



### REPORT BY THE DIRECTOR-GENERAL

#### PROGRESS REPORT ON AND THE STATUS OF IMPLEMENTATION OF ARTICLE XI OF THE CHEMICAL WEAPONS CONVENTION FOR THE PERIOD 1 JANUARY to 15 AUGUST 2012

#### 1. INTRODUCTION

1.1 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 was followed by a request made by the Executive Council (hereinafter “the Council”) to the Secretariat to provide a progress report to the Seventieth Session of the Council on the implementation of the relevant decision. The components included activities 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.

1.2 The report provides the progress of concrete measures undertaken in implementing the aforementioned decision, as well as the status of implementation of Article XI and covers the period from 1 January to 15 August 2012. Unless otherwise stated, all dates given herein fall within this reporting period.



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

- 2.1 During the reporting period, the OPCW implemented Article XI of the Convention through various programmes and activities.
- 2.2 In accordance with the results-based approach that the Secretariat took during the reporting period, the effectiveness of these programmes was assessed according to whether skills and capabilities were enhanced in the four focal areas relating to the peaceful application of chemistry: integrated chemicals management, chemical knowledge and the exchange of information, enhancement of laboratory capabilities, and outreach to industry.

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

#### Associate Programme

- 2.3 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.
- 2.4 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 communicating the best practices in this field. To date, 13 editions of the Associate Programme have been attended by a total of 297 qualified personnel from 102 countries.
- 2.5 The Associate Programme supports the Responsible Care® programme of the chemical industry. It contributes to enhancing knowledge of the modern practices relating to chemical safety and security, while at the same time generating greater awareness about the peaceful uses of chemistry.
- 2.6 On account of the continued interest demonstrated in the programme, in 2011, a decision was made to increase the intake for the 2012 edition to 32 participants. The 2012 edition of the Associate Programme was held from 2 August to 5 October, with 32 participants from the following 32 Member States: Algeria, Argentina, Bangladesh, Barbados, Burkina Faso, Colombia, Costa Rica, Cuba, Eritrea, Ethiopia, Ghana, Honduras, India, Jordan, Malaysia, Namibia, Nigeria, Pakistan, Romania, Rwanda, Saint Vincent and the Grenadines, the Seychelles, Sri Lanka, Sudan, Tajikistan, the former Yugoslav Republic of Macedonia, Uganda, the United Republic of Tanzania, Uruguay, Viet Nam, Zambia, and Zimbabwe. It is noteworthy that—as a result of outreach efforts by the Secretariat to those States Parties that had not sent participants to the programme previously—Barbados, Honduras, Namibia, Saint

Vincent and the Grenadines, the Seychelles, and the former Yugoslav Republic of Macedonia, were represented for the first time. In addition, in accordance with the objectives of the Programme to Strengthen Cooperation with Africa on the Chemical Weapons Convention (hereinafter “the Africa Programme”), 14 of the participants came from African Member States.

- 2.7 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, as well as a three-week industrial attachment in 17 modern chemical industries located in 12 States Parties (see paragraph 2.8 below). During the university module, the participants benefited from an intensive chemical engineering skills-development course and upgraded their knowledge in terms of the national implementation of the Convention. During the industrial attachment, participants received training in relation to various industrial operations and gained exposure to working environments in the chemical industry.
- 2.8 The programme received an in-kind contribution from Japan. In addition, Belgium, the Czech Republic, Denmark, Germany, Japan, Malaysia, the Netherlands, Poland, Portugal, Spain, and Switzerland have extended their continuous support by identifying placements in their chemical industries for the participants; Croatia came forward, for the first time, with a training opportunity for two associates in its chemical industry. The companies that offered industrial attachments in 2012 were as follows: “Evonik Degussa Antwerpen N.V” (Belgium), “Petrokemija Plc” (Croatia), “Enaspol a.s.” (Czech Republic), “Dupont” (Denmark), “BASF” and “Currenta GmbH und Co. OHG” (Germany), “Asahi Kasei Chemicals Corporation” and “Mitsubishi Chemical Corporation” (Japan), “CCM Chemicals Sdn Bhd” and “BASF Petronas Chemicals Sdn Bhd” (Malaysia), “Dow Benelux B.V.” and “Dupont de Nemours B.V.” (Netherlands), “Azoty Tarnów S.A.” (Poland), “Hovione” and “Dow Portugal- Produtos Químicos, S.A” (Portugal), “Dow Chemical Ibérica SL” (Spain), and “Clariant Produkte (Schweiz) AG” (Switzerland).
- 2.9 The programme also benefited from the continuous support of the World Customs Organization (WCO), the European Chemical Industry Council (CEFIC<sup>1</sup>) under its “Responsible Care®” policy, the European Chemicals Agency (ECHA), the European Association of Chemical Distributors (FECC), the Dutch Customs Authorities, the Port of Rotterdam, the Rotterdam Investment Agency, and the Technical University of Delft (TU Delft).

#### Analytical-skills-development courses

- 2.10 Analytical-skills-development courses 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:
- enhance national capacities in analytical chemistry for personnel from industry, academic institutions, and government laboratories in the States Parties sending participants;

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<sup>1</sup> CEFIC = Conseil Européen de l’Industrie Chimique.

- (b) facilitate the adoption of good laboratory practices; and
  - (c) broaden the pool of human resources from which National Authorities and the Secretariat can draw in the future.
- 2.11 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.
- 2.12 The courses for the enhancement of laboratory skills focus on the enhancement of skills in using liquid chromatography-mass spectrometry (LC-MS) or nuclear magnetic resonance spectroscopy (NMR) to analyse chemicals related to the Convention. These are two-week courses, for a maximum of four participants each, who have previous practical experience of LC, GC, NMR, or MS techniques. Participants are introduced to sample preparation 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 NMR, quality assurance, and instrument maintenance.
- 2.13 During the period under consideration, three courses—one analytical-skills-development course and two courses on the enhancement of laboratory skills—were organised at VERIFIN.
- 2.14 The analytical-skills-development course took place from 1 to 15 June with 20 participants from Algeria, Argentina, Bangladesh, Belarus, Botswana, Brazil, Indonesia, Lesotho, Pakistan, Paraguay, Romania, Saint Lucia, South Africa, Sri Lanka, Tunisia, Turkey, Ukraine, Uruguay, Yemen, and Zimbabwe.
- 2.15 The course on the enhancement of laboratory skills using LC-MS was held from 16 to 27 April and hosted four participants from Botswana, Brazil, South Africa, and Ukraine. The course on the enhancement of laboratory skills using NMR took place from 7 to 18 May and hosted four participants from four States Parties, namely, Bangladesh, Jamaica, South Africa, and Tajikistan.
- 2.16 The Secretariat, in collaboration with Protechnik Laboratory in Pretoria, South Africa and VERIFIN, conducted the fourth edition of the analytical chemistry course under the Africa Programme. This course took place from 30 April to 11 May in Pretoria, South Africa. Twelve participants from the following 12 Member States successfully completed the course: Botswana, Burkina Faso, Cameroon, Ghana, Lesotho, Mauritius, Morocco, Seychelles, Sudan, the United Republic of Tanzania, Zambia, and Zimbabwe.
- 2.17 In addition, as a result of the great demand for training in advanced analytical techniques on the part of Spanish-speaking personnel from laboratories in the GRULAC<sup>2</sup> region, and with the active support of the Spanish National Authority, the

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<sup>2</sup> GRULAC = Group of Latin American and Caribbean States.

Secretariat held the second edition of the “Basic 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, Instituto Tecnológico La Marañosa (LAVEMA), in Madrid, Spain, from 21 May to 1 June. The course accommodated 13 participants from 12 countries in the GRULAC region: Argentina, Brazil, Colombia, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Paraguay, Peru, and Uruguay. A participant from Portugal also attended the course in order to establish a network for the support of similar activities in future.

#### Industry outreach

- 2.18 The chemical-safety management programme is an international-cooperation programme designed to focus on chemical-industry outreach and industry-related aspects of the implementation of the Convention. Under this programme, seminars are held in order to meet the increasing need for specific safety and security training with regard to the rapidly expanding and increasingly complex chemical industries. 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. With this in mind, participants are sensitised to the new approaches that can be adopted in relation to safety and security management, 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 the Member States, and indirectly benefit the general public.
- 2.19 The industry-outreach activity that has taken place during the period under consideration was generously supported through voluntary contributions from the Governments of Japan and the United States of America and was organised in cooperation with the National Authority of Malaysia.
- 2.20 A chemical-safety-and-security management seminar took place in Kuala Lumpur, Malaysia, from 8 to 11 May 2012. The seminar was attended by 36 participants represented, inter alia, by the Directors of National Authorities, chief executive officers in the chemical industry, general managers of chemical industry associations and research and educational institutes from Cambodia, Germany, India, Indonesia, Japan, the Lao People’s Democratic Republic, Malaysia, Pakistan, Palau, the Philippines, the Republic of Korea, Singapore, Sri Lanka, Thailand, the United States of America, and Viet Nam. In addition, a representative from Myanmar, which is a not a State Party to the Convention, participated in the seminar.
- 2.21 An OPCW experts’ meeting on chemical safety and security took place in The Hague, the Netherlands, on 7 and 8 June 2012. The meeting was convened to discuss how the role of the OPCW in the fields of chemical safety and security could be further expanded and what else could be done to promote OPCW engagement with the chemical industry in these activities. The meeting was attended by 20 experts from various professional backgrounds in chemical safety and security, representing a wide range of views, as well as members of the Secretariat’s Task Force on Chemical Safety and Security. A summary of the key discussion points was presented during

the informal consultations on Article XI and the report of the meeting was shared with the delegations. A number of participants from developing countries were supported by the voluntary contribution from the United States of America.

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

Conference-Support Programme

- 2.22 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. The support is generally in the form of sponsorship of scientists, technical personnel, and resource persons from Member States to attend such events and to enable the cost of publications to be met. Sponsorship is channelled through scientific institutions and conference organisers in Member States.
- 2.23 During the period under review, 10 events in 10 different Member States were supported, with a view to facilitating the exchange of scientific and technical information in areas relating to the peaceful use of chemistry. A list of the titles of the conferences supported and the countries of participants sponsored during the reporting period is provided in Annex 1.

Internship-Support Programme

- 2.24 The Internship-Support Programme assists scientists and engineers from countries 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. A total of six internships were undertaken during the period under review. A table containing details of internships carried out is provided in Annex 2.
- 2.25 The “Training Programme on Chemical Engineering for African Countries”, supported through a generous voluntary contribution from China for two interns from African States Parties at the Beijing University of Chemical Technology in Beijing, China, was completed in July 2012.

Programme for Support of Research Projects

- 2.26 Under this programme, support is extended for small-scale research projects in countries whose economies are developing or in transition, 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.

- 2.27 During the period under review, the OPCW provided direct funding for seven new research projects by nationals from Argentina, India, Pakistan (2), South Africa, and Uruguay (2). The collaboration for joint funding of new research projects with the International Foundation for Science (IFS) in Stockholm, Sweden, continued during the year. Twenty-eight new research projects were supported jointly with the IFS, whilst a further nine final reports were received from the IFS and were reviewed and accepted by the OPCW Research Review Committee. Details of the new projects supported are given in Annexes 3 and 4.

#### Information service

- 2.28 During the reporting period, the Secretariat continued to maintain an information service that provides information, upon request, to Member States and their institutions on the properties of chemicals and the contact details of both suppliers and producers of chemicals and chemical technologies. The service has access to the on-line services of the Science and Technology Network, which enables it to respond quickly and effectively to requests for information. National Authorities are 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 for their literature surveys when writing up their research projects.

#### The Programme to Strengthen Cooperation with Africa on the Chemical Weapons Convention

- 2.29 The Africa Programme focuses on activities and interventions to respond to the particular needs of African Member States. The Director-General presented a Note entitled “The Second Phase of the Programme to Strengthen Cooperation with Africa on the Chemical Weapons Convention” to the Council at its Sixty-Fourth Session (EC-64/DG.5, dated 6 April 2011). Since the submission of the Director-General’s Note on the same subject to the Conference at its Sixteenth Session (EC-66/DG.13 C-16/DG.14, dated 20 September 2011), progress has continued in realising the objectives set under the second phase of the programme.
- 2.30 The following activities during the period under review have served to continue the implementation and strengthening of the Africa Programme, in particular, with respect to promoting networking and the exchange among scientific communities:
- (a) Six of the seven individuals supported under the Internship-Support Programme came from African Member States (see Annex 2).
  - (b) Ten researchers (from a total of 32 research projects funded directly by the Secretariat and jointly with IFS) were from African Member States (see Annex 3).
  - (c) The 2012 Associate Programme accommodated 14 Africans out of a total of 32 participants under the Africa Programme.

- (d) Analytical-skills-development courses, including the courses on the enhancement of laboratory skills, and other regional courses, were successfully completed by a total of 13 participants from Africa.
- (e) The Secretariat, in collaboration with Protechnik Laboratory in Pretoria, South Africa and VERIFIN in Helsinki, Finland, held the fourth analytical-chemistry course under the Africa Programme. Twelve participants from 12 African States Parties successfully completed the course.
- (f) Through a generous voluntary contribution from Norway, the second experts' workshop for heads of laboratories in the Africa Region was held at the OPCW Headquarters in The Hague, from 25 to 27 June. The workshop drew participants from Botswana, Burkina Faso, Ghana, Kenya (2), Mauritius, Morocco, South Africa (2), Sudan, Tunisia, the United Republic of Tanzania, and Zimbabwe. An expert from Sweden representing the International Science Programme also participated. The 14 participants included individuals from universities, industries, and government institutions. The workshop was successful in developing criteria for the identification of potential regional resource partners that could partner with the Secretariat, through its international-cooperation programmes, in capacity-building activities in relevant fields related to the Convention. Furthermore, centres that could pilot the concept of regional resource partners in identified thematic areas were proposed.
- (g) Also under the Norwegian voluntary funding, a natural products chemistry training and development programme was conducted at the Institute of Bioproduct Development, Universiti Teknologi Malaysia (UTM), from 2 to 17 July. The training programme was designed to expose qualified natural products chemists and scientists from Member States in Africa to science-based chemical research in natural products, with particular emphasis on value addition through the development of marketable products. The training attracted participation from personnel from industry, academic institutions, and government laboratories from Botswana, Cameroon, Ghana, Kenya, Mauritius, Nigeria, the Seychelles, Swaziland, Tunisia, Uganda, and Zimbabwe.

### **Enhancing the effectiveness of current international-cooperation programmes of the OPCW**

- 2.31 To enhance programme effectiveness in all the programmes and activities undertaken, the Secretariat has incorporated evaluation systems and tools to provide for continuous review and improvement in programme delivery.
- 2.32 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. The programme continues to be upgraded through the provision of new presentations and lectures and on the basis of current research and industry assignment topics.
- 2.33 A meeting to assess the results of the 2012 Associate Programme will be held at OPCW Headquarters after the completion of the programme. Designed to bring

together the various stakeholders of the programme, as well representatives of States Parties, the meeting will review the content and structure of the programme. Feedback from the University of Surrey and the participants in the various segments will be shared with the attendees.

- 2.34 In the case of the Support for Research and Internship-Support Programmes, proposals are assessed and evaluated by a committee that includes two members of the Scientific Advisory Board (SAB) in the case of research projects. The criteria used to assess the research include an examination of the quality of the scientific proposal and its relevance to the Convention, both at the proposal review and final report stages.
- 2.35 For the analytical-skills-development courses, evaluation is achieved through test exercises during the course, and by means of a post-course evaluation meeting held with participants and trainers.

**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**

Review of existing regulations in the field of trade in chemicals

- 2.36 The plan of action regarding the implementation of Article VII obligations, adopted by the Conference at its Eighth Session (C-8/DEC.16, dated 24 October 2003), urges States Parties that have not yet done so to review their existing regulations in the field of trade in chemicals in order to render them consistent with the object and purpose of the Convention.
- 2.37 Throughout the period under review, as in the other years since the Article VII plan of action was adopted, the Secretariat raised this issue with States Parties both during technical-assistance visits and in the margins of other meetings.
- 2.38 To facilitate reporting by States Parties in regard to this issue, a question (question 9) on subparagraphs 2(c), (d), and (e) of Article XI was included in the "Questionnaire on the Implementation of Trade Measures under the Chemical Weapons Convention" (Annex to S/440/2004, dated 23 August 2004). The responses to that question, together with those to the version of the question that appeared in the first Legislation Questionnaire ("Survey of National Measures to Regulate Scheduled Chemicals under the Chemical Weapons Convention") (Annex to S/194/2000, dated 8 June 2000) and the submissions received by the Secretariat in respect of the Article VII plan of action, show that, as at 13 December 2011, out of 188 States Parties:
- (a) Sixty-six States Parties (35%) have completed a review and found their regulations consistent with the Convention.
  - (b) Two States Parties (1%) are amending their legislation as a result of their review of their existing legislation.
  - (c) Twenty-one States Parties (11%) are carrying out the above-mentioned review.

- (d) One hundred States Parties (53%) have neither provided any information on the matter nor have they indicated that they have begun their review.

**Decision on Article XI (C-16/DEC.10): Funding measures**

- 2.39 The implementation of the above-mentioned concrete measures has been funded from within the resources of the annual Programme and Budget of the OPCW and, where mentioned, through voluntary contributions from States Parties.

**Decision on Article XI (C-16/DEC.10): Further review**

- 2.40 A further review of the status of the implementation of this decision will be submitted to the Conference at its Eighteenth Session to consider and take appropriate measures, if necessary, in order to further promote the full implementation of Article XI.

Annexes (English only):

- Annex 1: Conference-Support Programme: Conferences Supported from 1 January to 15 August 2012  
Annex 2: Internship-Support Programme: Projects Conducted from 1 January to 15 August 2012  
Annex 3: Research Projects Funded Directly by the OPCW from 1 January to 15 August 2012  
Annex 4: Research Projects Funded Jointly with the IFS from 1 January to 15 August 2012

Annex 1

CONFERENCE-SUPPORT PROGRAMME: CONFERENCES SUPPORTED FROM 1 JANUARY TO 15 AUGUST 2012

	Conference Title	Location	Duration	State Party of Sponsored Participants	Number of Sponsored Participants
1	POLYCHAR 20	Dubrovnik, Croatia	26 – 30 March	Bangladesh, China, Nepal, Republic of Korea (2), United Kingdom of Great Britain and Northern Ireland (2)	7
2	International Conference on Global Trends in Pure and Applied Chemical Sciences (ICGTCS - 2012)	Udaipur, India	3 – 4 March	Bulgaria, Iraq, Japan, Jordan, Republic of Korea, Sri Lanka	6
3	12th Eurasia Conference on Chemical Sciences	Corfu, Greece	16 – 21 April	Italy, Japan (2), Jordan, United States of America (2)	6
4	International Conference for Young Chemists (ICYC)	Amman, Jordan	8 – 10 April	Austria, India, Iran, South Africa, Turkey	5
5	Chemical Biological Medical Treatment Symposium (CBMTS IX) 2012	Spiez, Switzerland	7 – 9 May	China (2), Iran, Macedonia, Nigeria, Russian Federation, Ukraine, Uzbekistan	8
6	Present and Future Methods for Biomolecular Crystallography	Erice, Sicily, Italy	31 May – 10 June	Greece, India, Mexico, United States of America	4
7	4th SEANAC International Conference on Analytical Chemistry for the Environment, Health and Water	Maputo, Mozambique	8 – 11 July	Kenya, Lesotho, Malawi, Sudan, United Republic of Tanzania	5
8	International Conference on Pure and Applied Chemistry (ICPAC 2012)	Reduit, Mauritius	2 – 6 July	China, India, Iraq, Kenya	4
9	17th World Congress of the International Society of Toxicology (IST) and Venom Week 2012	Honolulu, Hawaii	8 – 13 July	Brazil (2), Costa Rica	3
10	International Conference on Chemical Sciences	Colombo, Sri Lanka	20 – 22 June	Australia, United Kingdom of Great Britain and Northern Ireland (2), United States of America (2)	5

## Annex 2

## INTERNSHIP-SUPPORT PROGRAMME: PROJECTS CONDUCTED FROM 1 JANUARY TO 15 AUGUST 2012

	<b>Title of Project</b>	<b>Location of Internship</b>	<b>Duration</b>	<b>State Party of Intern</b>
1.	Internship for developing skills to assess research competence in basic and applied sciences in institutions of the Fellows of the African Academy of Sciences	African Academy of Sciences, Nairobi, Kenya	17 October 2011 – 16 April 2012	Cameroon
2.	Best Practice and Trends in High Performance Liquid Chromatography: Method Development and Optimisation	Katholieke Universiteit Leuven, Leuven, Belgium	16 December 2011 – 15 March 2012	Congo
3.	Quantitative characterization of chemical compounds in maize tassel for biosorption of chemical contaminants and toxic chemicals in water and soils	Institute for the Environment, Brunel University, Uxbridge, United Kingdom of Great Britain and Northern Ireland	5 December 2011 – 5 March 2012	South Africa
4.	Solar photo catalytic removal of pollutants from drinking water. Advanced oxidation treatment involves solar or artificial ultraviolet irradiation of polluted water in the presence of an oxidant or a catalyst	Delft University of Technology, Netherlands	16 January – 15 July	Algeria
5.	Solar photo catalytic removal of pollutants from drinking water. Advanced oxidation treatment involves solar or artificial ultraviolet irradiation of polluted water in the presence of an oxidant or a catalyst	Delft University of Technology, Netherlands	1 April – 30 September	Turkey
6.	Training programme on chemical engineering for African countries	Beijing University of Chemical Technology, Beijing, China	15 February – 14 June	Two African States Parties

**Annex 3****RESEARCH PROJECTS FUNDED DIRECTLY BY THE OPCW  
FROM 1 JANUARY TO 15 AUGUST 2012**

	<b>Title</b>	<b>State Party of Researcher</b>
1	Persistent pesticide contamination in horticultural peri-urban production units	Argentina
2	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
3	Discovery and exploration of new biologically important heterocycles for the treatment of H.pylori and other pathologies	Pakistan
4	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
5	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
6	Chemoenzymatic synthesis of a gabosines, carbasugars and related compounds library	Uruguay
7	Microbial lipids as alternative raw material for biodiesel production	Uruguay

## Annex 4

**RESEARCH PROJECTS FUNDED JOINTLY WITH THE IFS  
FROM 1 JANUARY TO 15 AUGUST 2012**

	Title	State Party of Researcher
1	Bio-regenerative treatments of high-strength wastewater using bio-fringe and white jute ( <i>Corchorus capsularis</i> ) fibres	Bangladesh
2	Biofertiliser production using humic acids and plant growth promoting microorganisms	Brazil
3	Propriétés insecticides et répulsives de quelques extraits de plantes tropicales contre <i>Anopheles gambiae</i> et <i>Aedes aegypti</i> , moustiques vecteurs de maladies humaines au Burkina Faso	Burkina Faso
4	Evaluation du potentiel thérapeutique des galles de Guiera senegalensis J.F. GMEL (Combretaceae) pour le traitement du diabète de type 2 et/ou de ses complications au Burkina Faso	Burkina Faso
5	Antimycobacterial, Anti-HIV and cytotoxicity properties of extracts and compounds from Cameroonian medicinal plants	Cameroon
6	New antiplasmodial compounds from <i>Dacryodes edulis</i> (G.Don) Lam. and <i>Coula edulis</i> Baill: selected medicinal plants used to treat malaria symptoms in Western Cameroon	Cameroon
7	Study on chemical fractions and bioavailability of oxytetracycline in soil environments	China
8	Monitoring of bioavailability, toxicity and trophic transfer of manufactured metal oxide nanoparticles in marine ecosystems	India
9	Agricultural waste for heavy metal removal in waste water treatment	Indonesia
10	Characterisation of landfill leachate and assessment of potential impact on aquatic ecosystem	Malaysia
11	Development and application of granular biomass in palm oil mill effluent (POME) treatment	Malaysia
12	Risk assessment of exposure to toxic arsenic in drinking water in Mongolia (a survey of arsenic and other trace elements concentrations in surface waters and hot springs of Mongolia)	Mongolia
13	<i>In vivo</i> evaluation of some antimalarial drugs contained in solid lipid microspheres	Nigeria
14	Thermally curable thiol-ene coatings based on epoxidised <i>Albizia</i> benth and <i>Plukenetia conophora</i> oil	Nigeria
15	Examination of plant-endophyte partnerships in constructed wetlands for the treatment for textile wastewater	Pakistan
16	Development of environmentally benign novel natural bio-insecticides for effective insect control derived from the naturally occurring toxic genes in the female secretions of insect parasitoids	Pakistan
17	Low cost small scale domestic wastewater treatment technology development	South Africa

	<b>Title</b>	<b>State Party of Researcher</b>
18	Natural dissolution mechanisms of serpentinite: Possible toxic elements leaching to the environment	Sri Lanka
19	Development of a micro fluidic device for arsenic monitoring in water samples	Thailand
20	Synthesis and biological activity of bivalent SFTI-1 inhibitor against human-beta tryptase	Thailand
21	Traitements des eaux par photocatalyse hétérogène à l'échelle pilote à base de nouveaux matériaux sensibles aux rayonnements solaires	Togo
22	Chemical modification of palmatine molecular framework and evaluation of chemical structure - antimalarial-cytotoxicity activity relationship of analogues	United Republic of Tanzania
23	Isolation and characterisation of bacteria from mangroves in northern Viet Nam for polyhydroxyalkanoates production	Viet Nam
24	Development of nanoconjugate based on biocompatible chitosan for multimodal cancerous monitoring and magnetic drug targeting	Viet Nam
25	Anti-caries agents from garcinia mangostana I: improved protection against dental caries	Viet Nam

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