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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

INTRODUCTION

1. The Conference of the States Parties (hereinafter "the Conference") at its Sixteenth Session adopted a decision regarding components of an agreed framework for the full implementation of Article XI of the Chemical Weapons Convention (hereinafter "the Convention") (C-16/DEC.10, dated 1 December 2011), and requested the Technical Secretariat (hereinafter "the Secretariat") to report to the Conference at each annual 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, the relevant period of review being from 27 August 2014 to 26 August 2015.

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, non-governmental organisations (NGOs), and regional and international institutions;

   (c) enhancing the effectiveness of 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.

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

3. During the reporting period, the OPCW implemented Article XI of the Convention through various programmes and activities that were identified in the decision. The

programmes were implemented taking into account the needs and priorities of the Member States, with resources provided from the regular budget as well as voluntary contributions, both financial and in-kind.

4. In accordance with the results-based approach that the Secretariat adopted during the reporting period, the effectiveness of these programmes was assessed according to whether skills and capabilities were enhanced in the five focal areas relating to the peaceful application of chemistry: integrated chemicals management, chemical knowledge and the exchange of information, enhancement of laboratory capabilities, the Laboratory Assistance Programme, and outreach to industry. The assessment was based on feedback from the participants and the Member States.

National capacity-building for the research, development, storage, production, and safe use of chemicals for purposes not prohibited under the Convention

5. 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, such as the Associate Programme, analytical skills development courses, natural products chemistry courses, the Industry Outreach Programme, and border control and customs courses.

Associate Programme

6. 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 in areas relating to chemistry for peaceful purposes—in particular in developing countries and countries with economies in transition.

7. The programme facilitates capacity-building of States Parties by imparting to qualified chemists and chemical engineers the skills and exposure to modern chemical practices required to operate effectively and safely in a modern chemical industry environment. 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 the responsibility for implementation in the National Authorities and other relevant institutions. The programme also facilitates the trade of chemicals by disseminating the best practices in this field. To date, 16 editions of the Associate Programme have been attended by a total of 392 qualified personnel from 116 Member States.

8. The Associate Programme also supports the Responsible Care® initiative. Additional modules to promote chemical safety and security have been added to the training programme to enhance knowledge about modern practices relating to chemical safety and security, while at the same time generating greater awareness about the peaceful uses of chemistry.

9. On account of the continued interest demonstrated in the programme, the intake was increased to 32 participants starting from the 2012 edition.

10. The fifteenth edition of the Associate Programme was conducted from 31 July to 3 October 2014, with 32 participants from the following Member States: Afghanistan, Argentina, Armenia, the Bahamas, Bangladesh, Bhutan, Brazil, Burkina Faso, Cameroon, China, the Congo, El Salvador, Ethiopia, the Gambia, India, Jamaica, Jordan, Kazakhstan, Kenya, Lebanon, Malaysia, Mauritius, Nigeria, Pakistan, Paraguay, Peru, Poland, Senegal, South Africa, Sri Lanka, Tunisia, and Zimbabwe. The Secretariat's outreach efforts have led to six Member States participating in the programme for the first time, namely Afghanistan, Bhutan, China, Kazakhstan, Lebanon, and Poland. In addition, in accordance with the objectives of the Programme to Strengthen Cooperation with Africa on the Chemical Weapons Convention (hereinafter "the Africa Programme"), 12 participants came from African Member States. In terms of the support received, the following Member States offered industrial attachments for this edition of the programme: Croatia, Denmark, India, Italy, Japan, Malaysia, the Netherlands, Poland, Qatar, Singapore, and Spain.

11. As part of the Associate Programme, participants undertook a three-week university module organised by the University of Surrey in the United Kingdom of Great Britain and Northern Ireland. In addition, they undertook three-week industrial attachments in 16 modern chemical plants located in 11 States Parties. During the university module, the participants benefited from an intensive skills development course in chemical engineering and upgraded their knowledge in terms of the national implementation of the Convention and hands-on experience at a pilot plant. During the industrial attachment, participants received training in relation to various industrial operations and gained exposure to working environments in the chemical industry.

12. The following companies, with the support of the National Authorities of their respective countries, offered industrial attachments: "Petrokemija Plc" (Croatia), "DuPont" (Denmark), "Gujarat State Fertilisers Chemical Co. Ltd (GSFC)" (India), "Zschimmer & Schwarz Italiana S.p.A." (Italy), "Asahi Glass Co. Ltd." and "Showa Denko K.K." (Japan), "Idemitsu SM (Malaysia) Sdn Bhd" and "PETRONAS Chemical Derivatives Sdn Bhd" (Malaysia), "Croda Industrial Specialities Europe" (the Netherlands), "Grupa Azoty" (Poland), "Qatar Petroleum" (Qatar), "MSD International GmbH" (Singapore), and "Ercros S.A." (Spain). Japan continued to provide in-kind contributions for industry attachments at Japanese companies.

13. The programme also benefited from the continuous support of the World Customs Organization (WCO), the European Chemical Industry Council (CEFIC) under its Responsible Care® initiative, the European Chemicals Agency (ECHA), the European Association of Chemical Distributors (Fecc), the Dutch customs authorities (Douane), the Port of Rotterdam, the Rotterdam Investment Agency, and the Technical University of Delft (TU Delft).

14. Feedback received from the participants indicated their high appreciation of the training, which considerably upgraded their knowledge, technical skills, and experience in terms of chemistry and chemical and process engineering, with a focus on chemical safety management. Also, the training increased the participants' knowledge of the Convention and of the mission and the role of the OPCW. Following the completion of the programme, participants serve as resource persons to

their National Authorities and offer valuable support with respect to the implementation of the Convention at the national and regional levels.

15. The Alumni Association of the Associate Programme, established in 2012 and using a Facebook group page, continued to provide a highly interactive forum bringing together previous participants and allowing for sharing views, scientific information, and experiences in the field of chemistry. In addition, the association continued to constitute a reliable channel to receive the feedback of the members regarding the programme so as to ensure its continuous upgrade and to assess its impact over the years. The association also offers the opportunity of professional networking as participants can get together for joint projects and help each other with other professional opportunities.

16. Two annual virtual meetings of the Alumni Association were successfully conducted in 2013 and 2014 using the web-based platform. The first virtual meeting was conducted from 14 to 22 December 2013 on the theme "The OPCW Associate Programme: Lessons Learned and Way Forward". The second meeting was conducted from 8 to 16 November 2014 on the theme "The OPCW Associate Programme: Addressing Future Challenges". In addition to the insightful analysis and rich exchange of opinions between the participants, the meeting generated recommendations summing up the various views on how to further develop the programme and meet its current challenges, including ensuring a deeper impact of the programme at the national level and ensuring that the content of the training curriculum is kept up to date.

17. The sixteenth edition of the Associate Programme was scheduled to be held from 23 July to 2 October 2015, with 32 participants from the following Member States: Algeria, Argentina, Brazil, Burkina Faso, Burundi, Cameroon, China, Colombia, Cuba, Ethiopia, Ghana, Hungary, India, Jordan, Kenya, Lesotho, Malawi, Nigeria, Pakistan, Paraguay, Philippines, Poland, Saudi Arabia, Spain, Sri Lanka, the Sudan, Tunisia, Uganda, the United Republic of Tanzania, and Zimbabwe. The Secretariat's outreach efforts have led to two Member States participating in the programme for the first time, namely Hungary and Saudi Arabia. The following Member States offered industrial attachments for this edition of the programme: Brazil, Croatia, Denmark, India, Germany, Italy, Japan, Malaysia, the Netherlands, Poland, Saudi Arabia, Spain, and Sri Lanka. It is noteworthy that this was the first time that industry attachments were conducted in Sri Lanka and Brazil. It is a matter of great satisfaction to see the programme expanding to these countries and, for the first time, conducted in the GRULAC[1] region.

18. Another addition to the programme in 2015 is the new segment on chemical safety and security, which was set up following a needs assessment conducted at the end of the 2014 edition of the programme. The new segment is established in cooperation with the Association of the Dutch Chemical Industry (VNCI) and TU Delft and includes lectures, with a focus on case studies. The module is delivered by TU Delft and precedes the industry segment, so that during attachments participants can see the practical implementation of the training received during this new segment.

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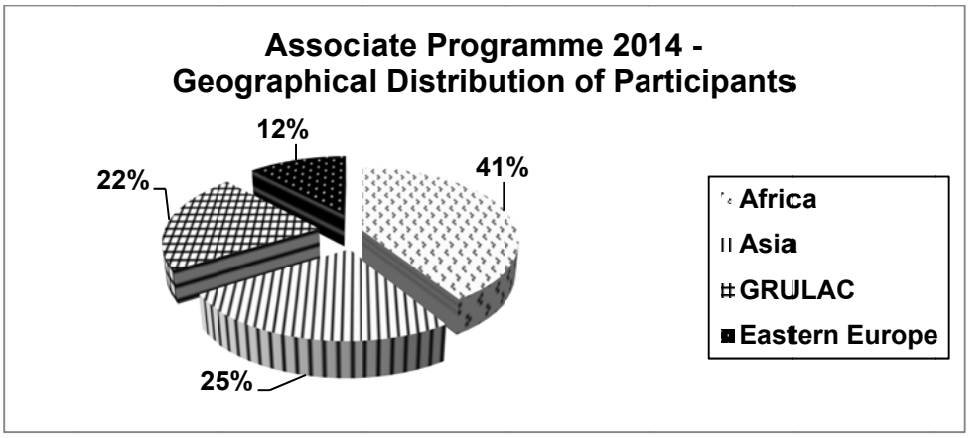
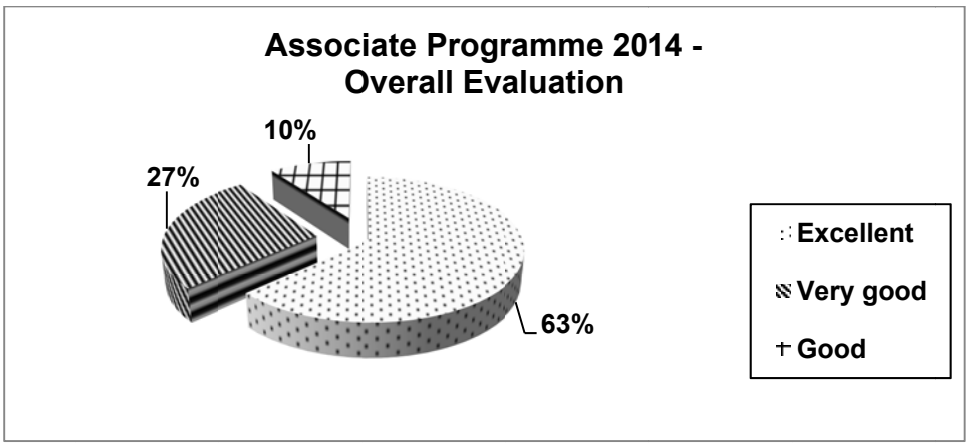
[1] GRULAC = Group of Latin American and Caribbean States.





Enhancement of laboratory capabilities

19. Analytical skills development courses are held as part of enhancement of laboratory capabilities. They are two-week courses aimed at assisting qualified analytical chemists in acquiring further experience and practical skills in the analysis of chemicals related to the Convention. Additionally, these courses serve to:

(a) enhance national capacity in analytical chemistry for personnel from industry, academic institutions, and government laboratories in the States Parties sending participants;

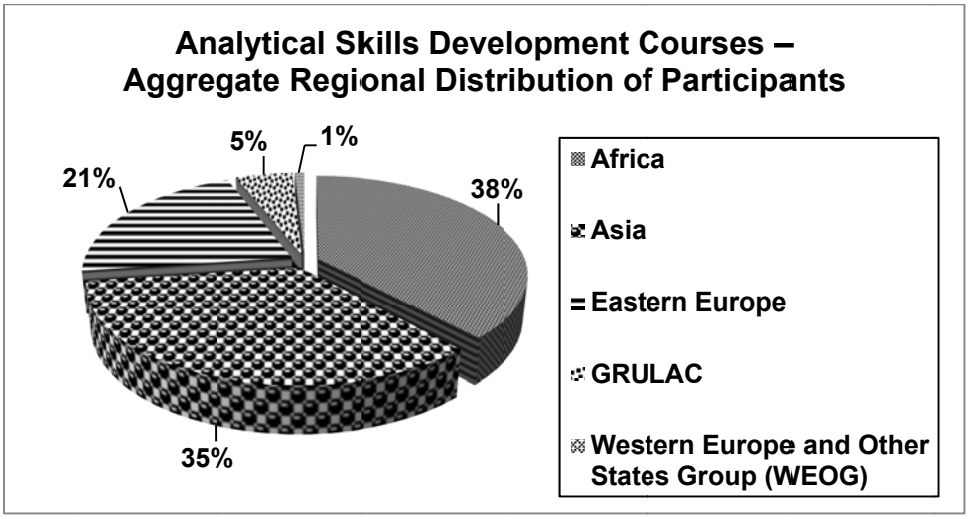
(b) facilitate the adoption of good laboratory practices supporting national implementation of the Convention, trade, and economic development; and

(c) broaden the pool of human resources from which National Authorities and the Secretariat can draw in the future.

20. The first week focuses on basic training and on providing hands-on experience in gas chromatography (GC) and gas chromatography-mass spectrometry (GC-MS). In the second week, participants receive training in the preparation of environmental samples and on the analysis of such samples for chemicals related to the Convention. Participants are also introduced to a range of extraction, clean-up, and derivatisation procedures, as well as maintenance, including troubleshooting.

21. The courses for the enhancement of laboratory skills focus on either building skills in using specific techniques such as liquid chromatography-mass spectrometry (LC-MS) to analyse chemicals related to the Convention or in improving quality and proficiency of laboratory work through sound management practices. These are two-week courses, for a maximum of four participants each, who have previous practical experience of LC, GC, or MS technologies. Participants are introduced to the preparation of samples and are then given demonstrations and practical exercises in these techniques. The courses also cover theoretical aspects of LC/GC and LC-MS/GC-MS, or nuclear magnetic resonance (NMR), quality assurance, and instrument maintenance.

22. During the review period, analytical chemistry courses were organised. These included one analytical skills development course and two laboratory skills enhancement courses at the Finnish Institute for Verification of the Chemical Weapons Convention (VERIFIN) in Helsinki, Finland; an analytical skills development course at the Swedish Defence Research Agency (FOI) in Umeå, Sweden; an analytical chemistry course at Protechnik Laboratories in Pretoria, South Africa; a laboratory training course for the Middle East region at Ben Hayyan Aqaba International Laboratories in Aqaba, Jordan; a course in Warsaw, Poland for analytical chemists from laboratories supporting customs services; and an advanced analytical course in Madrid, Spain for Spanish-speaking personnel from the GRULAC region.

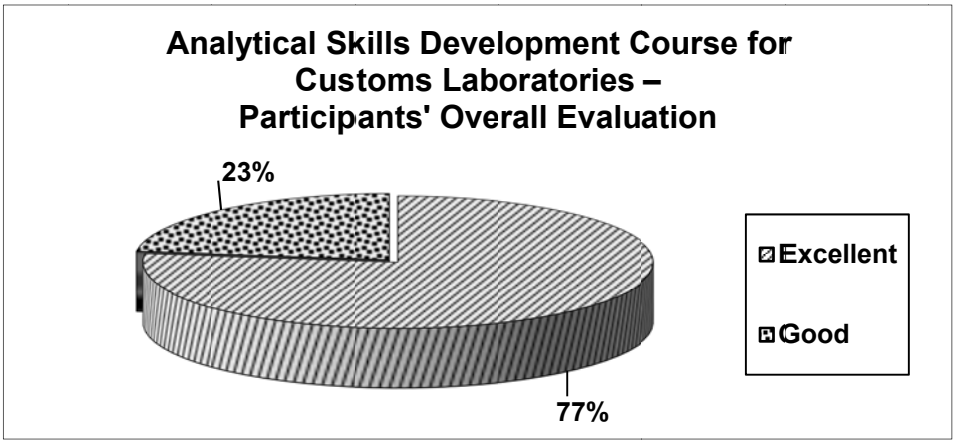


23. A course on laboratory quality management was held from 8 to 19 September 2014 at VERIFIN and hosted five participants from Brazil, Costa Rica, Jamaica, Nepal, and Zimbabwe. The laboratory skills enhancement course on using quantitative MS was held from 22 September to 3 October 2014 at VERIFIN and hosted eight participants from Costa Rica, Ethiopia, India, Kenya, Malaysia, the Philippines, Tunisia, and Uruguay. During the course, the quality standards for testing laboratories (general requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:2005) were studied by participants in detail through lectures and practical exercises. The teaching programme was tailored for each participant's institute.

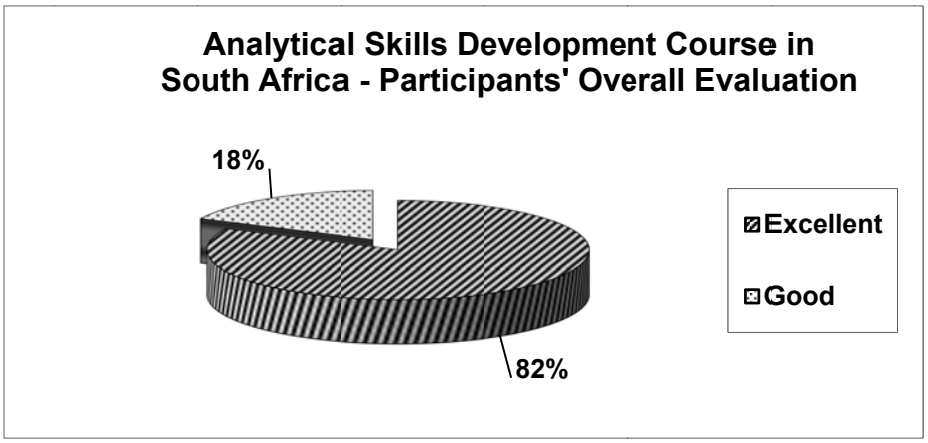
24. In cooperation with the Government of Jordan, the Secretariat organised the third laboratory training course for the Middle East region from 19 to 30 October 2014 at the Ben Hayyan Aqaba International Laboratories in Aqaba, Jordan. Thirteen practising chemists from eight Member States (Afghanistan, Bahrain, Iraq, Jordan, Saudi Arabia, the Sudan, Oman, and Yemen) were trained. The course offered the participants sound working knowledge of the principles, procedures, and applications of GC and GC-MS for the analysis of chemicals related to the Convention.

25. An analytical skills development course took place at VERIFIN from 7 to 21 November 2014 and hosted 20 participants from the following countries: Armenia, Belarus, Botswana, Burkina Faso, Burundi, Djibouti, Hungary, Jordan, Kenya (2), Lesotho, Malaysia (2), Nepal, Romania, Swaziland, Turkey, Ukraine, Uruguay, and Viet Nam. Participants found the course to be very valuable, as it contributed greatly to their skills and, consequently, to the competence of their institutions. Interactions and discussions with instructors afforded the participants opportunities to not only improve their technical skills, but also to resolve individual problems experienced in their specific work situations.

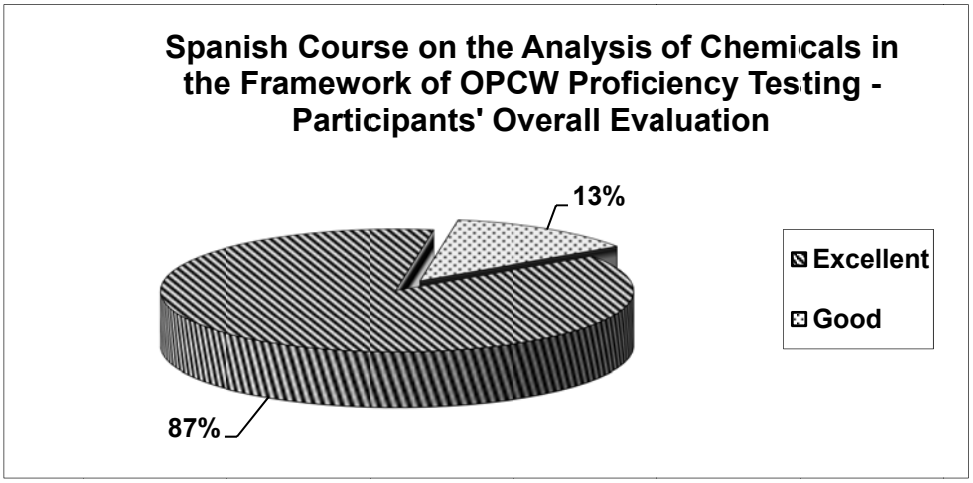
26. The Secretariat organised a regional course for analytical chemists from laboratories supporting customs services, which took place from 13 to 17 April 2015 at the Institute of Industrial Organic Chemistry (IPO) in Warsaw, Poland. The course accommodated a total of 13 participants from the following countries: Algeria, Burundi, China, Costa Rica, India, Kenya, Malaysia, Nigeria, Paraguay, Serbia, the Sudan, Tunisia, and the United Arab Emirates. The training programme was designed to enhance the knowledge of qualified analytical chemists and scientists of the role of customs service laboratories in the implementation of Article XI of the Convention, and to promote chemical safety in such laboratories. The training received very positive feedback from the participants, who expect to apply the knowledge and experience gained from this course in their respective work.



27. Under the Africa Programme and in collaboration with Protechnik Laboratories, the Secretariat held an analytical chemistry course from 4 to 15 May 2015 in Pretoria, South Africa. Sponsorship was provided for 23 participants from 16 countries in the Africa region, namely: Botswana, Burkina Faso, Burundi, Cameroon, Ethiopia, Ghana, Kenya, Malawi, Mauritius, Morocco, South Africa, the Sudan, Tunisia, Uganda, Zambia, and Zimbabwe. In addition to the above participants who completed the course, a number of local participants were also trained.



28. As a result of the high demand for training in advanced analytical techniques from Spanish-speaking personnel from laboratories in the GRULAC region, the Secretariat, with the active support of the National Authority of Spain, organised the fifth edition of the "Course on the Analysis of Chemicals related to the Chemical Weapons Convention in the Framework of OPCW Proficiency Testing" at the Laboratorio de Verificación para las Armas Químicas (LAVEMA), Instituto Tecnológico La Marañosa, in Madrid, Spain, from 18 to 29 May 2015. The course accommodated 16 participants from 14 countries in the GRULAC region—Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, Peru, and Uruguay—and one participant from Spain. The course is intended both for laboratories that are active or plan to become active in the analysis of chemicals related to the Convention, and for those that are participating or intend to participate in OPCW proficiency testing.



29. An analytical skills development course was scheduled at the FOI in Sweden from 24 August to 4 September 2015 with 20 participants from the following countries: Argentina, Armenia, Bangladesh, Brazil, Burkina Faso, Chile, India, Indonesia, Jordan, Kenya, Malaysia, Myanmar, the Philippines, South Africa, Sri Lanka, Tunisia, Uganda, Ukraine, Zambia, and Zimbabwe.

30. The third edition of the analytical skills development course for French-speaking Member States of Africa is scheduled to be held from 26 October to 6 November 2015. The course will be conducted in French for 15 participants at the Tunisian National Institute for Physical and Chemical Research and Analysis (INRAP).

31. With a view to improving analytical skills development courses, suggestions received from participants as part of their feedback included extending course duration to allow for more in-depth training. One idea included increasing the time spent on synthesis, more specialist training on the equipment and more time spent on practical work with it. These suggestions are regularly considered and implemented as appropriate.

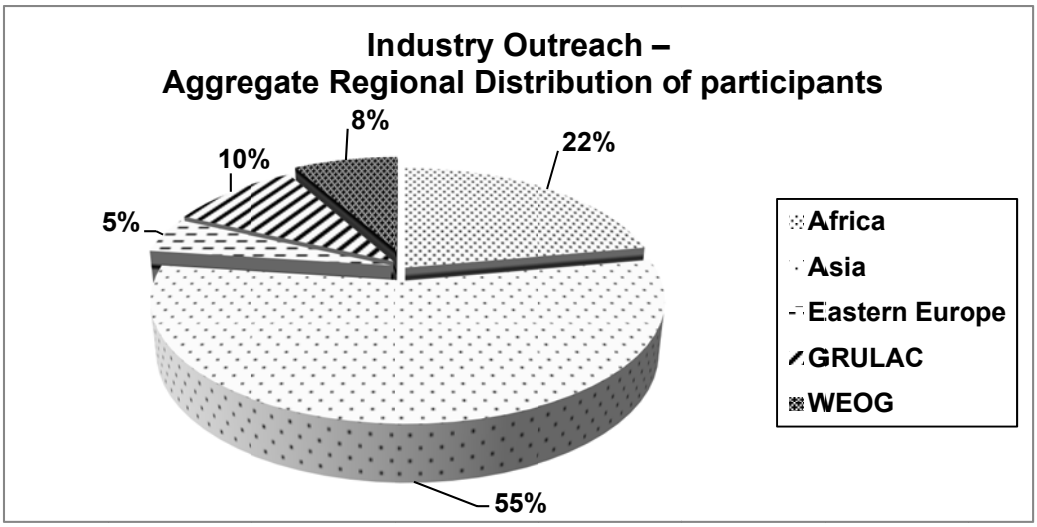
Natural products chemistry course

32. Taking into account the potential of natural products chemistry, a course on analysis of natural products and their processing to produce consumable products will be continued in the period from 2014 to 2016. The fourth edition of the course was conducted at the Institute of Bioproduct Development, Universiti Teknologi Malaysia from 12 to 28 October 2014 and hosted 16 participants from Bangladesh, India, Indonesia, Jordan, the Lao People's Democratic Republic, Malaysia, Maldives, Mongolia, Pakistan, Philippines, Sri Lanka, Uzbekistan, and Viet Nam. This training programme was designed to expose qualified chemists and scientists from Member States in Asia to science-based chemical research in natural products, with particular emphasis on adding value through the development of marketable products.

Industry Outreach Programme

33. Industry outreach is an international cooperation programme designed to focus on 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, transportation, and distribution of chemicals. Under this programme, seminars are held in order to meet the increasing need for specific training in safety and security with regard to the rapidly expanding and increasingly complex chemical industry. Through the seminars, OPCW Member States and their industries are provided with the tools and knowledge required to mitigate the risks arising from chemical industry accidents and the threat of terrorism, and with a platform for sharing experience. With this in mind, participants are familiarised with the new approaches that can be adopted in relation to the management of safety and security, focusing on small and medium-sized enterprises. By promoting and disseminating standardised and best practices in chemical safety, the seminars benefit chemical industry personnel involved in safety management issues, enhance the capacities of National Authorities and chemical industry associations in Member States, and indirectly benefit the general public.

34. The industry outreach activities that have taken place during the review period were generously supported through voluntary contributions from the Governments of Germany, Qatar, the Republic of Korea, and the United States of America, and from the European Union. Global, regional, and national events are planned to meet the expectations of the participating countries. This has given impetus to the promotion of chemical safety and security in participating Member States, especially in sharing experiences and best practices.



35. In cooperation with the National Authority of the Republic of Korea, the OPCW held the "Seoul Workshop on the Peaceful Development and use of Chemistry for Member States of the OPCW in the Asia Region", from 15 to 17 October 2014, in Seoul, the Republic of Korea. The workshop was attended by 21 participants from the following 10 Member States: Cambodia, India, Indonesia, Iran (Islamic Republic of), Iraq, Malaysia, Pakistan, Sri Lanka, Yemen, and Viet Nam, with a representative of Myanmar taking part as an observer.

36. Under the Africa Programme and the All African Nanoscience-Nanotechnology Initiative (AANNI), a workshop on nanoscience and nanotechnology, sponsored through a voluntary contribution from Norway, was conducted at the Department of Chemical Sciences of the University of the Western Cape, South Africa from 19 to 21 November 2014. Academics and researchers working in the field of nanoscience and nanotechnology participated.

37. The workshop offered an opportunity for participants to consider new approaches in chemical safety and security management. The participants also shared their experiences and discussed the approaches followed in their countries to ensure safe and secure handling of chemicals, resulting in an enhanced appreciation of the issues involved in chemical safety and security management. The objective of the workshop is to enhance the capacities of the National Authorities and chemical industry associations of the participants' countries to introduce these new approaches to their chemical industry and regulatory authorities.

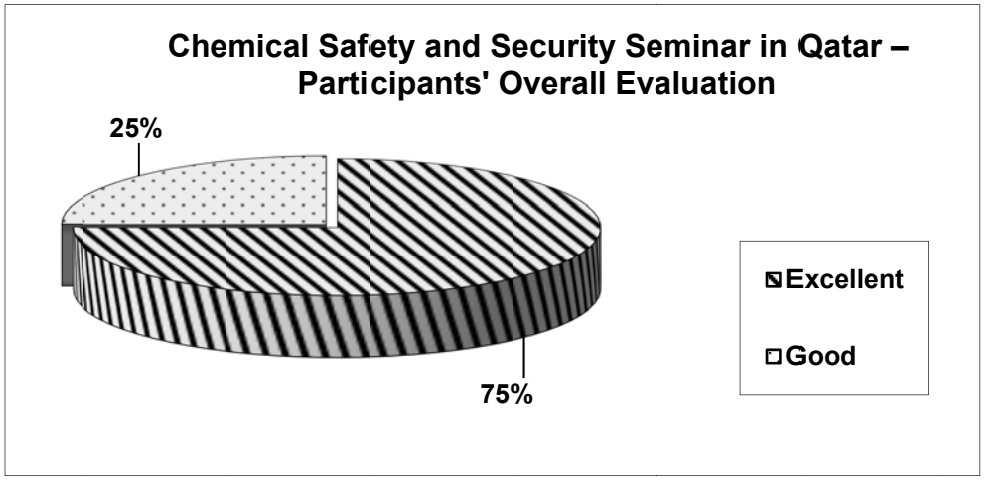
38. To enhance the awareness of chemical security aspects, the Secretariat, in cooperation with the Government of the United States of America, hosted a one-day "Symposium

on Bridging International Gaps in Chemical Security", which was held at OPCW Headquarters in The Hague on 26 November 2014. This event was organised a day before the Sixteenth Annual Meeting of National Authorities, and was attended by approximately 180 participants from 125 States Parties, one State not Party, and two partner organisations (the African Union Commission and the Caribbean Community Secretariat).

39. A workshop on chemical security and safety for the sustainable industrial development of Member States of the OPCW in the South Asian Association for Regional Cooperation (SAARC) was held in Colombo, Sri Lanka from 17 to 19 December 2014. The seminar was attended by 62 participants from seven Member States, namely Afghanistan, Bangladesh, India, Maldives, Nepal, Pakistan, and Sri Lanka.

40. The Secretariat also supported an international conference on chemical safety and security in Gandhinagar, Gujarat, India from 22 to 23 January 2015. The conference took place as part of the "Vibrant Gujarat Summit 2015" and resulted in a proposal to establish an international centre on chemical safety and security.

41. A seminar on the Convention and the management of chemical safety and security was organised under the auspices of the Doha Regional Centre for CBRN[2] Training, in cooperation with the National Authority of Qatar and funded through a voluntary contribution from the Government of Qatar. The seminar took place in Doha from 22 to 24 February 2015 and was attended by 70 participants from 24 Member States representing chemical industry, chemical industry associations, and National Authorities and government officials from the region.

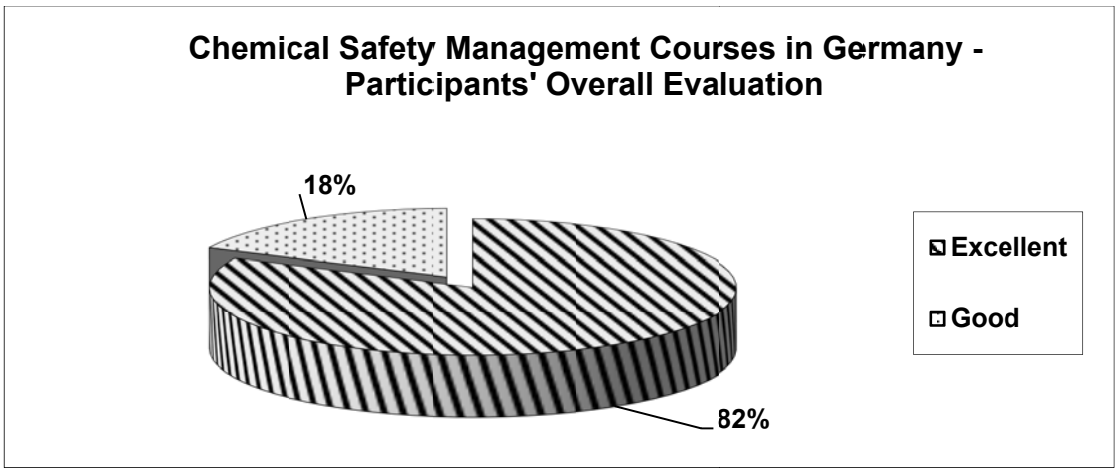


42. With the support of the German Federal Foreign Office, the OPCW and the Bergische University of Wuppertal (BUW) jointly organised, from 3 to 7 November 2014, two parallel training courses on chemical safety management. The first course was offered for the Africa region, while the second targeted the Asia and GRULAC regions.

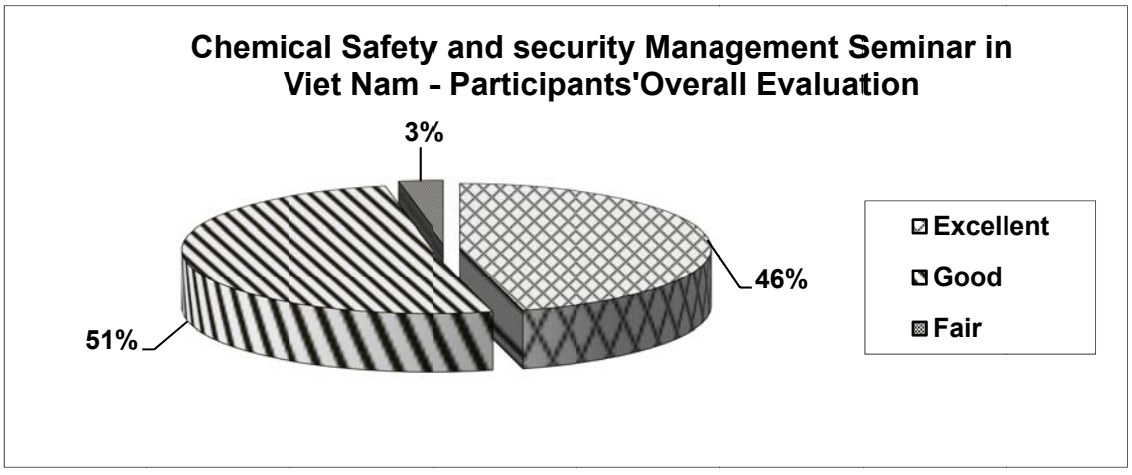
2 CBRN = chemical, biological, radiological, and nuclear.

43. A total of 15 qualified participants from 15 Member States (Argentina, Cameroon, Cuba, Ecuador, India, Kenya, Lesotho, Malaysia, the Philippines, South Africa, the Sudan, Tunisia, Uganda, the United Republic of Tanzania, and Uruguay) successfully completed the courses held at the BUW Department of Safety Engineering. Representatives of Myanmar and South Sudan also took part in the courses, which were supported through a generous voluntary contribution from the German Federal Foreign Office.

44. During the courses, participants gained the necessary skills to implement modern technical safety practices and to fulfil their responsibilities to develop sustainable safety management practices for the chemical industry. The participants were encouraged to contribute to the development of a safety culture in their working environments.



45. A seminar on chemical safety and security management was held specifically for Member States of the OPCW that are also members of ASEAN[3] and SAARC. The seminar was held in Hanoi, Viet Nam from 19 to 21 May 2015 and hosted 51 participants from 17 ASEAN and SAARC Member States.



[3] ASEAN = Association of Southeast Asian Nations.

46. Additionally, the Secretariat was invited to participate in the subregional workshop for Central Asia on industrial accidents prevention, organised by the United Nations Economic Commission for Europe in Astana, Kazakhstan, from 26 to 28 May 2015. During the meeting, the Secretariat shared its experiences in chemical safety and security workshops, especially in Central Asia, and explored ways to enhance future cooperation with the region.

Information service

47. During the reporting period, the Secretariat continued to maintain a service that provides information, upon request, to Member States and their institutions on the structures and properties of chemicals and on the references to relevant production processes, research studies, applications, and producers and suppliers, among others. The service currently uses the Science and Technology Network (STN International), which enables a quick and effective search based on chemical structures and names of chemicals. STN is an online database service that provides global access to published research, journal literature, patents, structures, sequences, properties, and other data. As a neutral platform, STN provides access to a broad range of databases from the most renowned database producers worldwide. STN is operated jointly by Chemical Abstracts Service (CAS) and FIZ Karlsruhe worldwide, and is represented in Japan by the Japan Association for International Chemical Information (JAICI).

48. National Authorities are continuously encouraged to inform national institutions and enterprises on the availability of this service. Requests for information can be made directly to the Secretariat or through the National Authority concerned. This service is particularly useful for participants in the Associate Programme and the Fellowship Programme (formerly known as the Internship Support Programme) for their literature review when writing up research projects.

49. In line with decision C-16/DEC.10 to further strengthen the information service, it is also possible to acquire electronic subscriptions to scientific journals of the Royal Society of Chemistry, the American Chemical Society, and Elsevier. Based on requests from Member States, the International Cooperation Branch is ready to assist departments of chemistry and other specialised institutions in accessing patent databases and obtaining technical data, tools, and other information related to chemicals.

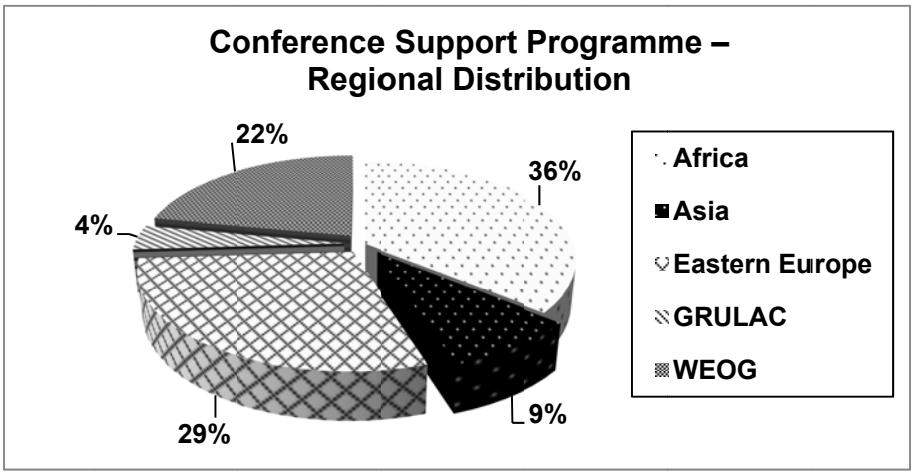
Promoting networking and exchange among scientific communities, academic institutions, chemical industry associations, non-governmental organisations, and regional and international institutions

50. Networking and exchange within the scientific community has been promoted through such ongoing programmes as the Conference Support Programme, the Fellowship Programme, the Programme for Support of Research Projects, and the Equipment Exchange Programme. With a view to enhancing networking among scientists and their institutions, these programmes have provided a broad platform to a wide spectrum of experts in the field of chemistry, from both developing and developed countries, for sharing their experience and knowledge.

Conference Support Programme

51. The Convention encourages the fullest possible exchange of scientific and technical information relating to the development and application of chemistry for purposes not prohibited under the Convention. The Conference Support Programme provides financial support for conferences, workshops, and seminars on special topics relevant to the Convention—generally by sponsoring scientists, technical personnel, and resource persons from Member States to attend such events and by subsidising the cost of publications. Sponsorship is channelled through scientific institutions and conference organisers in Member States.

52. During the period under review, 12 events in 11 different Member States were supported in order 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.



Equipment Exchange Programme

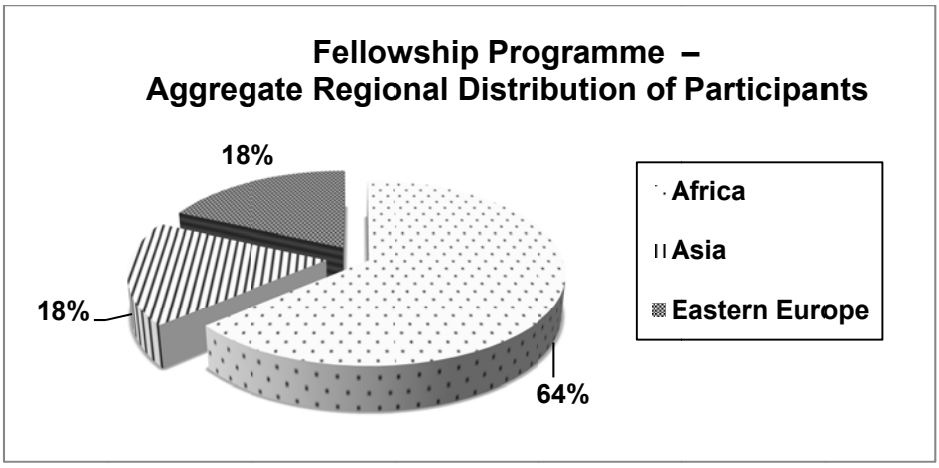
53. The Equipment Exchange Programme aims to support the transfers of used but still functional equipment from institutions in one Member State to those in another.

54. The Secretariat managed to refurbish 80 used laptops from the Inspectorate, of which 50 had already been donated to the National Authorities of Member States. The donation was based on the initiative to further develop the programme by finding more equipment donors and meeting the requests of the Member States. The Secretariat maintains continuous contact with potential donors to encourage such donations.

Fellowship Programme

55. The Fellowship Programme assists scientists and engineers from Member States whose economies are developing or in transition to gain experience by working for a limited period in more advanced research laboratories and facilities in other Member States. 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.

56. Eleven fellowships were undertaken during the period under review (see Annex 2). In addition, five fellowships have been scheduled to start later in 2015, with two researchers from Cameroon at the University of South Africa and the University of Botswana; one researcher from the Philippines at the University of Queensland, Australia; one researcher from Serbia at the State University of Campinas, Brazil; and one researcher from Burkina Faso at the Spiez Laboratory in Switzerland.

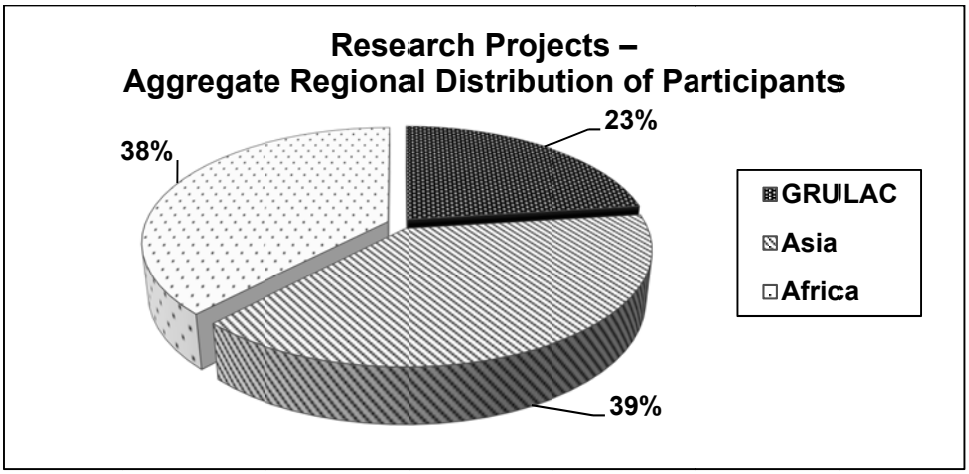


Programme for Support of Research Projects

57. Under this programme, support is extended for small-scale research projects in Member States in order 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. Currently the Secretariat collaborates with the International Foundation for Science (IFS) in Stockholm, Sweden to co-fund projects from developing countries.

58. During the period under review, the OPCW continued to provide direct funding for 34 research projects undertaken by nationals from the following Member States: Argentina (4), Bangladesh, Barbados, China, Ecuador (2), Ghana, India (3), Iran (Islamic Republic of), Kenya, Malaysia (3), Nigeria (3), Pakistan (4), South Africa (3), the Philippines, Uganda, and Uruguay (4). Details of the directly funded projects that were ongoing or completed as at the cut-off date for this report are provided in Annex 3. In addition, at its Twenty-Fifth Meeting on 26 May 2015, the Review Committee for Research Projects approved funding for five other projects (two in Brazil, two in Pakistan, and one in Tunisia) to be funded directly by the OPCW and to be launched later in 2015.

59. The collaboration with the IFS for joint funding of research projects continued with 18 new research projects from 12 countries, in addition to the 47 ongoing projects that were approved at the Twenty-Fourth Review Committee meeting held in 2014. Details of the new projects are given in Annex 4.



Laboratory Assistance Programme

60. The Laboratory Assistance Programme has targeted analytical laboratories in Africa that already have an adequate infrastructure but which could benefit from an increased level of technical competence to promote economic and technological development. A network of research laboratories is being developed to mutually reinforce each other's work and support other laboratories in the region.

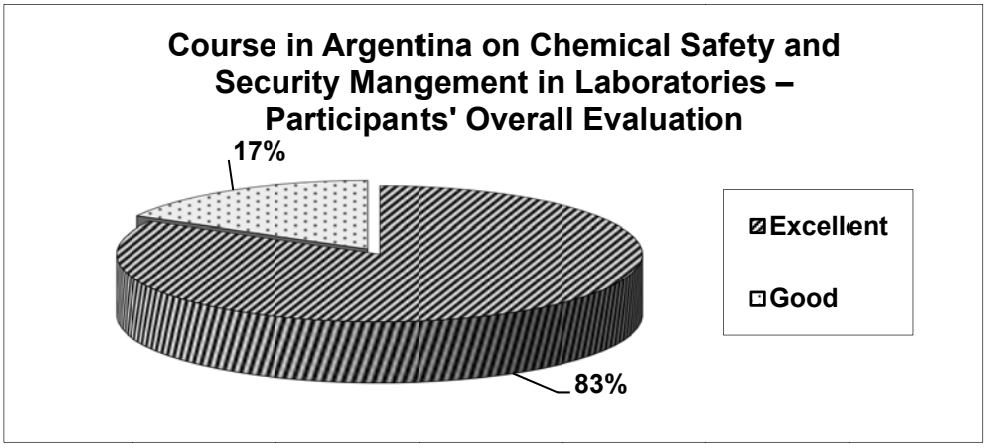
61. Further to a request received through the National Authority of Algeria to provide support to the National Institute of Criminalistics and Criminology (INCC-GN) in Algiers, two representatives from the Secretariat visited the INCC-GN on 2 and 3 September 2014. During the visit, the technical capacities of the institute to establish a line of analysis for chemical weapons agents were evaluated and relevant technical recommendations were made. Considering the promising capacity of the institute in the field of chemical analysis, a further assistance plan has been developed and is currently being implemented. The plan includes training of personnel through analytical skills development courses and the Fellowship Programme. The INCC-GN also participated in the Thirty-Seventh OPCW Proficiency Test.

62. As part of the assistance to the Centre for Chemistry at the Institute of Chemistry, Technology and Metallurgy (ICTM) of the University of Belgrade, Serbia, three researchers received training under the Fellowship Programme in 2015. The ICTM has been aspiring to become an OPCW designated laboratory (it scored a "C" on three previous OPCW Proficiency Tests and an "A" on the Thirty-Fifth OPCW Proficiency Test). In 2014, the ICTM submitted a request under the Laboratory Assistance Programme to improve the skills of its personnel and to discuss further cooperation initiatives with the OPCW. A visit by OPCW experts to evaluate the technical capacities of the laboratory and to establish a further plan for assistance/cooperation was planned for the second half of 2015.

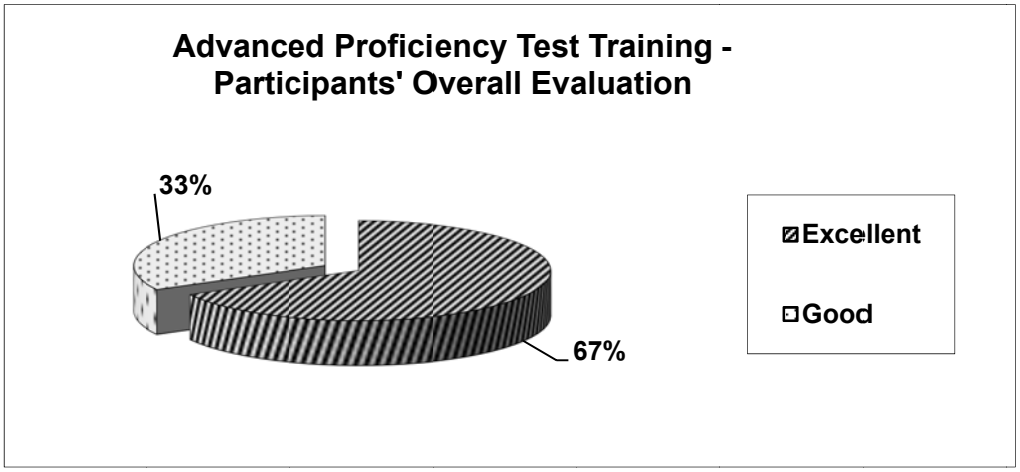
63. In collaboration with the Instituto Nacional de Tecnología Industrial (INTI), a course on chemical safety and security for laboratories in the GRULAC region was conducted at INTI headquarters in Buenos Aires, Argentina, from 15 to 19 June 2015. Nineteen international and 10 local participants successfully completed this course. Based on a "train-the-trainers" approach, the course helped to build the capacity of national laboratories in OPCW Member States to mentor and support laboratories in

the region to carry out relevant obligations under the Convention. The course delivered content related to the implementation of laboratory safety and security procedures, with a focus on on-site safety standards and the handling of chemicals and microbiological agents.

64. Participants in the course included professionals involved in the application of occupational safety practices in public and private entities with chemical, physical, and microbiological laboratories. The participants were from the following OPCW Member States: Argentina, Bolivia (Plurinational State of), Brazil, Chile, Costa Rica, Cuba, Ecuador, Guatemala, Honduras, Mexico, Panama, Paraguay, Peru, and Uruguay.



65. The OPCW also launched a new international laboratory training course at its laboratory facility in Rijswijk. This is the first OPCW Laboratory programme and is aimed at expanding the global network of partner laboratories that can perform analysis of samples under the OPCW's verification regime. The first training programme was conducted from 18 to 22 May 2015, with the participation of six laboratory specialists from Brazil and South Africa. In the week-long course, participants received instruction on the techniques and processes required for passing the stringent OPCW Proficiency Test, which determines whether a laboratory can receive OPCW designated status.



Enhancing the effectiveness of OPCW international cooperation programmes

66. To enhance the effectiveness of all the OPCW's international cooperation programmes and activities, the Secretariat has incorporated evaluation systems and tools to provide continuous review and improvement in programme design and delivery. The evaluation questionnaire addresses the programme's content and its continuous relevance. This feedback is taken into account in designing and updating the activities for the following year.

67. The Associate Programme has five distinct components, each of which is evaluated by both participants and tutors, as well as by mentors in the chemical industry—thus, all components are comprehensively and fully assessed as part of a 360-degree evaluation mechanism. Based on feedback, the programme continues to be upgraded through a continuous review of the various components of the training curriculum. The programme will continue to be revised in order to optimise the invested resources and increase the relevance of the content and the efficiency of its delivery.

68. Programme delivery, as well as the contribution of the participants, is evaluated in special meetings and other interactions with the various stakeholders. The evaluation meetings bring together the various stakeholders of the programme as well as representatives of States Parties, and review programme content and structure. Feedback from the University of Surrey, where the university module is held, and the participants in the various segments is shared. The outcome of the evaluation is also presented to Member States during informal Article XI consultations.

69. In regard to the Programme for Support of Research Projects, research proposals are assessed and evaluated by a review committee that includes two members of the Scientific Advisory Board. The criteria used to assess the proposal and final reports include an examination of the scientific quality and the relevance of the project to the Convention.

70. A continuous evaluation of the Fellowship Programme is undertaken both at the proposal stage (where a committee reviews the proposals) and at the conclusion of the fellowship. Evaluation reports are also received from the supervisor at the hosting institution, and the fellows are required to write a report.

71. The courses on analytical skills development are evaluated through test exercises during and 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 the questionnaire and the post-course meeting collect feedback on the course itself and its perceived benefit to participants.

72. In terms of industry outreach activities, feedback is requested at the end of workshops and then discussed in order to improve the delivery of future programmes. In addition, the impact of various programmes is continuously assessed. Feedback from the National Authorities is also taken into account, especially during the National Authorities Day. As the Associate Programme is the flagship programme of the OPCW, a special request for specific feedback is made to National Authorities. Feedback and evaluation are ongoing processes, taking place during the programme delivery and post-delivery phases.

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

73. Regional workshops and seminars have been organised in order to enhance communication among all relevant stakeholders. To this end, during the period from 2012 to 2014, the OPCW, in cooperation with local governments, organised a series of four regional workshops on Article XI to enhance communication among relevant stakeholders (including National Authorities and other government agencies, and academia and research institutions) and to examine regional needs and priorities under Article XI within the mandate given by the Conference in decision C-16/DEC.10. A global Article XI workshop was organised in 2014 and generated highly useful recommendations with regard to the aforementioned areas of focus.

Financial aspects

74. The concrete measures discussed above have been funded from within the resources of the annual Programme and Budget of the OPCW and from voluntary contributions from States Parties, as appropriate.

Oversight by the Conference and the Executive Council

75. In accordance with decision C-16/DEC.10, the Secretariat reports to each annual session of the Conference on the progress made in implementing the decision and on the status of implementation of Article XI to consider and take appropriate measures, if necessary, in order to further promote the full implementation of Article XI.

76. During the Seventy-Ninth Session of the Executive Council (hereinafter "the Council"), held from 7 to 9 July 2015, the Secretariat made a presentation on the programme of activities for 2015 related to the Article XI implementation. In addition, the Council received a summary report on the informal consultations held on 2 July 2015, during which concrete proposals were presented by States Parties of the Non-Aligned Movement and China, the United States of America, and the Secretariat. Among other things, these proposals were aimed at the full, effective, and non-discriminatory implementation of all provisions of Article XI.

Annexes (English only):

Annex 1: Conference Support Programme: Conferences Supported from 27 August 2014 to 26 August 2015
Annex 2: Fellowship Programme: Projects Conducted from 27 August 2014 to 26 August 2015
Annex 3: Research Projects Funded Directly by the OPCW from 27 August 2014 to 26 August 2015
Annex 4: Research Projects Funded Jointly with the International Foundation for Science from 27 August 2014 to 26 August 2015

Annex 1

CONFERENCE SUPPORT PROGRAMME: CONFERENCES SUPPORTED FROM 27 AUGUST 2014 TO 26 AUGUST 2015

	Conference Title	Location	Duration	State Party of Sponsored Participants	Number of Sponsored Participants
1.	Workshop on Investigating Bioactive Metabolites from Natural Sources: Enzyme inhibitory studies, NMR and LC-MS interpretation	Kandy, Sri Lanka	13 – 17 October 2014	Germany, Japan, and Pakistan	3
2.	13th Laboratory Managers Workshop in East and Southern Africa (E-SALAMA)	Mombasa, Kenya	15 – 19 December 2014	Burundi, Democratic Republic of the Congo, Ethiopia, Kenya, Malawi, Nigeria, Seychelles, South Africa, Sudan, Uganda (2), United Republic of Tanzania, and Zimbabwe	13
3.	International Conference on Contaminated Sediments (ContaSed 2015)	Ascona, Switzerland	8 – 13 March 2015	Croatia, Republic of Moldova, and Serbia	3
4.	CSCM World Congress on CBRNe Science & Consequence Management Congress (CSCM 2015)	Zagreb, Croatia	11 – 17 April 2015	Armenia, Bulgaria, Georgia, Iran (Islamic Republic of), Romania, and Turkey	6
5.	The 8th International Conference of the Kenya Chemical Society	Nairobi, Kenya	5 – 8 May 2015	Armenia, Mauritius, and Tunisia	3
6.	13th Iranian International Congress of Toxicology	Urmia, Islamic Republic of Iran	12 – 14 May 2015	Turkey	1
7.	ChemBio 2015 – Seminar on Verification Analysis of the Chemical Weapons Convention	Helsinki, Finland	18 – 19 March 2015	China, France, Germany, Kenya (3), South Africa, Sweden, and United States of America (2)	10
8.	Subregional Workshop for Central Asia on Industrial Accident Prevention: Chemicals Management, Identification and Notification of Industrial Hazardous Activities and Accidental Water Pollution	Astana, Kazakhstan	26 – 28 May 2015	Belarus and Kyrgyzstan (2)	3

	Conference Title	Location	Duration	State Party of Sponsored Participants	Number of Sponsored Participants
9.	Engineering Crystallography (48th Course): From Molecule to Crystal to Functional Form	Erice, Sicily, Italy	6 – 13 June 2015	Argentina, Brazil, Cameroon, Greece, India, and Malta	6
10.	5th Regional Symposium on Electrochemistry of South East Europe (5th RSE-SEE) and Sofia Electrochemical Days	Pravets, Bulgaria	7 – 11 June 2015	Croatia, Republic of Moldova, Romania, and Ukraine	4
11.	Third EuCheMS Inorganic Chemistry Conference – EICC-3 "Chemistry over the Horizon"	Wrocław, Poland	28 June – 1 July 2015	Belarus and Ukraine	2
12.	45th World Chemistry Congress (IUPAC-2015)	Busan, Republic of Korea	9 – 14 August 2015	Uzbekistan	1

Annex 2

FELLOWSHIP PROGRAMME: PROJECTS CONDUCTED FROM 27 AUGUST 2014 TO 26 AUGUST 2015

	Title of Project	Location of Fellowship	Duration	State Party of Fellow
1.	Development of Amperometric Bisensors for the Determination of Neurotoxin β -N-oxalyl-diamino-propionic acid (β-ODAP)	Lund University, Sweden	15 November 2014 – 15 February 2015	Ethiopia
2.	The synthesis of carbonate mustard analogues and their chemical properties	Ca'Foscari University of Venice, Italy	1 March 2015 – 17 June 2015	United Republic of Tanzania
3.	Analysis of endocrine disruptors from the solid dumpsite in Maseru using Chromatography and Mass Spectrometry	University of Botswana, Botswana	16 May 2015 – 16 August 2015	Lesotho
4.	Design and activity studies of Conobactin	University of Aberdeen, United Kingdom of Great Britain and Northern Ireland	1 July 2015 – 30 September 2015	India
5.	Dynamic amplification of components of dynamic combinatorial libraries during the course of high-performance liquid chromatography (HPLC)	University of Houston, United States of America	1 March 2015 – 31 May 2015	Serbia
6.	Styrofoam waste-based functionalized resins for the removal of toxic metal ions from environmental samples	University of Melbourne, Australia	31 May 2015 – 29 November 2015	Pakistan
7.	Evaluation of biomedical sample analysis using NMR	Laboratory of the Finnish Institute for Verification of the Chemical Weapons Convention (VERIFIN), Helsinki, Finland	1 April 2015 - 30 September 2015	Serbia
8.	Synthesis of precursors, degradation products including metabolites, and by-products of chemical weapons agents	Laboratory of the Finnish Institute for Verification of the Chemical Weapons Convention (VERIFIN), Helsinki, Finland	21 April 2015 – 30 September 2015	Algeria
9.	Association of cold plasmas with catalyst for acetaldehyde removal from atmospheric gases	Laboratoire de Physique des Gaz et des Plasmas (LPGP) – Université Paris-Sud XI, France	5 September 2014 – 5 December 2014	Burkina Faso

	Title of Project	Location of Fellowship	Duration	State Party of Fellow
10.	Investigation of bioactive secondary metabolites produced by the Cameroonian Medicinal Plant Scyphosyceae Maniana (Moraceae). Antimicrobial activity of compounds. Synthesis of compounds with good activity	University of Botswana, Botswana	5 September 2014 – 30 November 2014	Cameroon
11.	Synthesis of compounds related to the precursors, degradation and by-products of CW-agents	Spiez Laboratory, Switzerland	1 September 2014 – 28 November 2014	South Africa

Annex 3

RESEARCH PROJECTS FUNDED DIRECTLY BY THE OPCW FROM 27 AUGUST 2014 TO 26 AUGUST 2015

	Title	State Party of Researcher
1.	Persistent pesticide contamination in horticultural peri-urban production units	Argentina
2.	Search of new phosphotriesterases applied to the bioremediation of soil and water and to the preparation of pharmacologically active phosphotriesters	Argentina
3.	Development of highly sensitive analytical methods based on ionic liquids-functionalised nanomaterials for toxic trace elements determination	Argentina
4.	Green analysis for assessing exposure to brominated flame retardants	Argentina
5.	Preparation of poly(acrylic acid) grafted chitosan-clay bionanocomposite adsorbent for removal of organic and inorganic contaminants from textile effluent	Bangladesh
6.	Novel metallodendrimeric complexes/nanomaterials for application in catalysis and fuel cells	Barbados
7.	Study on low-smoke environmentally friendly fire-retarding polymer nanocomposites with low toxicity and their active mechanisms	China
8.	Adding value to mortiño (vaccinium floribundum kunth) and development of healthy products with potential commercial interest	Ecuador
9.	Assessing the bioavailability of arsenic, cadmium and lead from the Ponce Enriquez minerals using simulated lung fluids in in vitro tests	Ecuador
10.	Environmental monitoring and impact assessment of high-risk analytes in produced water from oil and gas industry	Ghana
11.	Synthesis and functionalization of multiwalled carbon nanotubes/carbon nanofibres/nano particles for environmental remediation	India
12.	Development and evaluation of alpha keto glutarate and biphosphonate inhalable nanoparticles as antidotes for inhaled toxic substances	India
13.	Development of recyclable catalytic systems based on nano-particles and nano-particulate assemblies for the treatment of toxic effluent generated from Indian pesticide industries	India
14.	Immunological complications of Iranian veterans three decades after sulfur mustard exposure	Iran (Islamic Republic of)
15.	A comparative study of the toxicity, protective and cell defence induction capacity of flavones from Kenyan plants and lipophilic semi-synthetic derivatives	Kenya

	Title	State Party of Researcher
16.	Application of chemical markers to identify sources of contaminants in wastewater	Malaysia
17.	Evaluation of glycerol as an oxidant and free radicals stabilizer in supercritical water partial oxidation of hazardous organic compounds	Malaysia
18.	A novel adsorbent of nanostructured MgO for heavy metal removal from textile wastewater	Malaysia
19.	Chemotherapy of malaria and African trypanosomiases: Exploring the therapeutic potentials of Nigerian medicinal plants	Nigeria
20.	Developing environment-friendly product treatments for post-harvest storage of grains and high-value crops as an alternative to ozone-depleting pesticides	Nigeria
21.	Eco-friendly slow release formulation (SRF) of chlorpyriphos and dichlorvos insecticides using nano-starch as matrix (carrier)	Nigeria
22.	Development of a catalytic process for the conversion of mixed waste plastics into transportation fuels	Pakistan
23.	Discovery and exploration of new biologically important heterocycles for the treatment of H. pylori and other pathogens	Pakistan
24.	Electrospray-tandem mass spectrometric studies on steroidal alkaloids of buxus species for structure fragmentation relationship development-rapid dereplication for unambiguous identification of medicinally important steroids	Pakistan
25.	Structural and biological studies on new anabolic steroids obtained by biotransformations	Pakistan
26.	Hydrological, sedimentological and chemical processes shaping the structure and functioning of Lake Sibaya in northern KwaZulu-Natal, South Africa: Implications for conservation and management at iSimangaliso Wetland Park	South Africa
27.	Semiconducting nanostructures use as sensitive sensors to hazardous or explosive gases	South Africa
28.	Concentration of brominated flame retardants in indoor dust from homes and offices from developing countries: A case study of implication for human exposure in South Africa and Nigeria	South Africa
29.	Surface selective ionization mass spectrometry (SelectION-MS) for the detection of chemical warfare agent simulants and their degradation products in complex mixtures	Philippines
30.	Advancement of safe natural products for the treatment of malaria	Uganda
31.	Expanding the repertoire of biocatalytic tools for the synthesis of chiral amines and amino-alcohols	Uruguay
32.	Microbial lipids as alternative raw material for biodiesel production	Uruguay
33.	Chemoenzymatic synthesis of a gabosines, carbasugars and related compounds library (March 2012–February 2014)	Uruguay
34.	Chemoenzymatic synthesis of C6-C13 fragment of amphidinolide T-series	Uruguay

Annex 4

RESEARCH PROJECTS FUNDED JOINTLY WITH THE INTERNATIONAL FOUNDATION FOR SCIENCE FROM 27 AUGUST 2014 TO 26 AUGUST 2015

	Title	State Party of Researcher
1.	*Caracterisation des biomolécules et proposition de différentes voies de valorisation de la feuille, de la pulpe et de la fève de Hexalobus monopetalus (A. Rich.) Engl. et Diels au Bénin*	Benin
2.	*Evaluation des potentialités phytochimique et pharmacologique de Pterocarpus santalinoides L. (Papilionoideae), une plante médicinale utilisée dans le traitement des toxi-infections alimentaires*	Benin
3.	Biotransformation of insecticides thiametoxan and flubendiamide by fungi and laccase activity	Brazil
4.	*Effet des feux de brousse sur les activités biologiques et l'émission des gaz à effet de serre en savane ouest africaine*	Burkina Faso
5.	*Evaluation du potentiel génoproteur et cytoproteur de molécules isolées du fruit de Detarium microcarpum Guill. et Perr. (Caesalpiniaceae)*	Burkina Faso
6.	Phytochemical and anticancer activity investigation of Ardisia koupensis Taton, Ardisia etindensis Taton and Ardisia dolichocalyx Taton from Cameroon	Cameroon
7.	Electrochemical monitoring of arsenic contamination in rice and water around rice cultures in Cameroon	Cameroon
8.	Study on micro combination mechanism between soil organic matter and polycyclic aromatic hydrocarbons and nitrated polycyclic aromatic hydrocarbons	China
9.	*La spéctrométrie infrarouge comme outil de caractérisation des flux de biomasse et de nutriments et l'efficience des transferts de fertilité dans les exploitations agricoles malgaches*	Madagascar
10.	Synthesis of modified super paramagnetic iron oxide nanoparticles adsorbent and evaluation of its efficiency for arsenic removal from ground water samples of Nepal	Nepal
11.	Adsorption of synthetic organic chemicals (SOCs) using carbonized and surface-modified nipa palm (nypa fruiticans wurmb) leaves	Nigeria
12.	Assessment of persistent organic pollutants (POPs) contamination in soils and crops irrigated with wastewater	Pakistan
13.	Immobilization of cadmium (Cd) in sewage irrigated soil by using biochar of agricultural wastes	Pakistan
14.	Preparation of macroporous composite materials for heavy metal removal from wastewater	Pakistan
15.	A plant-bacterial synergistic strategy to improve degradation of synthetic textile dyes in constructed wetlands	Pakistan

	Title	State Party of Researcher
16.	Biochemistry and gene expression level studies of salt tolerance within Tunisian barley accessions	Tunisia
17.	Phytochemical studies of mosquito larvicidal compounds from ethanol extracts of four Kotschya species	United Republic of Tanzania
18.	The use of mutagenesis breeding in grain sorghum to improve its flavonoid and condensed tannin profile and nutritional value	Zimbabwe

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