The Implementation of Article XI
Background Paper

1. Introduction

The issue of technical cooperation and assistance has been challenging since the successful negotiation of the Chemical Weapons Convention. On Entry into Force (EIF) Member States confirmed their commitment to fostering international cooperation for peaceful purposes in the field of chemistry; a commitment subsequently reaffirmed at both review conferences (Conference of State Parties, RC-1/S/2; Conference of State Parties, RC-2/S/1).

In support of the full implementation of Article XI (see Annex 1), the International Cooperation Branch (ICB) - part of the Technical Secretariat's International Cooperation and Assistance Division - has developed an integrated portfolio of programmes. These are designed to support national capacity building, and skills development, in areas related to the peaceful use of chemistry; and, supports the implementation of the Convention – particularly for Member States whose economies are developing or in transition.

This paper provides background information on these programmes. Section two gives an outline of current ICB programmes, their longevity and overall participation. Section three gives a brief description of each programme and the requirements for participation. Section four concerns on-going programme development and evaluation. Section five reviews ICB activities against the four key themes identified by the Executive Council for consideration at this workshop (Executive Council, EC-61/DEC.9). Finally, in section six, there are some concluding comments.

2. Overview of Current Programmes and Activity

2.1 Established Programmes

The International Cooperation Branch (ICB) organise a portfolio of on-going programmes in support of the implementation of Article XI of the Convention. This consists of the following programmes:

- **Conference Support Programme**: financial support for conferences, workshops and seminars on topics of relevance to the Convention.
- **Programme for Support of Research Projects**: funding for small-scale research projects investigating the peaceful application of chemistry.
- **Laboratory Assistance Programme**: support for analytical laboratories who wish to improve their technical capability in chemical analysis and monitoring.
- **Equipment Exchange Programme**: facilitating the transfer of used, but still functional, equipment from one member state to another.
- **Internship Support Programme**: internships for scientists and engineers to gain experience in advanced laboratories and facilities.
- **The Associate Programme**: an intensive nine/ten-week course focusing on good practice in industrial chemical manufacture and business practice.

- **Analytical Skills Development Programme**: a range of courses aimed at developing skills in different aspects of chemical analysis. The following courses are currently offered:
    - Analytical Skills Development Course (ASDC)
    - Enhancement of Laboratory Skills (CW-LSE)
    - Analysis of Chemicals Related to the Convention (CW-AC/PT)
    - Regional Versions of ASDC and CW-AC/PT
- **Information Service**: a service providing information on the properties of chemicals and contact details of suppliers and manufacturers of chemicals and chemical technologies.

Table 2.1 (below) gives a summary of the longevity and the total level of participation in each programme.

Programme	First Year	Most Recent Data[1]	Total Number	
			Events	Participation
Conference Support	1997	2009	216 events	1887 delegates
Programme for Support of Research Projects	1998	2009	414 projects	
Laboratory Assistance	1997	2009	68 assists	
Equipment Exchange	1998	2009	97 exchanges	
Internship Support	1999	2009	94 interns	
Associate Programme	2000	2009	10 courses	209 associates
All Analytical Skills Development Course	2003	2009	18 courses	225 delegates
Information Service	1997	2007	91 enquiries	

Table 2.1: Summary of On-going Programmes Offered by ICB

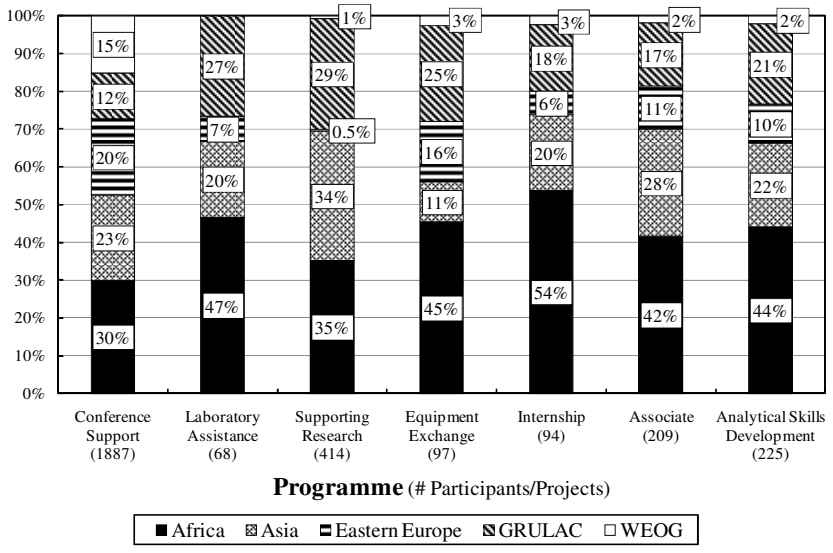

Figure 2.1: Summary of Relative Level of Regional Participation in On-going Programmes Offered by ICB

[1] *The cut off date for data analysis is December 31st 2009*

Figure 2.1 (above) shows the relative level of regional participation in each of these programmes. The five regional groups are: the Africa Group; the Asia Group; the Eastern European Group; the Group of Latin American and Caribbean States (GRULAC); and, the Western European and Other States Group (WEOG).

2.2 New Initiatives

In addition to the portfolio of established programmes outlined above, the ICB have recently focussed on two new programmes, these are:

- **The Africa Programme:** activities and interventions to respond to the particular needs of African Member States as part of an OPCW initiative; and
- **Industry Outreach:** seminars in chemical industry outreach and industry-related aspects of implementation.

Table 2.2 (below) gives a summary of the longevity and level of activity in these new initiatives.

Programme	First Year	Most Recent[2]	Total Number	
			Events	% African
Programme for Africa	2008	2009	Internships 2008 Internships 2009 Res. Projects 2008 Res. Projects 2009 Lab. Assistance Associate 2008 Associate 2009 Basic ASDC 2009	76% 71% 40% 41% 65% 50% 54% 100%
Industry Outreach	2009	2009	2 Seminars in 2009	

Table 2.2: Summary of Recent Initiatives from ICB

2.3 Other Activity

There is an on-going programme of cooperation with other organisations. This includes the co-funding of projects and the organisation of regional workshops and courses. In some of these activities, OPCW cooperated with other organisations in support of the implementation of Article XI: like the International Foundation of Science; the World Health Organisation; World Customs Organisation; the European Chemical Industry Council (CEFIC); Protechnik; VERIFIN; Uppsala University; etc. In all these activities strong support is also provided by the National Authorities and institutions in Member States.

With respect to the issue of "trade in chemicals" (referred to in subparagraph 2(c) of Article XI - see Annex 1), Member States have been urged to review their existing regulations (under the provisions of Article VII) in order to render them consistent with the Convention (8th Conference of State Parties, C-8/DEC.16). To facilitate Member States reporting on this issue, questions have been included in two questionnaires: the *Survey of National Measures to Regulate Scheduled Chemicals under the Chemicals Weapons Convention* (Technical Secretariat, S/194/2000) and the *Questionnaire on the Implementation of Trade Measures under the Chemicals Weapons Convention* (Technical Secretariat, S/440/2004).

[2] *The cut off date for data analysis is December 31st 2009*

3. A Brief Description of the Current Programmes

3.1 Conference Support Programme

This programme is continually open for applications. Institutions, or recognised scientific organisations, from Member States whose economies are developing or in transition, may apply for travel grants for participants or resource persons[3] to attend their conference, seminar or workshop. They may also apply for core grants to cover administrative costs, such as the costs of publishing conference proceedings or the costs of translating proceedings into one of the official languages of the OPCW[4]. Additionally, institutions, or recognised scientific organisations, from Member States with developed economies, may also apply for travel grants for participants or resource persons from Member States whose economies are developing or in transition.

Without excluding other fields of chemistry, the following areas have been identified as particularly worthy of support: natural products chemistry, analytical chemistry, risk assessment and management of toxic chemicals, environmental chemistry and toxicology, prophylaxis and treatment of intoxications (Technical Secretariat, S/172/2000).

3.2 Programme for Support of Research Projects

Applications for funding to support small-scale research projects are reviewed bi-annually; the submission deadlines are 1st May and 1st November. Applications are reviewed by a panel which includes two members of the OPCW's Scientific Advisory Board. Applicants must be from institutions, or recognised laboratories, in Member States whose economies are developing or in transition. Proposed projects should be problem-orientated, contribute to strengthening sustainable research and have direct relevance to the Member State concerned. Applicants must demonstrate both the scientific merit of their proposed project and its relationship to the priorities of the Member State concerned; endorsement by the applicant's National Authority is essential.

Plans for disseminating and implementing scientific findings, such that they will make a practical contribution to the Member State concerned, are an additional criterion for selection. Furthermore, preference is given to interdisciplinary projects, combining the application of chemistry with other disciplines. The final selection of projects is also subject to the availability of budgetary resources and the need for an equitable geographical distribution of approved projects.

3.3 Laboratory Assistance Programme

The aim of this programme is to improve the technical competence of laboratories in Member States whose economies are developing or in transition and is continually open for applications. Recognised, publically funded analytical laboratories, which already have an adequate infrastructure, but would benefit from an increased level of technical competence, may apply for funding from this programme. Typically, assistance is provided in the form of financial support for projects concerning:

- the conducting of a technical audit (*Technical Assistance Visits*);

[3] *Expert(s) in a particular field.*
[4] *Official languages of the OPCW: Arabic, Chinese, English, French, Russian and Spanish.*

- preparations for gaining national, regional or international accreditation; or,
- training of technical staff (a more detailed list is presented in Annex 2, Section A2.2).

Projects involving regional co-operation, networking or twinning between laboratories are considered particularly worthy of support. Applicants must demonstrate that the assistance requested is in line with national objectives and priorities for the peaceful application of chemistry. Consequently, the endorsement of the applicant's National Authority is essential for funding to be approved (Technical Secretariat, S/328/2002).

3.4 Equipment Exchange Programme

The programme recognises that in industrialised countries "state-of-the-art" equipment is often replaced long before it ceases to be functional and that this equipment is of potential benefit to other Member States. This programme supports the voluntary transfer of functional equipment used in the development and application of chemistry for industrial, agricultural, research, medical, pharmaceutical and other peaceful purpose, from donor Member States in developed economies to recipient Member States whose economies are developing or in transition.

The International Cooperation and Assistance Division of the OPCW Technical Secretariat maintains a database of interested donors and recipients of equipment. Potential transfers can also be directly negotiated bi-laterally between Member States. The support provided under this programme consists of financial assistance to meet the costs of transport and insurance from door-to-door. The costs of training a technician from the receiving institution or sending an expert from the donor institution to the receiving institution to provide on-site training may also be covered. The latter may consist of travelling expenses to an agreed training location and a daily subsistence allowance for one technician for up to five days (Technical Secretariat, S/307/2002).

3.5 Internship Support Programme

This programme provides the opportunity for scientists and engineers from Member States whose economies are developing or in transition, to work for a limited period of time in a more advanced laboratory or facility in another Member State. Eligible scientists and engineers must be working in research institutions, publically funded laboratories or recognised universities in their home country and have been employed for at least one year. Applicants must identify, and get a letter of acceptance from, the institution that is to accept them as an intern and get the agreement of their present employer. Possible areas of study are listed in Annex 2, Section A2.3.

Internships should be structured to facilitate both the sharing of scientific and technical information and the professional development of the individual intern. Typically, internships are for a maximum of three months, although in exceptional circumstances, they may be extended to six months. Funding may cover both the cost of travel for the intern, from their normal place of work to the host institution, and an internship allowance[5]. At the end of the internship, the intern is required to submit a report to the Secretariat (for details see Annex 2, Section A2.4) (Technical Secretariat, S/289/2002).

[5] *In accordance with prevailing United Nations norms for fellowships in the country/city where the internship is to take place.*

3.6 The Associate Programme

The Associate Programme is a nine/ten-week intensive course for up to 28 participants from Member States whose economies are developing or in transition. The overall aim of this programme is to contribute to capacity building in chemistry and chemical engineering in the Member States, with a particular emphasis on chemical safety. An additional benefit is in national capacity building of human resources available to the National Authorities and the OPCW. The detailed programme objectives are listed in Annex 2, Section A2.5.

This programme provides a valuable opportunity for the participating scientists and engineers to be exposed to modern practices in the chemical manufacturing industry. This is achieved through a combination of training and experience delivered across the five segments of the programme. These are:

- **Induction Segment** (one week): This is based at the OPCW headquarters in The Hague.
- **University Segment** (three weeks[6]): Skills development training at a university in a Member State. This segment culminates in a four-day chemical business simulation; preliminary training addresses technical application, management systems and inter-personal skills development.
- **Intermediate Segment** (one week[6]) – This is also based at the OPCW headquarters. This segment includes practical exercises and visits to specialised institutions.
- **Industrial Attachment** (three weeks): Participants work on a chemical plant and receive training in various industrial operations and gain exposure to industry working environments.
- **Final Segment** (two weeks): Presentations of industrial assignments, research activities, and a final review at the OPCW headquarters.

Throughout the entire programme, there is a strong focus on the transfer and adoption of good practices for the benefit of the participant's Member State.

Applications are sought from chemists (and related disciplines) and chemical engineers with at least five years relevant work experience. Previous experience with a National Authority or government agency involved with implementing the Convention is an advantage. Proficiency in English is essential and it is mandatory for each participant to attend all the elements of each segment of the programme outlined above. Applications are screened and the most suitable applicants are interviewed prior to final selection. Funding covers the costs of course-related travel, accommodation, meals, course fees and medical and travel insurance (Technical Secretariat, S/791/2009).

3.7 Analytical Skills Development Programme

The ICB organise a number of different courses which focus on the development of analytical chemistry skills for scientists from Member States whose economies are developing or in transition. In general, it is expected that participants have some practical experience in the

[6] *Due to the structure of the Skills Development Training offered by the University Supplier, the cohort of 28 participants is divided into two groups of 14. The first group (Stream A) completes the Intermediate Segment after the University Segment; the second group (Stream B) completes the Intermediate Segment before by the University Segment.*

techniques concerned and proficiency in oral and written English is essential. Funding typically covers the costs of international travel, visas and medical insurance. In addition, participants are given a daily allowance for meals and incidental expenses.

3.7.1 Analytical Skills Development

The *Analytical Skills Development Course* is a two-week course for up to 20 participants. The aim of the programme is to assist qualified analytical chemists in acquiring further experience and practical knowledge of the analysis of chemicals related to the Convention. Additionally, this course should:

- enhance national capacities in analytical chemistry for personnel from industry, academic institutions, and government laboratories in the Member States sending participants;
- facilitate the adoption of good laboratory practices; and,
- broaden the pool of human resources from which National Authorities and the Secretariat can draw in the future.

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 analyses of such samples for chemicals related to the Convention. Participants are also introduced to a range of extraction, clean-up, and derivatisation procedures.

Applicants must have been working in a chemical laboratory or research institution in their home country for at least five years. Additionally, they must have a first degree in chemistry or analytical chemistry, with relevant practical and theoretical experience in analytical chemistry. As with the Associate Programme (see Section 3.6, above), applications are screened and the most suitable applicants are interviewed prior to final selection (Technical Secretariat, S/871/2010).

3.7.2 Analysis of Chemicals Related to the Convention

The aim of this course is to improve participant's practical skills in GC, GC-MS, thus enhancing the capacity of their respective laboratories to take part in OPCW proficiency testing; individual participants should have recent practical experience in GC. On this course, participants are introduced to sample preparation and theoretical aspects of GC and GC-MS. Subsequently, working in smaller groups, participants are given hands-on experience of sample preparation and analysis; the course also covers quality assurance and instrument maintenance. This is a two-week course and it is designed for a maximum of eight participants (Technical Secretariat, S/846/2010).

3.7.3 Enhancement of Laboratory Skills

This course focuses on the enhancement of skills in using liquid or gas chromatography (LC or GC)-mass spectrometry (MS) to analyse chemicals related to the Convention. It is a two-week course, for a maximum of four participants, who have previous practical experience of LC, GC or MS. Participants are introduced to sample preparation and are then given demonstrations and practical exercises in these techniques. The course also covers theoretical aspects of LC/GC and LC-MS/GC-MS, quality assurance and instrument maintenance (Technical Secretariat, S/802/2009).

3.7.4 Workshop on the Analysis of Chemicals Related to the Convention

This four-day workshop accommodated up to ten participants. It was intended for laboratories that are active, or plan to become active, in the analysis of chemicals related to the Convention or in OPCW proficiency testing. There was no hands-on training during this workshop. The programme comprised of demonstrations, discussions and a reporting exercise under the instruction of a group of experts. This programme was discontinued in 2007 and was not formally part of the Analytical Skills Development Programme, but was closely linked to it (Technical Secretariat, S/637/2007).

3.8 Information Service

The Technical Secretariat maintains a database of information accessible by any institution in a Member State. Information is available on the hazardous properties of chemicals, as well as possible substitute materials, and the suppliers and manufacturers of chemicals and chemical technologies. The Technical Secretariat also has access to the on-line services of the Science and Technology Network. National Authorities are encouraged to inform national institutions, publically funded bodies and potentially interested businesses of the existence of this service. Requests for information can be made directly to Secretariat or through the National Authority.

3.9 The Africa Programme

The Africa Programme is an initiative aimed at giving strategic direction to the Technical Secretariat's engagement with African Member States. The programme consists of a number of initiatives which fall under Articles VII and X of the convention, in addition to those which fall under Article XI. The initiatives include:

- high-level bilateral visits to increase awareness of the Convention in Africa;
- technical assistance visits, courses and meetings in support of the implementation of the Convention (Article VII);
- assistance and protection capacity building training courses (Article X);
- actively engaging participation from African Member States in established international cooperation programmes; and,
- focus on events for Africa, for example the *Basic Analytical Skills* training course, a regional version of the *Analytical Skills Development Course* (see Section 3.7.1, above).

3.10 Industry Outreach

Industry outreach seminars are the most recent initiative from the ICB in support of the implementation of Article XI. They are organised to strengthen international cooperation with respect to industry-related aspects of the implementation of the Convention. The following seminars were held in 2009:

- *Chemical Weapons Convention and Chemical Process Safety Management*, Japan, 11th and 12th November, involving 19 delegates from the Asia Group;
- *Promoting Chemical- Safety Management*, Germany 16th to 20th November, involving 10 delegates from the Africa Group.
  (Executive Council, EC-59/DG.13)

4. Programme Development and Evaluation

4.1 Conference Support Programme

4.1.1 Programme Development

Funding support for conference participants[7] started in 1997. Over 130 scientists benefitted from the original programme, but it suffered from a lack of focus. Consequently, the positive impact on the scientific and technological development of the countries concerned was limited or difficult to assess. In 2000, the *Conference Support Programme* was formally established, organised by the International Cooperation Branch (ICB). This programme was designed to support institutions and scientific organisations to organise conferences and meetings and provide them with funds to support participants. In this revised format, support has been provided to 1755 sponsored participants across 198 events to the end of 2009 (Technical Secretariat, S/172/2000).

At first, this programme maintained a similar level of activity as its predecessor. Then, between 2002 and 2003 participation increased, with the number of sponsored participants rising from 86 to 288 and the number of events from 7 to 21. The number of sponsored participants broadly remained at this level until 2006, but then fell to 177 in 2007. The number of events has remained constant since 2004 at 26 events per year, with the exceptions of 2006 (27 events) and 2007 (24 events). Despite these variations, average expenditure for individual participants has remained reasonably stable over the entire period (from 2000 to 2009) at €1,755/delegate (±10%).

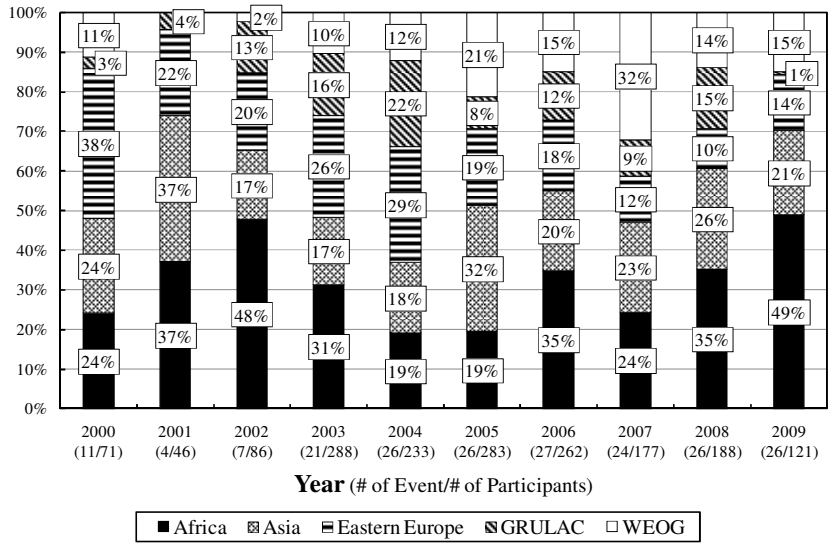

Figure 4.1: Annual Relative Level of Regional Participation in the Conference Support Programme

Figure 4.1 (above) shows the annual relative level of regional participation in this programme. Overall, the Africa Group accounts for 30% of participants, the Asia Group 23%, Eastern Europe 20%, GRULAC 12% and WEOG 15%; the deviations from these

[7] *Through the Seminars and Symposia Participation Programme.*

overall averages reflect variations in regional location, and participation in, specific conferences.

4.1.2 Programme Evaluation

To evaluate this programme, conference organisers complete a standard evaluation form before the release of the second instalment of funding; this is submitted with the conference report. The questionnaire addresses four areas: i) event organisation; ii) event focus and outcomes; iii) relevance to countries whose economies are developing or in transition; and, iv) OPCW sponsorship (see Annex 3, Section A3.1 for specific questions).

The linkage between the submission of the evaluation forms and the release of the second instalment of funding ensures a timely, and 100%[8], response. Also, organisers often include conference outputs with their forms[9]. The evaluation forms are reviewed by ICB staff and this data is retained; it is available for Member States to consult. No holistic review of the evaluation data collected for this programme has been conducted so far. However, there are plans to build a database of responses.

Overall, conference organisers are positive about support received from OPCW; this is exemplified by the number of repeat applications. The evaluation data gathered has proven to be particularly useful when assessing and advising on repeat applications.

4.2 Programme for Support of Research Projects

4.2.1 Programme Development

The ICB has managed this programme since 2001. A previous version of this programme ran from 1998 to 2000, supporting 42 projects at a cost of €282,231. The programme has expanded steadily: from 2001, in which there were 13 projects; to 2006, in which there were 68 projects. This declined to 19 projects in 2007, mainly due to a postponement in the second review meeting. This was held early the following year, with a consequential increase in projects to 67 for 2008. However, in 2009 the number of projects fell again to 29.

Typically, ICB has focused on co-funding research projects through the International Foundation for Science (IFS): between 2005 and 2008 only 5% of the projects were directly funded by OPCW. However, in 2009 this increased significantly, with 38% of projects receiving direct funding. This is matched by a significant increase in expenditure for directly funded projects from €35,072 (2 projects) in 2008, to €138,236 (8 projects) in 2009. The overall annual expenditure for this programme has varied in response to the number of applications received, with the lowest expenditure, of €91,278, in 2001 and the greatest, of €245,967, in 2003[10]. However, the success rate of applications has remained reasonably stable, between 46% and 52% over the period 2005-2008[11]; although this did fall to 31% in 2009.

[8] *There has been one example of evaluation forms not being submitted, the second instalment was not paid.*
[9] *For example, Conference Proceedings, other Publications.*
[10] *Data for total expenditure on this programme only available from 1998 to 2006.*
[11] *No data available on total number of applications prior to 2005.*

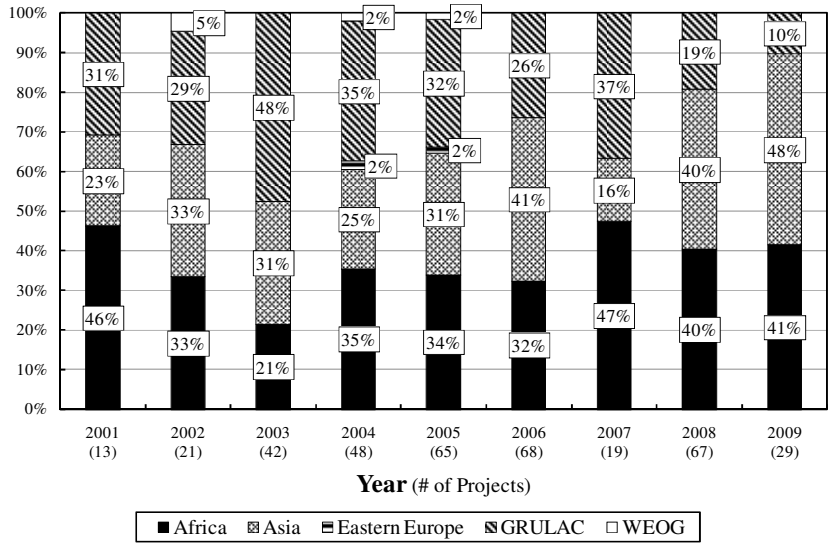

Figure 4.2: Annual Relative Level of Regional Participation in the Programme for Support of Research Projects

Figure 4.2 (above) shows the annual relative level of regional participation in this programme. Overall, 35% of projects have been awarded to researchers from the Africa Group, with 34% going to the Asia Group and 29% to GRULAC; the Eastern Group and WEOG have secured <1% of projects. Participation from GRULAC has generally been declining, from a peak of 48% in 2003, while participation from both the Africa and Asia Groups has been increasing.

4.2.2 Programme Evaluation

Recipients submit a final project report, together with any other publications or reports written during the project. These reports, and other publications, are placed in the OPCW library for the benefit of Member States and the Technical Secretariat.

The ICB, in collaboration with the IFS, have also sponsored four-day regional workshops in Nairobi, Africa (2006), Montevideo, Uruguay (2008) and Chiang Mai, Thailand (2009) to review the output of research projects jointly funded by OPCW-IFS. These workshops provided an opportunity to follow-up the progress, and impact of, each grantee's research. Grantees presented papers orally or as posters and took part in discussion groups. Furthermore, feedback was obtained on how both OPCW and IFS could strengthen their capacity enhancing effort and promote future collaborations. These workshops determined the main outcomes of this programme to be: deepened knowledge in the research fields; and, a broader multi-disciplinary perspective on chemistry research. Reports detailing the findings of these workshops are available from ICB and through the IFS web-site; see Annex 3, Section 3.2 for extracts of key outputs from these events.

In addition to these workshops, in 2006 the OPCW and IFS jointly conducted a questionnaire-based survey, and interviews, of grantees based in African Member States; this was subsequently carried out with grantees from GRULAC. (see Annex 3)

4.3 Laboratory Assistance Programme

This programme has been managed by ICB since 2002, although there were a small number of assistance projects beforehand. Since 2002, the number of projects has increased markedly, and by the end of 2009 a total of 69 projects have been carried out. The overall level of regional participation in these projects, in terms of recipients, is: 47% for the Africa Group, 20% for the Asia Group, 7% for Eastern Europe and 27% for GRULAC.

Evaluation of these activities is typically through follow-up visits to the laboratories concerned. This often involves the relevant National Authorities, and possibly other national/regional bodies. Impact is assessed case-by-case depending on the nature of the assistance or support provided. For example, over the period 2005 and 2007, the EU provided funds for 13 GC and GC/MS units. These were allocated to laboratories based on need, which was assessed through an application process. Follow-up visits identified on-going training needs and consumable requirements. This feedback enabled additional assistance to be provided to these laboratories.

4.4 Equipment Exchange Programme

The ICB has managed this programme since 2002, but the take-up rate has varied considerably. There were no exchanges in 2002, 2006 and 2007. In 2005, 50 new personal computers were given to different National Authorities across all regional groups except WEOG; this project was supported through a voluntary contribution from the EU. In 2009, the Government of China donated ten personal computers to African Member States. Also in 2009, 4 GC/MS units from the OPCW laboratory were donated to different Member States - training was also provided.

As with the *Laboratory Assistance Programme* (see Section 4.3, above), evaluation of this programme is pre-dominantly through follow-up visits to the recipient laboratories; although external bodies, such the EU, often specify a more systematic follow-up process.

4.5 Internship Support Programme

4.5.1 Programme Development

Internship support started in 1999 and has been managed by ICB since 2002. Over the period 1999 to 2001, 14 interns were supported and since 2002 a further 80 interns have been supported. Broadly, there has been a steady increase in the number of interns supported annually, from 3 in 2002 to 17 in 2009. The overall level of regional participation in this programme is: 54% from the Africa Group, 20% from the Asia Group, 6% from Eastern Europe, 18% from GRULAC and 2% from WEOG.

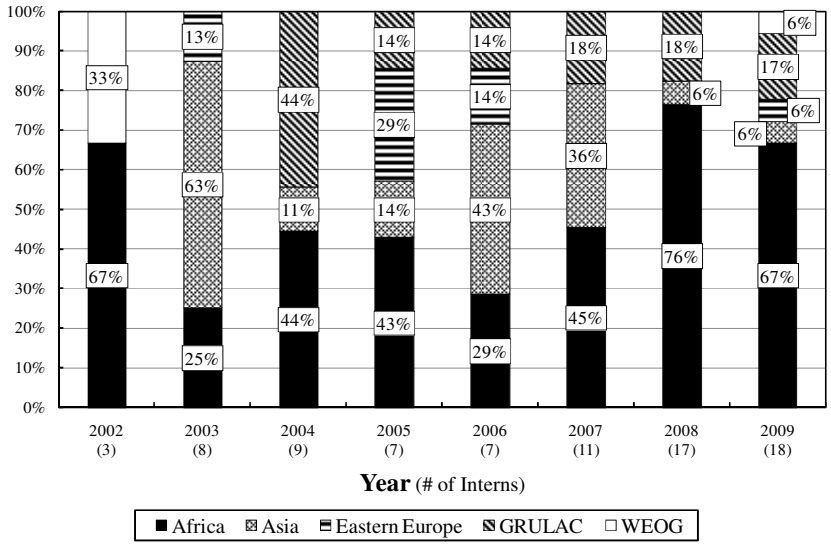

Figure 4.3: Annual Relative Level of Regional Participation in the Internship Support Programme

Figure 4.3 (above) shows the relative level of regional participation in this programme, on an annual basis. It is notable that the proportion of interns from African Member states has increased significantly in 2008 and 2009, reflecting the impact of the *Africa Programme* (see Section 3.9). The proportion of interns from GRULAC has been fairly constant since 2005, but the proportion of interns from the Asia Group and Eastern Europe has declined. Together they represented 43% of interns in 2005, this declined to only 12% in 2009.

As with the *Laboratory Assistance Programme* (see Section 4.3, above), the regional breakdown of interns does not necessarily reflect WEOG's involvement in this programme. Many of the interns carry out their placements in this region; it accounts for 63% of all internship locations over the period 2005 to 2009. Over the same period, 34% of placements were in Africa and 3% in Asia.

4.5.2 Programme Evaluation

Monitoring and evaluation of internships is through a final report written by the intern and submitted through the intern's home institution, along with comments from the supervisor of the intern's host institution. Reports are evaluated against the following criteria: i) quality of the scientific report; ii) achievements, as measured against those outlined in the internship proposal; and, iii) the development of scientific links between the intern's home and host institutions. Interns are also encouraged to submit copies of any publications, or other reports, which were generated during the internship. Both the report and the feedback comments are reviewed, and assessed, against the original project objectives. .

4.6 The Associate Programme

4.6.1 Programme Development

The overall structure and objectives of the *Associate Programme* have remained broadly the same since the second course in 2001. The 'pilot' version of this programme, run in 2000 with 12 delegates, was longer than the established programme. It was almost 13 weeks in

duration, with longer periods of time spent at OPCW headquarters in The Hague. For the 2001 course, these periods were reduced and the current nine/ten week structure (outlined in Section 3.6, above) established. In 2003, it was decided to expand the programme to 24 associates. The "chemical business simulation", part of the university segment, was a problem as it had been designed with only 12 business roles. An innovative solution was devised which involved dividing the group of 24 associates into two streams of 12 and putting them through the university segment one week out of step with each other. This required having the second group do the intermediate segment immediately after the induction segment instead of after university segment. In 2008, the creation of two more business simulation roles increased programme capacity to 28 associates and there are now plans to expand the programme further to accommodate up to 32 associates. Another innovation was the development of the course CD-ROM for the university segment. This was first introduced in 2004 and is updated annually for each course.

A big challenge for this programme has been finding suitable industrial placements for the associates through National Authorities. To date, 82 chemical companies, across 16 Member States in Europe and Asia, have supported the programme by taking associates; many of these companies have taken associates over a number of years; see Annex 2, Section A2.6 for a list of participating companies.

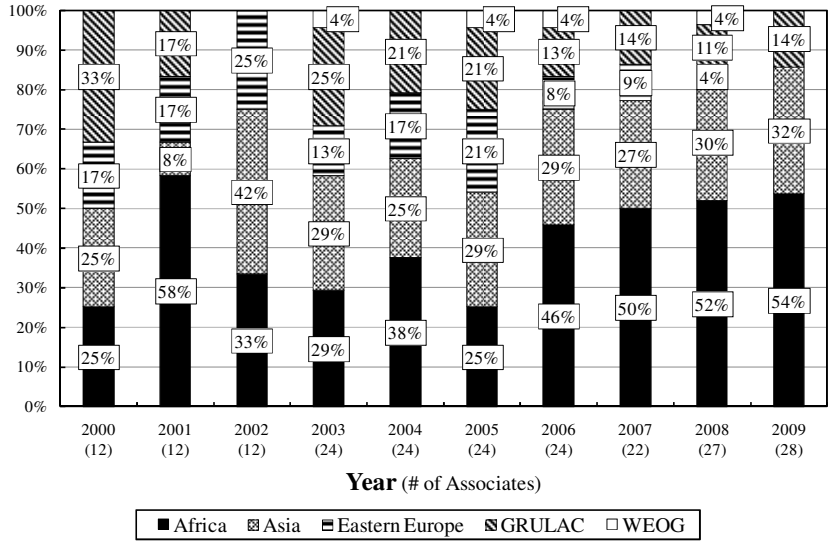

Figure 4.4: Annual Relative Level of Regional Participation in the Associate Programme

Up to 2009, 209[12] associates have completed the programme from 87 different Member States. Overall, 42% of the associates were from Member States in the Africa Group, 28% from the Asia Group, 11% from Eastern Europe, 17% from GRULAC and 2% from WEOG. The proportion of associates from African Member States has increased greatly since 2005, when they made up 25% of the group, to 2008, when they made up 52% of the group – this is primarily due to the impact of the *Africa Programme* (see Section 3.9, above). Over this same period the proportion of associates from GRULAC fell 21% to 11% and from Eastern Europe from 21% to 4%; while the proportion of associates from the Asia group has remained steady at ~30% (see Figure 4.4, above). A unique feature of this programme has been the

[12] *236 including 2010 associates.*

recruitment of inspectors into the Technical Secretariat. In total, 14 former associates have been recruited and three of them have risen to become Inspection Team Leaders.

4.6.2 Programme Evaluation

The evaluation process for this programme is comprehensive; first used during the "pilot-course" and continually reviewed and updated since. The elements of the process are:

- participants complete evaluation forms at the end of each segment;
- a feedback meeting is held at the end of the university segment;
- one-to-one meetings are held with each associate at the end of the programme;
- university staff and industrial supervisors provide individual assessments of each associate;
- a post-course evaluation meeting, with external input, is held about two months after the end of the programme; and,
- a post-course follow-up questionnaire is given to associates and National Authorities one year after their participation in the programme.

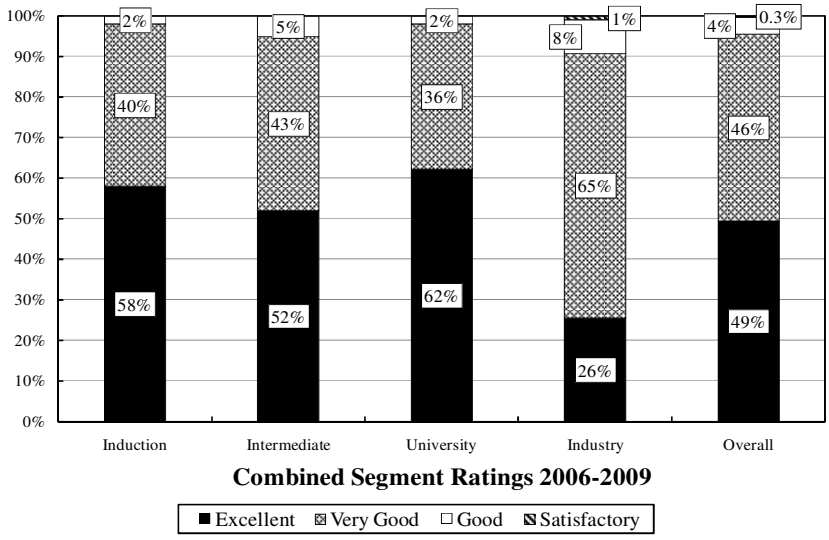

Figure 4.5: Overall Evaluation (2006-2009) of each Segment in the Associate Programme

A detailed evaluation report is prepared from the segment evaluation data. It also includes information from the one-to-one meetings and from the assessments of individual associates during the university and industry segments. A further report is prepared after the post-course evaluation meeting. Copies of each associate's research project report are placed in the OPCW library; these have proven to be very useful for the Inspectorate Division. Feedback is also obtained from the Inspectorate Division concerning their involvement in supervising research projects.

Figure 4.5 (above) shows the combined ratings for each individual segment of the *Associate Programme*, and the overall ratings, for the period 2006 to 2009. Overall, more than 90% of associates rated the individual segments, and the programme as a whole, as either 'very good' or 'excellent'; the annual breakdown can be found in Annex 3, Section 3.3. For the industry

segment, it is clear that significantly more associates found the experience 'very good', as opposed to 'excellent'.

Feedback obtained from the post-course follow-up is also positive. Many former associates have on-going links with their National Authorities and actively disseminate information about the OPCW and the Convention. In addition, many associates report actively using the knowledge and experience gained, particularly the resources provided on the CD-ROM from the university segment.

In addition to the above, the university supplier also conducts a debriefing session, immediately after the business simulation phase. Furthermore, they also use their own feedback forms which are based on the detailed aims and objectives of this segment. Data are obtained on the level of knowledge and experience gained in the following areas:

a) Health and Safety Management
b) Chemistry & Process Design and Development
c) Process Operations
d) The Chemical Industry as a Business
e) Management Skills
f) Inter-personal Skills

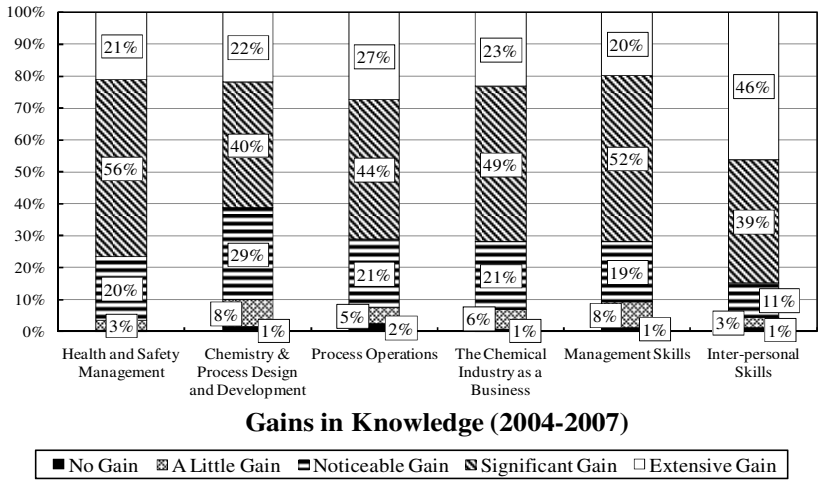

Figure 4.6: Gains in Knowledge during the University Segment of the Associate Programme (2004-2007)

Figures 4.6 (above) and 4.7 (below) shows the associates perceived gains in knowledge and experience in each of these areas over the period 2004-2007. Over 70% of associates report an 'extensive' or 'significant' gain in knowledge in areas a), c), d) and e), with over 65% reporting a similar gain in experience. In area b), 62% report this level of gain in knowledge and 58% in experience. However, the most impressive result is in area f), inter-personal skills. In this area, 85% of associates report an 'extensive' or 'significant' gain in knowledge and 89% report this level of gain in experience. Annex 3, Section 3.4 gives a detailed breakdown of the ratings for each area. This information has proven invaluable in refining and enhancing course content and reviewing the balance of knowledge transfer to experiential learning.

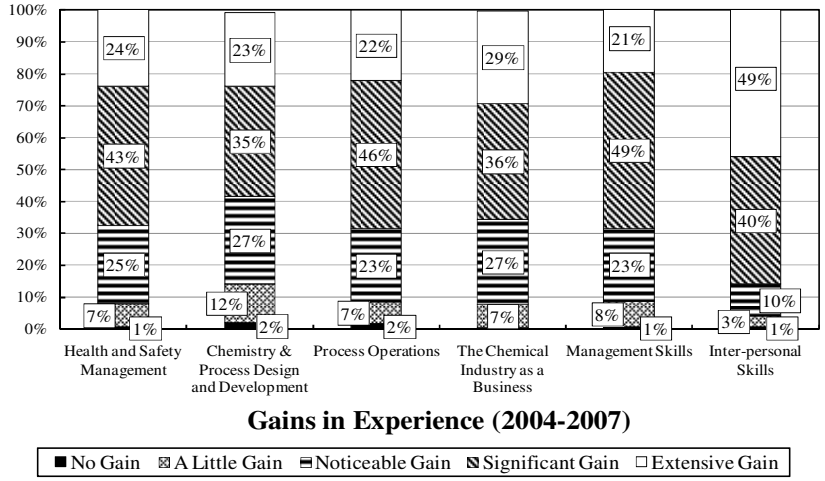

Figure 4.7: Gains in Experience during the University Segment of the Associate Programme (2004-2007)

4.7 Analytical Skills Development Programme

4.7.1 Programme Development

By the end of 2009, a total of 225[13] participants had attended courses under the *Analytical Skills Development Programme*. The first course, *Analytical Skills Development* (ASDC), was organised in 2004 with the help of financial support from the Dutch government. Subsequently, this course has run at least once a year, with additional funding from the EU for the courses in 2005, 2006, 2007 and 2010. Regional versions of this course have also been developed: a Spanish version, organised for Member States from GRULAC, was delivered in June 2010. Also, under the *Africa Programme* initiative (see Section 3.9), a version of this course was organised for participants from African Member States in 2009 and in 2010.

A second course was developed for analytical chemists already experienced in GC and GC-MS. The *Enhancement of Laboratory Skills in Analysing Chemicals Related to the Convention* (CW-LSE) was first run in 2005 with a variant, focusing on LC and LC-MS, first running 2006. Subsequently, this course has held every year, most recently in May 2010; the GC version three times and the LC version five times.

Participant feedback prompted the development of a third, more advanced course, the *Analysis of Chemicals Related to the Convention in the Framework of OPCW Proficiency Testing* (CW-AC/PT). This was first delivered in 2008 and, most recently, in 2010.

A theoretical demonstration-based workshop on the *Analysis of Chemicals Related to the Convention* (CW-LABEX) was also organised annually from 2004 to 2007. Although not formally part of this programme, it was clearly closely linked to it.

Table 4.1 (below) lists a summary of the courses organised under the Analytical Skills Development Programme (to end 2009).

[13] *Estimated to be 286 participants by the end of 2010.*

Year	Course				
	ASDC	**CW-LSE**	**CW-AC/PT**	**CW-LABEX[14]**	**Regional Courses**
2004	July-August		-	September	-
2005	June-July	Sept.-Oct. (GC)	-	September	-
2006	June-July (x2)	Mar.-Apr. (LC) September (GC)	-	September	-
2007	June-July (x3)	March (LC) Sept.-Oct. (GC)	-	September	-
2008	June-July	May (LC)	September	-	-
2009	June-July	September (LC)	-	-	Mar.-Apr. (Africa)
# of Courses	**9**	**7**	**1**	**4**	**1**

Table 4.1: Courses in the Analytical Skills Development Programme

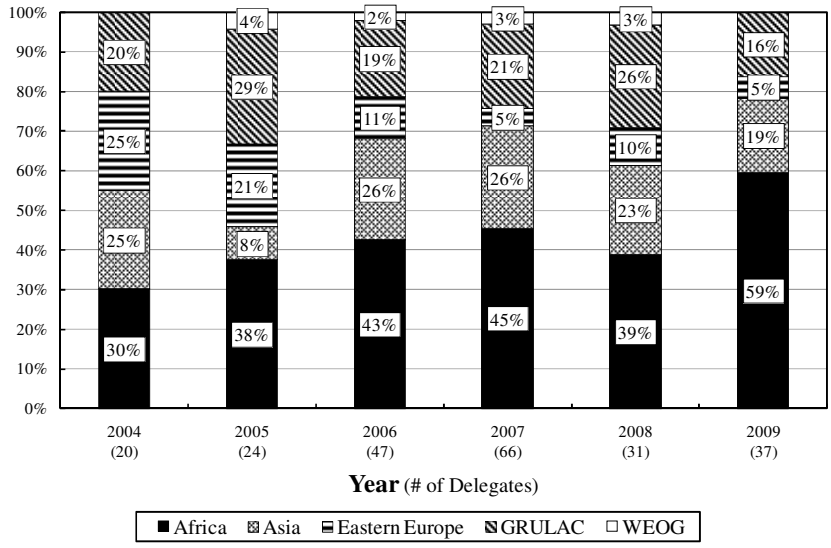

Figure 4.8: Annual Relative Level of Regional Participation across all Analytical Skills Development Courses

Figure 4.8 (above) shows the level of annual regional participation for all courses. Overall, the relative level of regional participation for all courses is: 44% for the Africa group, 22% for the Asia group, 10% for Eastern Europe, 22% for GRULAC and 2% for WEOG. As the programme expanded (2005 to 2007), the relative level of participation from the Eastern European group fell from 21% to 5%. There was also a large increase for the African group in 2009 due to the inception of the *Basic Analytical Chemistry Course* for African Member States; part of the *Africa Programme* (see Section 3.9, above).

[14] *Not formally part of the Analytical Skills Development Programme, but closely linked.*

4.7.2 Programme Evaluation

Evaluation of the *Analytical Skills Development Course* is as follows:

- participants undergo two examinations, one during the course and one at the end;
- participants are required to complete detailed evaluation forms at the end of the course; and,
- there is a post-course evaluation meeting with external contributions.

Figure 4.9 (below) shows the combined participant ratings for courses held from 2007 to 2009. Participants rate different aspects of the programme on a scale of one (poor) to five (excellent). Overall, participants have rated all aspects of the course greater than four. Figure 4.10 (below) shows the examination mark profile for courses run from 2007 to 2009. Overall, over 40% of participants achieved a mark of greater than 80% while less than 7% achieved a mark below 50%. See Annex 3, Section 3.4 for an individual course breakdown for both sets of data.

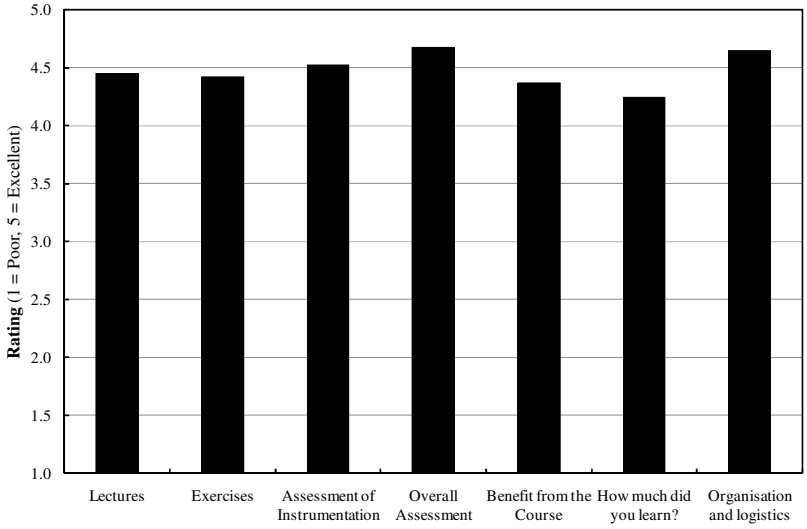

Figure 4.9: Combined Delegate Ratings for Analytical Skills Development Courses (2007-2009)

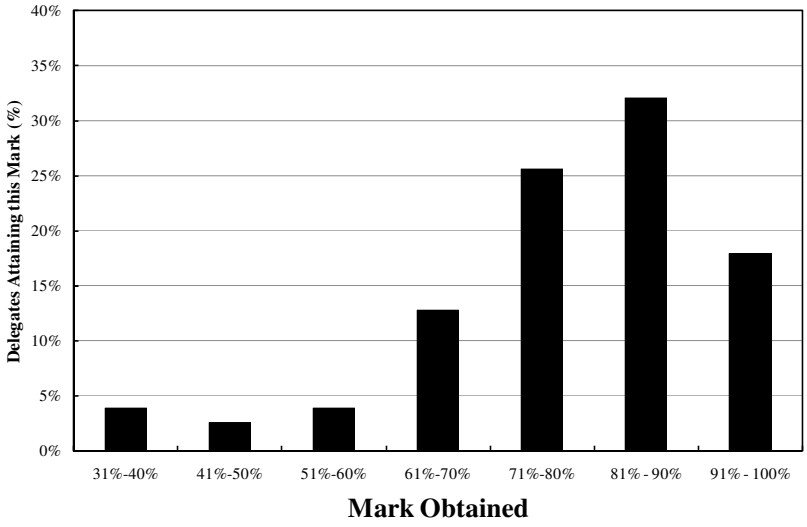

Figure 4.10: Delegate Examination Marks for Analytical Skills Development Courses (2007-2009)

More recently, a survey on the long-term benefits of the entire programme was conducted; the results are presented in Figures 4.11 and 4.12 (below). Of the 263 participants (between 2004 and August 2010), 210 were contacted with a questionnaire and 84 responses were received; giving a margin of error of ±9%. In summary, in addition to rating the courses and their contents highly, participants also believe they have been successful in both applying and disseminating the knowledge gained.

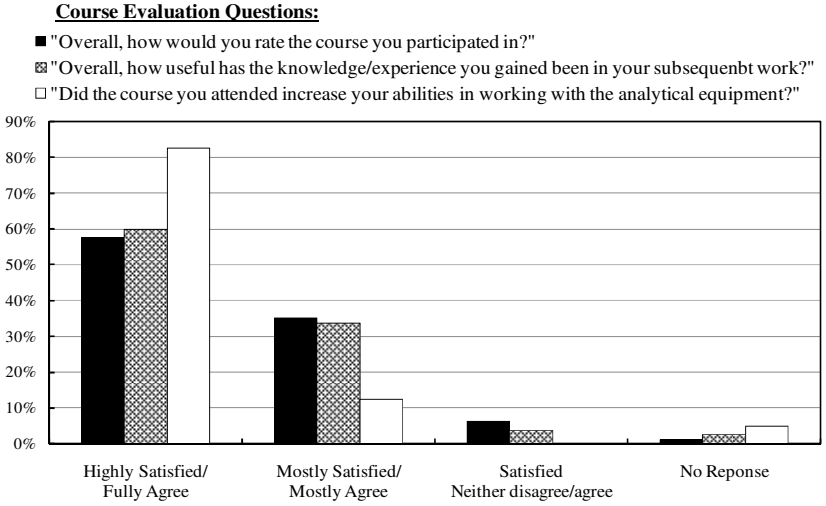

Figure 4.11: Analytical Skills Development Courses Survey - Evaluation of Course Contents

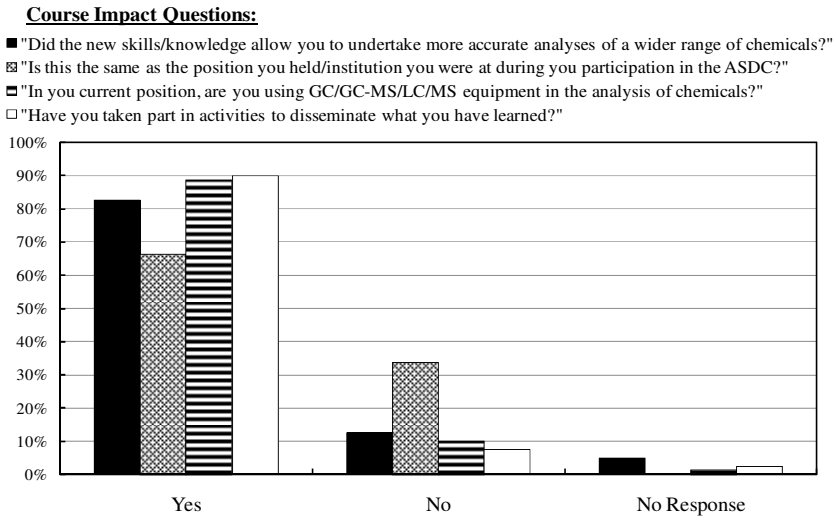

Figure 4.12: Analytical Skills Development Courses Survey - Evaluation on Course Impact

5. Analysis of the Current Level of Implementation against Workshop Themes

The Executive Council decision on *'Arrangements for a Workshop on Article XI of the Chemical Weapons Convention'* (Executive Council, EC-61/DEC.9) identifies four key themes for consideration:

i) National capacity-building for the research, development, storage, production, and safe use of chemicals for purposes not prohibited by the Convention;
ii) Promoting networking and exchange among scientific communities, academic institutions, chemical-industry associations, NGOs, and regional and international institutions;
iii) Enhancing the effectiveness of current international-cooperation programmes of the OPCW; and
iv) Measures by States Parties and the OPCW to facilitate States Parties' participation in the full 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.

5.1 National Capacity Building

National capacity building enhances a Member State's capability to implement the Convention, as well as further their own economic and technical developments in the peaceful use of chemistry. The International Cooperation Branch (ICB) manages a number of programmes which directly contribute to this theme. The *Associate Programme* and the *Analytical Skills Development Programme* both contribute significantly to the development of important personal and professional skills essential for research, development, production and safe use of chemicals. For example, more than 97% of participants in the latter programme believe that their analytical skills have been enhanced. There is also a strong

exposure to, and emphasis placed upon, the adoption of 'good practice'. Particularly those practices identified as important by: governmental agencies; national, regional or international chemical and chemical-industry associations; or other non-governmental organisations. The *Africa Programme* has ensured that African Member States have benefitted more significantly from both of these programmes.

Post-course follow-up of the *Associate Programme* indicates that most associates remain in contact with their National Authority and are available to assist in supporting the implementation of the Convention. In addition, many associates come from academia and are ideally placed to promote wider dissemination of the knowledge and practices they gained. Developments, such as the CD-ROM resource[15], are designed to support and enhance this dissemination. Similarly, for the *Analytical Skills Development Programme*, 90% of former participants report actively engaging in dissemination activities. It is also clear that the *Internship Support Programme* contributes to capacity building through the intensive training of individuals from specific Member States.

The *Laboratory Assistance Programme* and the *Equipment Support Programme* contribute to capacity building from the perspective of infrastructure development. By improving the capabilities of publically funded analytical laboratories through *Technical Assistance Visits*; through the exchange of personal; and, by the provision of 'new' equipment. These all enhance a Member States capability to implement the Convention and support their own chemical industry. Unfortunately, the participation rate in the *Equipment Exchange Programme* is currently very low.

5.2 Networking and Exchange in the Scientific Community

In purely numerical terms, the *Conference Support Programme* contributes most to this theme. The degree of networking can be analysed by considering the level of inter-regional exchange across this programme; delegates from one region attending events in other regions. This has been done for 2008 and 2009 and the data is presented in Figures 5.1 and 5.2 (below). Typically, more than 80% of delegates from a particular region have attended events in other regions. The only exceptions are for delegates from Africa in 2008, when only 70% went to other regions, and delegates from Eastern Europe in 2009, when only 58% went to other regions.

There was a high level of participation from the African group in Asian events (58% in 2009), from GRULAC in Asian events (more than 75% in both years), from the Asian group in Eastern European events (more than 60% in both years) and from the Eastern European group in WEOG events (59% in 2008 and 42% in 2009). It is possible that this reflects, to some degree, the relative level of technological and economic aspiration in the peaceful use of chemistry between the regions. This, in itself, may be limiting the extent of international networking resulting from this programme; consequently inhibiting the fullest possible exchange of technological and scientific information. Additionally, in both of the years considered, more than 70% of WEOG participants engaged in African events. This clearly maximises the potential for establishing networks between the most developed and least development Member States.

[15] *Issued during the university segment and containing almost all of the teaching material used in this segment.*

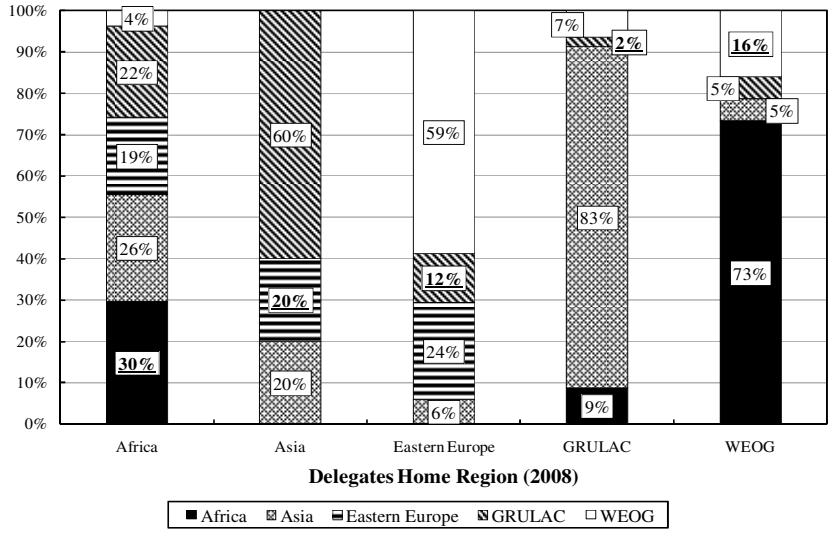

Figure 5.1: Relative Level of Inter-Regional Exchange in the Conference Support Programme in 2008

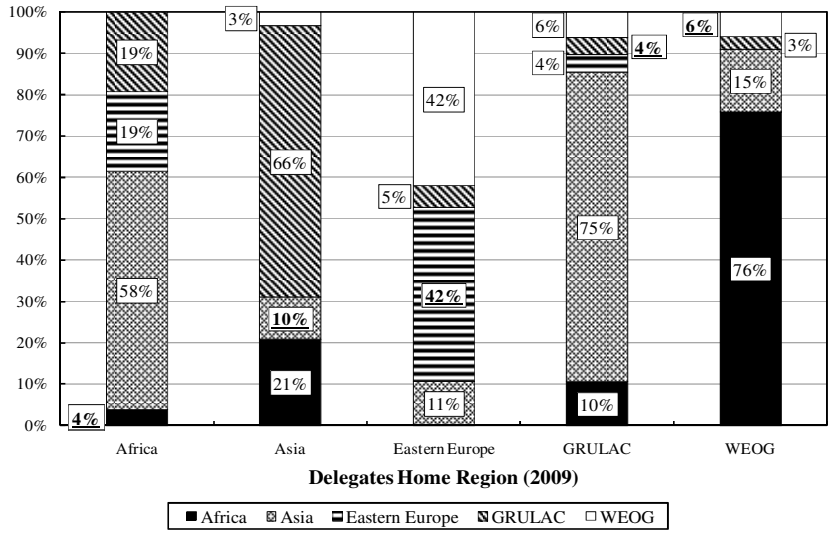

Figure 5.2: Relative Level of Inter-Regional Exchange in the Conference Support Programme in 2009

In numerical terms, the *Associate Programme* and *Analytical Skills Development Programmes* are both significantly smaller than the *Conference Support Programme*[16]. However, the duration of each course (see Sections 4.6 and 4.7 above) provides the opportunity for more resilient, longer lasting professional relationships to develop between participants; for both programmes there is anecdotal evidence of this. In addition, with interns typically spending three months in host laboratories, the *Internship Support Programme* also provides opportunities for deeper and more meaningful networks to become established. These may be developed between interns and supervisors as well as between 'home' and 'host' institutions in different Member States.

[16] *In combination, the total number of participants on these programmes is only equivalent to 24% of the number of participants on the Conference Support Programme.*

5.3 Enhancing the Effectiveness of Current Programmes

Enhancing programme effectiveness strongly depends on the nature and timeliness of the feedback and evaluation processes employed. First, feedback should be sought from participants during, or immediately after, their involvement with the programme. This should focus on the quality and effectiveness of the programme's administration, content and delivery (as appropriate to the programme). Subsequently, at some pre-defined period after the programme has finished, further feedback should be sought from participants. This time the focus should be on the applicability and impact of the programme. Finally, feedback should also be sought from programme administrators, deliverers, hosts (as applicable) and participant's National Authorities. Evaluation and analysis of both quantitative and qualitative output of the feedback processes should be prompt and involve external parties, including representatives of any partner organisations. Performance should be measured against the stated aims and objectives of the programme.

Of the ICB programmes currently in place, the *Associate Programme* (outlined in Section 4.6.2, above) and Analytical Skills Development Course (see Section 4.7.2), stand out as a clear example of good practice in this area. The comprehensive feedback and evaluation process has initiated and driven programmes of continual development. This has enhanced the effectiveness of programme delivery and outputs. For instance, for the Associate Programme, it is particularly worth highlighting that the main purpose of this ongoing development has been threefold. To enhance the associate experience, to further develop their capacity to disseminate good practice in the peaceful use of chemistry, and to support the implementation of the Convention. It has not been driven simply by a desire to improve the quality of feedback which, from the very first programme, has been consistently high.

Similarly, effective feedback and evaluation processes have been put in place for the *Analytical Skills Development Programme* again leading to significant programme development. The *Conference Support Programme* (see Section 4.1.2), the *Programme for the Support of Research Projects* (see Section 4.2.2) and the *Internship Support Programme* (see Section 4.5.2) all have structured evaluation processes. However, the nature of these programmes means that much of the data is qualitative and case specific. Given the amount of data available (in some cases stretching back more than a decade), opportunities now exist for a more holistic review and assessment. The *Laboratory Assistance Programme* and the *Equipment Exchange Programme* necessarily have much less structured, and less consistent, feedback and evaluation processes. Further, the lower level of activity on these programmes means that a much smaller data set exists presenting less opportunity for a holistic assessment.

The ICB programmes are in addition also evaluated internally by the Office of Internal Oversight and its implementation is looked at by the External Auditors which provide feedback for fine tuning the programmes. This fine tuning is carried out on a regular basis to make the programmes more effective.

5.4 Full Exchange

Numerous and meaningful opportunities exist for the exchange of scientific knowledge and technical information within many of the programmes organised by ICB. In themselves, well-organised and well-attended conferences are ideal forums for the dissemination of 'state-of-the-art' scientific knowledge; internships provide opportunities for detailed and in-depth understanding of contemporary practice; and, the ICB's skills development courses facilitate

the direct transfer of skills-based knowledge and good practice from established experts to course participants. However, two activities, the *Information Service* and the *Equipment Exchange Programme*, which could contribute significantly to this theme, have proven to be the most difficult due the their structure. Requests for information have fallen from twenty in 1997 to four in 2007 and, despite some notable exchanges involving personal computers, there has been little transfer of 'chemical' equipment.

The issue of full exchange becomes more challenging when considering international free trade in chemicals - this has been a difficult issue from the time of the Preparatory Commission. Although this issue has yet to be resolved, some progress has been made. In response to the two questionnaires previously sent to Member States (see Section 2.3, above), of 188 State Parties: 63 (33%) have reviewed their legislation and found it to be consistent with the Convention; 3 (2%) are amending their legislation accordingly; 18 (10%) are in the process of reviewing their legislation; but, 104 (55%) have provided no information or they have not yet begun their review.

6. Concluding Comments and the Way Forward

The International Cooperation Branch has been successful in creating a wide-ranging portfolio of programmes aimed at supporting the implementation of Article XI. The longevity of many programmes, and the ongoing enthusiasm from Member States to participate, is a testimony to their success. National Authorities, particularly from Member States whose economies are developing or in transition, should be encouraged to promote awareness of the Convention, the OPCW and ICB's activities. The *Industry Outreach* initiative and the *Africa Programme* are excellent examples of promoting OPCW's contribution in Member States on a regional basis. ICB should continue to develop these initiatives and consider other ways to support National Authorities in raising awareness.

National capacity building and networking across the scientific community are addressed well within the current programmes. However, differences in the relative levels of regional participation should be monitored and reviewed. Scope exists for the expansion of these programmes further and for developing new initiatives. However, this must be considered in the context of regional need, benefit to implementation and budgetary constraints. Continuing partnerships with other organisations have proven particularly successful in developing effective, 'high-demand' programmes: the *Associate Programme* and the *Analytical Skills Development Programme* being prime examples. ICB might consider consulting further with established or prospective partners on future initiatives.

The *Associate Programme* and the *Analytical Skills Development Programme* also stand out as examples of good practice in programme evaluation and development. Consequently, there has been significant enhancement in the effectiveness of these programmes, as evidenced by feedback received. This good practice could be used to great effect in other programmes and it is encouraging that resources have been made available for this. Furthermore, given the large amounts of evaluation data available, combined with the large number of individuals who have been involved in ICB activities, it may now be possible – and timely - to conduct a comprehensive impact assessment of these activities.

Finally, full exchange, particularly concerning international trade, remains a more problematic area. Member States should be encouraged again to review and report on their existing regulations.

The background paper has been prepared for discussion purposes for the Article XI workshop on 24-25 November 2010. The assistance of Dr. David Faraday, Lead Facilitator in the preparation of the paper is gratefully acknowledged.

The paper has not been edited by the OPCW.

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Annex 1: Article XI of the Chemicals Weapons Convention

1. The provisions of this Convention shall be implemented in a manner which avoids hampering the economic or technological development of States Parties, and international cooperation in the field of chemical activities for purposes not prohibited under this Convention including the international exchange of scientific and technical information and chemicals and equipment for the production, processing or use of chemicals for purposes not prohibited under this Convention.

2. Subject to the provisions of this Convention and without prejudice to the principles and applicable rules of international law, the States Parties shall:

   (a) Have the right, individually or collectively, to conduct research with, to develop, produce, acquire, retain, transfer, and use chemicals;

   (b) Undertake to facilitate, and have the right to participate in, the fullest possible exchange of chemicals, equipment and scientific and technical information relating to the development and application of chemistry for purposes not prohibited under this Convention;

   (c) Not maintain among themselves any restrictions, including those in any international agreements, incompatible with the obligations undertaken under this Convention, which would restrict or impede trade and the development and promotion of scientific and technological knowledge in the field of chemistry for industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes;

   (d) Not use this Convention as grounds for applying any measures other than those provided for, or permitted, under this Convention nor use any other international agreement for pursuing an objective inconsistent with this Convention;

   (e) Undertake to review their existing national regulations in the field of trade in chemicals in order to render them consistent with the object and purpose of this Convention.

Annex 2: Specific Programme Details

A2.1 Research Areas for the Programme in Support of Research Projects:

The areas of research that may receive grants from the OPCW "for the development and promotion of scientific and technical knowledge in the field of chemistry for industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes",[17] include the following:

(a) technologies for the destruction of toxic chemicals in a safe and environmentally sound manner;

(b) management, with respect to the handling and use, of toxic chemicals;

(c) development of analytical methods and validation techniques for toxic chemicals;

(d) verification techniques and methods relevant to the Convention;

(e) medical treatment and prophylactics for exposure to toxic chemicals;

(f) alternatives to scheduled chemicals for purposes not prohibited under the Convention; and

(g) risk assessment with respect to toxic chemicals.

A2.2 Potential Activities for Support under the Laboratory Assistance Programme

Without precluding any other forms of assistance, the specific type(s) of activities which may be considered for support, may include any or a combination of the following:

a) Conduct of technical evaluation or audit of the laboratory by an experts(s) so as to improve its level of competence;
b) preparation for gaining accreditation from recognised international, regional or national bodies e.g. preparation of quality manual, guidelines and standard operating procedures, synthesis or preparation of reference materials etc;
c) training of technical personnel at an advanced laboratory/institution for development of skills;
d) participation of key staff in relevant scientific seminars or conferences that may relate to laboratory quality management, technical competence etc.;
e) internship at an accredited laboratory for skills development, method development research, validation of analytical techniques with reference to international or national standards, etc.;
f) participating in or organising national or regional courses or specialised seminars at the laboratory with the help of an accredited laboratory, accreditation body, expert, etc; and,
g) conduct small-scale research projects relating to method development, validation etc. which can lead to the strengthening of the technical competence of the laboratory.

A2.3 Potential Areas of Study for the Internship Support Programme

The areas of study for internships include the following:

a) training in analytical methodologies and validation techniques for toxic chemicals;
b) techniques in handling and using toxic chemicals;
c) methods of destroying toxic chemicals in a safe and environmentally sound manner;
d) medical treatment and prophylactics for exposure to toxic chemicals;

[17] Chemical Weapons Convention, Article XI, subparagraph 2(c).

e) verification techniques and methods relevant to the implementation of the Convention; and
f) any other application of chemistry for purposes not prohibited under the Convention.

A2.4 Reporting Guidelines for the Internship Support Programme

Upon completing the internship, the intern will submit a detailed report to the Secretariat on the results achieved, the benefits derived from the intern's professional perspective, and the benefits that would accrue to his/her institution, and to his/her country. The report should also indicate how the intern proposes to use the knowledge gained from the internship for the overall development and peaceful application of chemistry for purposes not prohibited under the Convention. The comments of the intern's supervisor at the institution where the internship took place should also be enclosed.

A2.5 Objectives of the Associate Programme

The objectives of the Associate Programme are:

1. to facilitate industry-related national implementation of the CWC;
2. to enhance national capacities in Member States by offering training in chemistry/chemical engineering related areas to personnel from industry, university and government;
3. to facilitate trade in these areas through adoption of good practices in chemical industry;
4. to broaden the basis of talent pool related position in National Authorities, institutions and economic of the Member States as well as the Technical Secretariat.

A2.6 Companies Providing Placements on the Associate Programme

The following Chemical Companies, listed by Member State, have provided placements for the Associate Programme:

Belgium:
- Bayer
- Corn Van Loocke
- Evonik-Degussa
- ExxonMobil
- Janssen Pharmaceutica
- LANXESS
- Polyol
- Solvay SA
- Tessenderlo Chemie
- Merck Santé
- Veolia
- Rodhia

Denmark:
- Danisco
- LeoPharma

Finland:
- Kemira Engineering
- Nestle Oil

France:
- Arkema
- Atofina
- Hydro Agri
- Clariant

Germany:
- BASF
- Bayer
- CIBA
- Degussa
- Vinavil
- Zchimmer&Schwarz

India:
- GNFC Fertilizers
- Heubach Colour
- Hikal
- Ranbaxy Laboratories
- United Phosphorous Ltd.

Italy:
- Aussimont
- Bracco
- Bristol-Meyers Squibb
- Endura
- EniChem
- Polimeri Europa.
- Solvay Solexis
- Syndial

Japan:
- Asahi Glass
- Asahi Kasei Chemicals
- Kyowa Hakko
- Mitsui Chemicals
- Mitsubishi Chemical
- Mitshubishi Gas Chemical Company
- Showa Denko
- Sumitomo Chemical
- Ube Industries

The Netherlands:
- Akzo Nobel
- AVR Chemie
- Basell Polyolefins
- Brunner Mond
- Croda
- DuPont Nederland
- Dow Benelux
- DSM
- Exxon Mobil
- Neville Chemical Europe
- LyondellBasell
- Lyondell Chemie
- Shell Chemicals
- Uniqema
- Yara Sluiskil

Norway:
- Yara

Poland:
- Azoty-Tarnow

Qatar:
- QAFCO
- QVC

Spain:
- BASF
- Bayer Polymers
- DuPont Ibérica
- Fertiberia
- FMC Foret
- PETRESA
- Repsol YPF
- UBE

Sweden:
- Akzo Nobel
- AstraZeneca
- Borealis of Sweden

Switzerland:
- Clariant
- CIBA
- Lonza

United Kingdom:
- AstraZeneca

Annex 3: Evaluation Details

A3.1 Conference Support Programme - Evaluation Form Questions

The following questions are used on this form:

1. **Basic organisational information of the event**
   a. Were there any changes in the event venue and duration? If yes, please specify the reasons.
   b. Who were the participants? Select from the following: representatives of inter-governmental organisation, national or local government, university, NGOs, chemical companies, chemical associations, and others.
   c. Methodology of the event. Select from the following: only lectures, combination of lectures and poster presentations, combination of lectures and training, and others.

2. **Substance of the event**
   a. Areas of chemistry covered.
   b. Did the event achieve tangible outcomes as prescribed in the Form. If yes, are they measurable?
   c. Did the event discuss particular topics having relevance to the issues or problems of developing countries? If yes, please specify.
   d. Please mention any new scientific achievements during the event.

3. **Post events follow-ups**
   a. Were you able to submit required documents, such as, conference report, financial statements, cash receipts, no later than 30 days after the conclusion of the Conference? If no, please specify the reasons.
   b. Are any follow-ups planned? If yes, please specify.
   c. Did the event envisage the book of abstracts and the publication of the proceedings?

4. **OPCW sponsorship related assessment**
   a. Was the event sponsored by other donors?
   b. Did OPCW sponsored participants make presentations? How many and who.
   c. Were there any changes in the subject of presentations by any of the OPCW sponsored participants and why?
   d. Were there any representatives of a Non State-Party at the event?
   e. What was the involvement (for example assistance in cash or kind, deputation of representatives, etc.) of the government including the National Authority?
   f. What were the actual numbers of international and local participants?
   g. How do you assess the overall support of the OPCW and what are your suggestions for future events?

A3.2 Programme for the Support of Research Projects – Extracts from Evaluation Workshop Reports

A3.2.1 African Workshop (Nairobi, Kenya) - Positive Results

Funding has had positive results for the grantees including:

- **Opportunities opened up**: IFS/OPCW funding has provided a springboard for further research enabling scientists to apply for and obtain further funds from other sources and to expand the network of collaborators. It has also enabled teams to form and expand their research agenda.

- **Empowerment** of the grantees has enabled them to get on board of important committees within their government, which can influence science policy positively.
- **Managerial and leadership skills** have been developed by the grantees in terms of academic rewards (promotion) and international exposure from the IFS/OPCW grants.
- IFS/OPCW support enables the grantees to start their research careers and these grants should be looked as **stepping stones for their future career**.

A3.2.2 Latin American Workshop (Montevideo, Uruguay) - Key Outputs

From the participants point of view it was concluded that:

- The workshop provided an opportunity for the grantees to give their direct view and feedback on the IFS/OPCW support including suggestions on possibilities how to improve the support.
- Also, the workshop through its scientific sessions and study visits fulfilled its aim to be a forum for young scientists, from various research disciplines and research institutions in Latin America to present their latest research results and increase knowledge within the research field, learn about new techniques, trends and also challenges.
- The study visits were very well arranged by the host institutes/departments and were a highly appreciated part of the workshop. Through the careful arrangement of the program, the participants had the opportunity to increase the knowledge in various research fields, as well as in techniques and bioassays and learnt more on scientific equipment. Perhaps most importantly, the study visits showed to be a good tool for stimulating and promoting South-South collaboration and served to increase the interactions and discussions between participants already at an early stage of the workshop.
- The workshop opened up the possibilities for young scientist to establish links with existing networks, to create new ones (as an example it could be mentioned that the workshop stimulated to the creation of a new network within the field of ecological and environmental chemistry), link up with institutes, and to interact with other scientists in the region. The workshop has increased the grantees awareness of existing capacity in laboratories in the region in terms of equipment, scientific techniques, etc. The workshop should be viewed as a successful platform, facilitating the interaction between IFS/OPCW grantees and other scientists, networks, institutes within the field of chemistry, biological activity and environmental aspects of natural resources.

A3.2.3 Asian Workshop (Chiang Mai, Thailand) - Key Outputs

From the participants point of view it was concluded that:

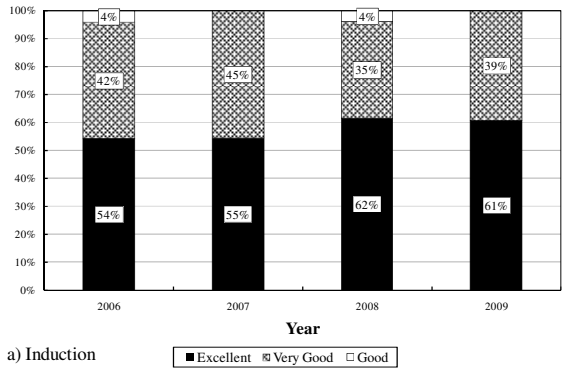
- The workshop provided an opportunity for the grantees to give their direct view and feedback on the IFS/OPCW support including suggestions on possibilities how to improve the support.
- Also, the workshop through its scientific sessions and study visits fulfilled its aim to be a forum for young scientists, from various research disciplines and research institutions in Asia to present their latest research results and increase knowledge within the research field, learn about new techniques, trends and also challenges.
- The study visits was very well arranged by the local Organisers and it was an appreciated part of the workshop. Perhaps most importantly, the study visit showed to be a good tool for

stimulating and promoting South-South collaboration and served to increase the interactions and discussions between participants and also with IFS and OPCW staff.

- The workshop opened up the possibilities for young scientist to establish links with institutes, and other scientists in the region. The workshop has increased the grantees awareness of existing networks, capacity in laboratories in the region in terms of equipment, scientific techniques, etc. The workshop should be viewed as a successful platform, facilitating the interaction between IFS/OPCW grantees and other scientists, institutes within the field of chemistry, biological activity and environmental aspects of natural resources in the region.

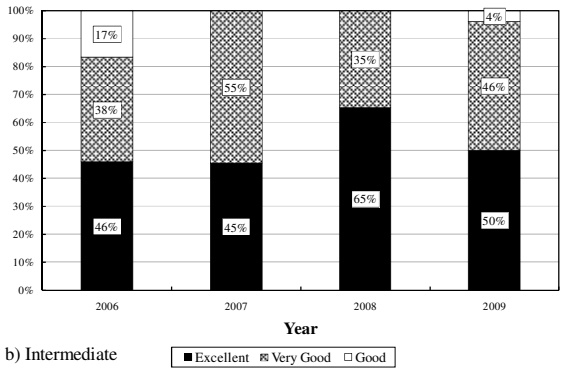
A3.3 Associate Programme - Annual Ratings for each Segment

The following figures give the annual breakdown of the ratings for each segment of the *Associate Programme*:



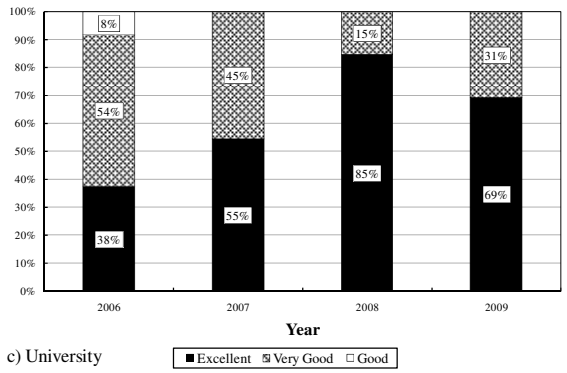
a) Induction

Figure A3.1: Annual Evaluation of the Induction Segment (2006-2009)



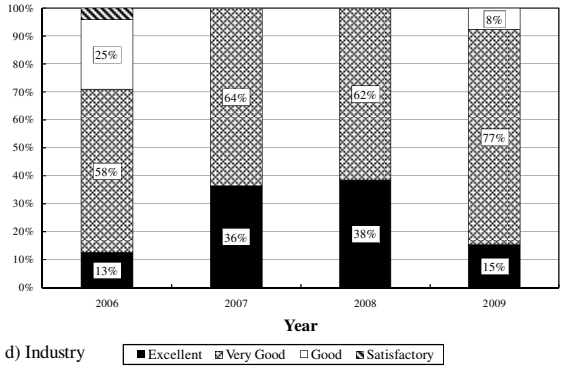
b) Intermediate

Figure A3.2: Annual Evaluation of the Intermediate Segment (2006-2009)



c) University

Figure A3.3: Annual Evaluation of the University Segment (2006-2009)



d) Industry

Figure A3.4: Annual Evaluation of the Industry Segment (2006-2009)

A3.4 Associate Programme - Detailed Breakdown of Perceived Gains during the University Segment

The following figures give a detailed breakdown of the gains in 'knowledge' and 'experience' perceived by associates in the different areas covered during the university segment of the *Associate Programme*:

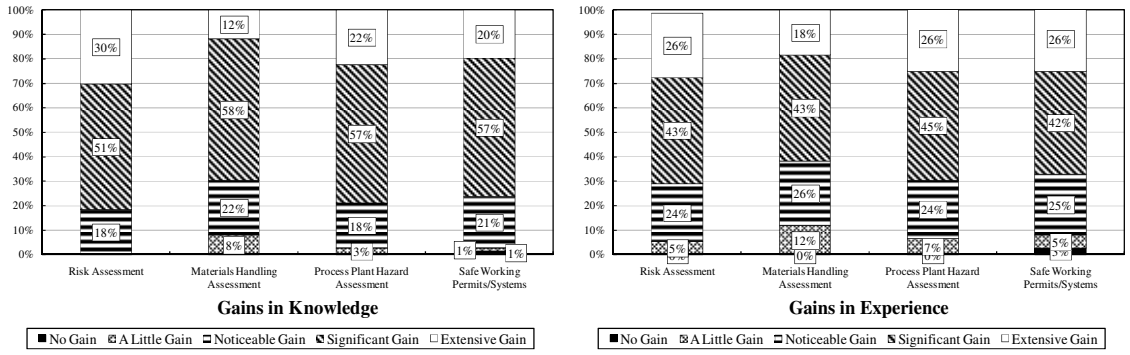


Figure A3.6: Health and Safety Management (2004-2007)

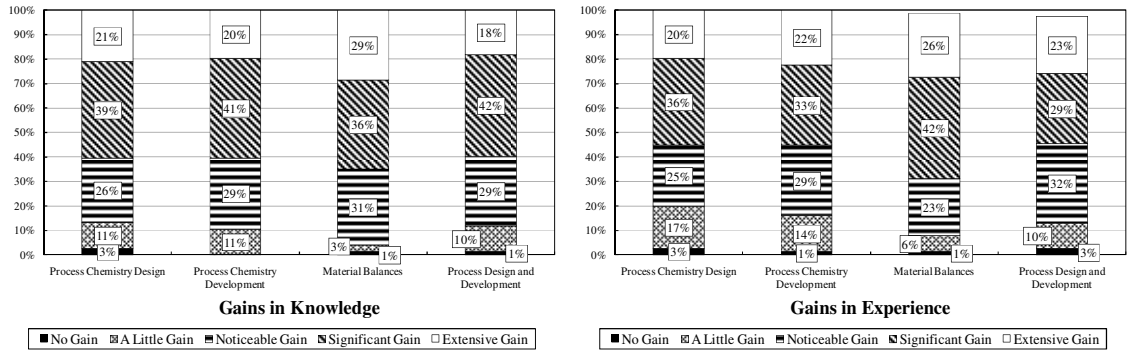


Figure A3.7: Chemistry & Process Design and Development (2004-2007)

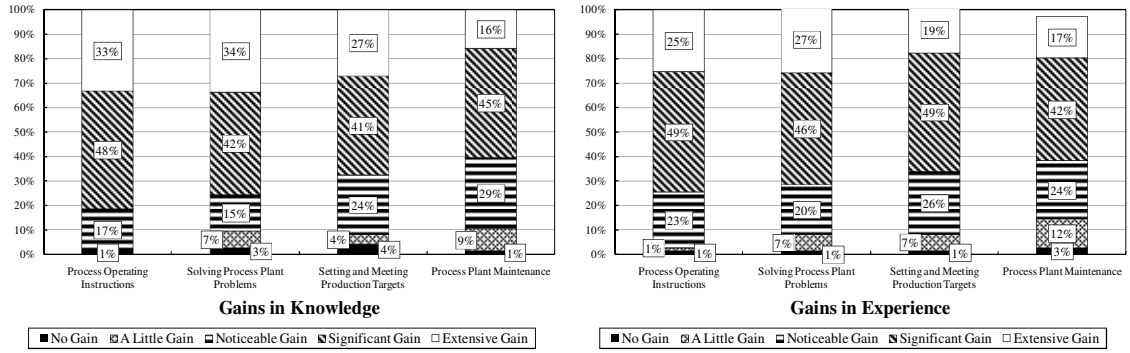


Figure A3.8: Process Operations (2004-2007)

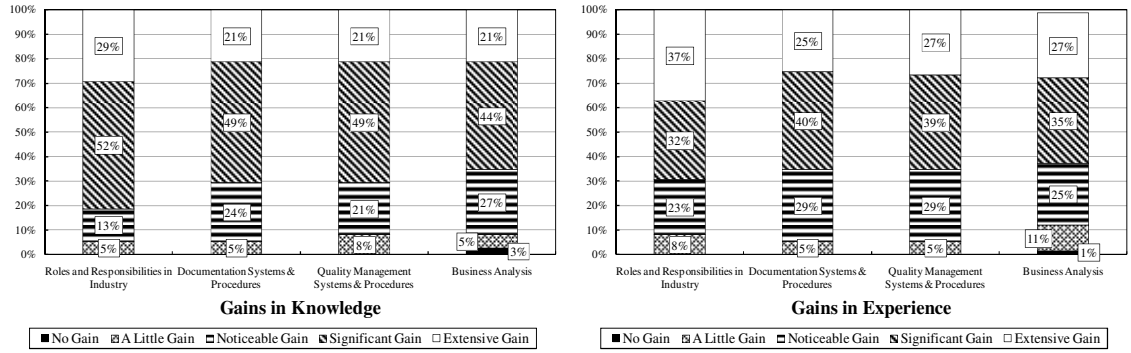


Figure A3.9: Chemical Industry Business (2004-2007)

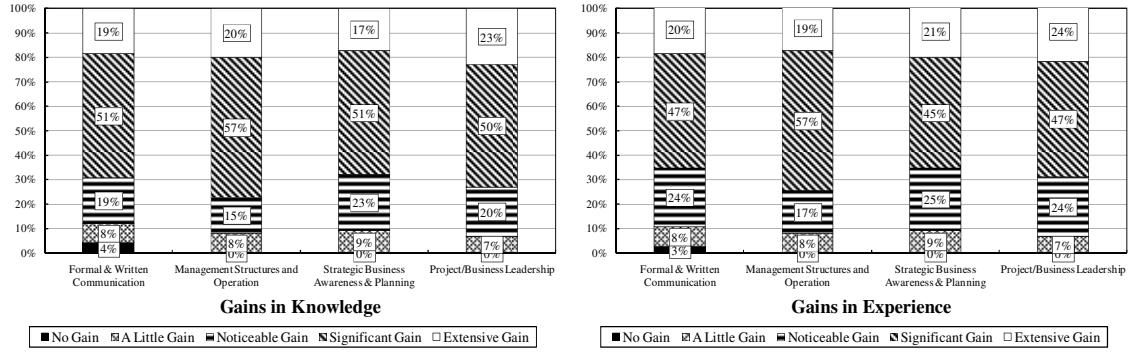


Figure A3.10: Management Skills (2004-2007)

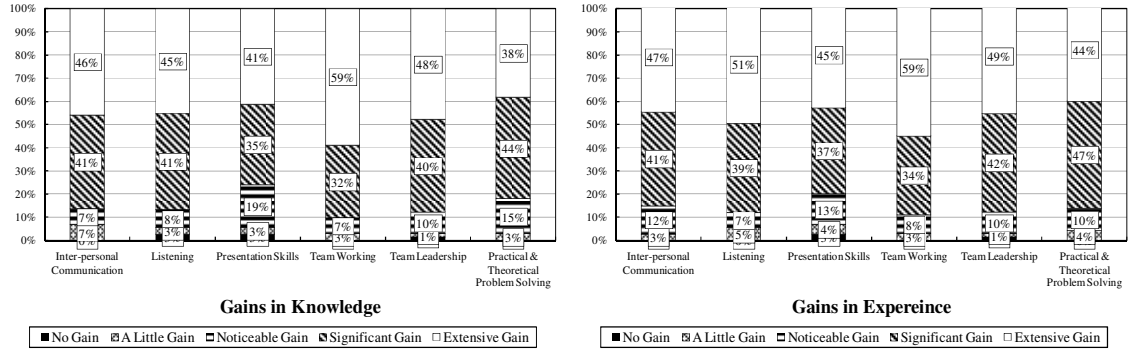


Figure A3.11: Inter-personal Skills (2004-2007)

A3.4 Analytical Skills Development Course – Annual Breakdown of Evaluation Data

Annual breakdown of delegate ratings and examination mark profiles for the *Analytical Skills Development Course*:

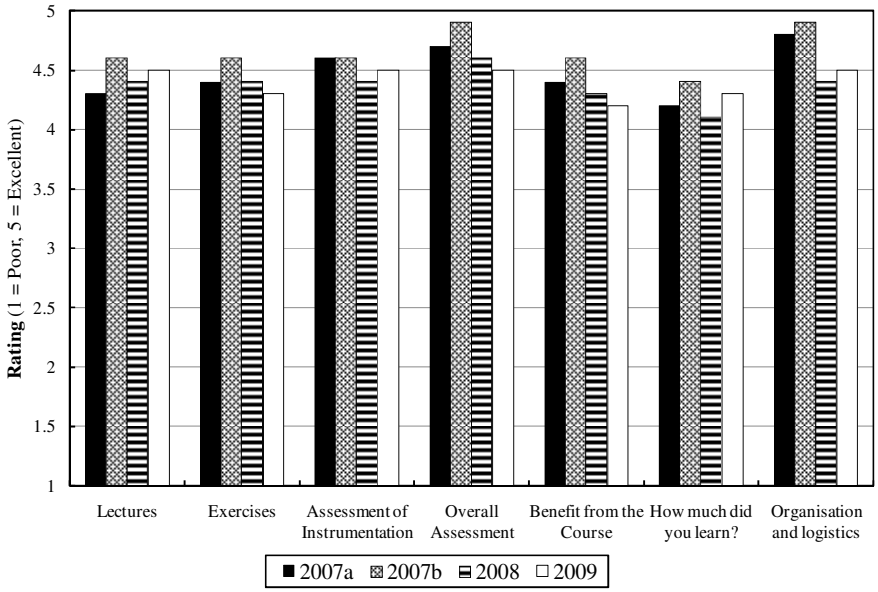


Figure A3.12: Annual Delegate Ratings for Analytical Skills Development Courses (2007-2009)

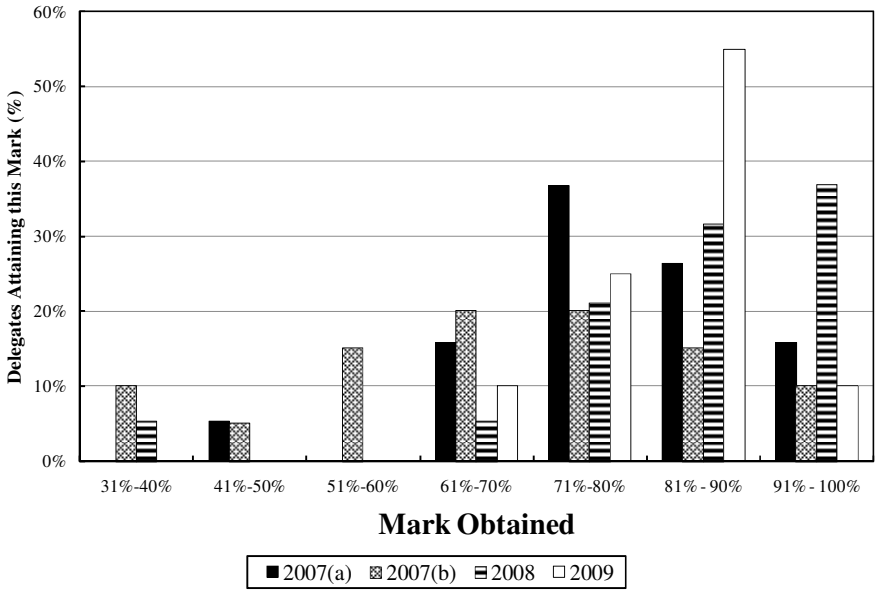


Figure A3.13: Annual Delegate Examination Marks for Analytical Skills Development Courses (2007-2009)