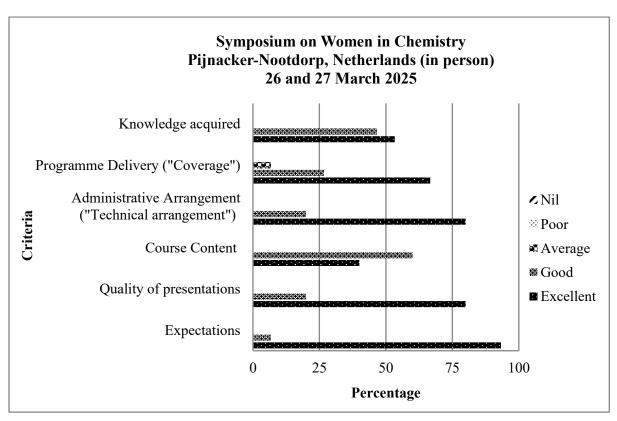


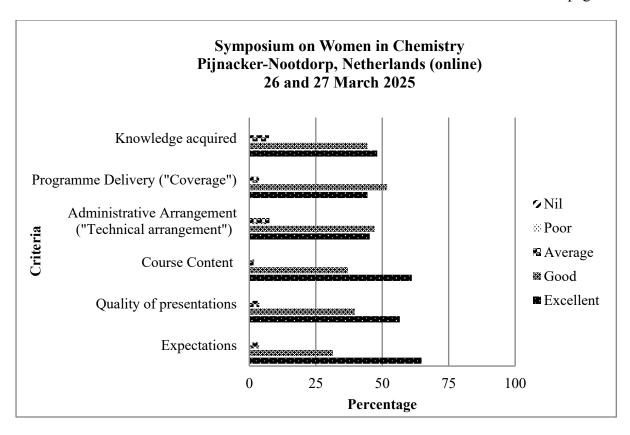


3. CHEMICAL KNOWLEDGE PROMOTION AND EXCHANGE

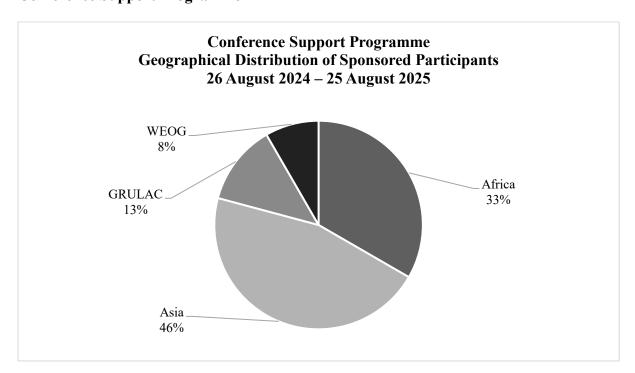




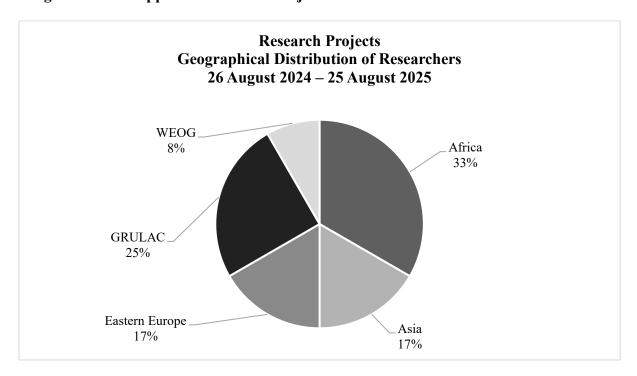




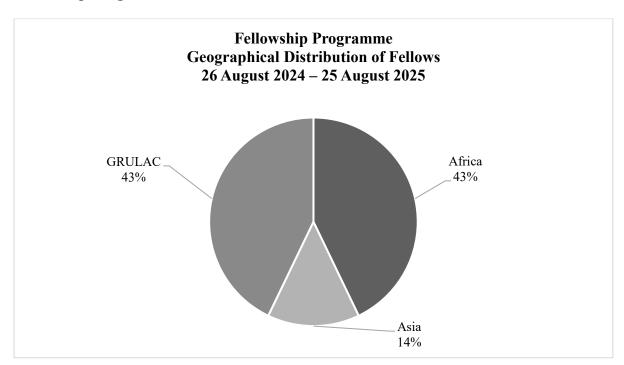
Conference Support Programme



Programme for Support of Research Projects



Fellowship Programme



Annex 5

IMPACT ASSESSMENT OF INTERNATIONAL COOPERATION PROGRAMMES

- CHEMICAL SAFETY AND SECURITY MANAGEMENT PROGRAMME
(2022–2024)

