



# International Organization for Chemical Sciences in Development

## Annual Report 2012

### 1. Introduction

This report covers the period January-December 2012 and should be read as a follow-on to the Biennial Report 2010-11 which sets out the background and context to IOCD's evolving programmes and changes in progress in its structure and strategy.

Key decisions taken at the 2011 IOCD General Assembly included the following:

- **Strategy 2011-2020:** IOCD's activities were focused to concentrate on three areas: Chemistry for Better Health; Chemistry for a Better Environment; and Strengthening Education in the Chemical Sciences. In each case, the main emphasis in future would be on efforts to influence science and innovation systems rather than individual scientists or institutions, through engagement between scientists, policy makers and other key actors. IOCD works globally to strengthen the role of the chemical sciences in development, but its main emphasis is on low- and middle-income countries (LMICs).
- **Governance:** The governing body ("General Assembly") was reformed, so as to be constituted by eight 'members' comprising the President, Vice President, Treasurer, Secretary, Executive Director and at least three others elected by the General Assembly.
- **Communications:** IOCD would develop its communications approaches in order to more effectively project its role, promote knowledge of its successes and uptake of its ideas and help to attract new participants and funding.

Consequently, IOCD has been passing through a transition period in 2011-12, in which several new programme initiatives and working relationships have been begun or examined, an overhaul of IOCD's communications has been progressed and different approaches to financing have been explored.

Since the work plans and budgets for 2011-12 were approved at the same time as the new strategy and the implementation of the latter is gradually being introduced, this report is structured around the previous format of IOCD Working Groups and Projects. The Workplan for 2012-13 and future reports will be structured around the new format of IOCD Strategic Priorities.

### 2. Progress of IOCD Working Groups

The activities of the IOCD Working Groups during 2012 are summarised below. Further details can be found on IOCD's website at [www.iocd.org](http://www.iocd.org).

#### A Biotic Exploration Fund (BEF)

IOCD's Biotic Exploration Fund (BEF) was established in the 1990s to facilitate and catalyse ethical bioprospecting worldwide. The BEF has assisted several LMICs in Africa, Asia and Latin America to develop policies for ethical, sustainable bioprospecting, helping establish the foundations for new products and processes that will contribute to better health and economic development.

In 1998 IOCD cooperated with the International Centre of Insect Physiology and Ecology (ICIPE) in Nairobi, Kenya, to establish a bioprospecting programme that continues to expand and prosper. Follow-up since then with the Government of Kenya led to the establishment in 2011 of a national bioprospecting strategy supported by Sh10 billion funding. This made Kenya among the first countries in the world to have a bioprospecting roadmap after establishment of the Nagoya Protocol on access and benefit sharing.

During 2012, continuing efforts were made by IOCD's Dr. Kilama at the ministerial levels to advance getting bioprospecting-suitable legislation put in place both in Kenya and Uganda and to facilitate the establishment of a new public-private partnership in Kenya to conduct bioprospecting.

## **B Books for International Development**

The Books for International Development (BID) project has the goal of providing university-level books to developing countries in Africa. Recent wars and continued poverty have created a need for new university libraries and holdings. Donated books are shipped to the recipient country by large shipping container of 10 pallet loads (20,000 lbs. per shipment). Although science books are most requested, BID accept donations of any university-level books in other disciplines, which can be textbooks or others. Journals and computers are also acquired. Material donated is typically no more than 15 years old and in very good condition.

During 2012 BID collaborated with the African Academy of Sciences (AAS) in Nairobi, Kenya to help supply the Academy with computers and conference/classroom furnishings and in November 2012 was able to ship 16 computers with monitors, mice, keyboards and cabling, 60 student desks, 2 large blackboards (4 m long) and 3 white boards. These supplies will permit the Academy to conduct conferences, classes, seminars etc. to benefit the scientific community throughout Africa.

In consultation with the RADMASTE Centre at the University of Witwatersrand, Johannesburg, South Africa, BID explored arrangements for shipment of university level books to Rwanda University.

## **C Distance Learning**

### **Medicinal Chemistry**

The activities of the Medicinal Chemistry Working Group continued to focus on the continual revision, administration, distribution and management of the IOCD interactive distance learning Short Course on Contemporary Medicinal Chemistry. This is distributed worldwide via the internet at modest cost due to the cooperation of the Continuing Learning Office of the School of Pharmacy, Kansas University. In 2012 fifty students availed themselves of this program. An article describing the distance learning activities was in preparation for submission to an international journal.

### **Online Organic Chemistry tutorials**

The Teaching by Web project continued to provide interactive distance learning in Spanish in Organic Chemistry and Chemoinformatics. This is distributed worldwide via the internet with 3 web sites:

<http://organica1.org>

<http://organica1a.org>

<http://www.iocd.unam.mx/organica/>

1,934,450 visits were made to the sites during 2011, of which 80% were from Spanish-speaking countries. There were 1,429,130 visits during Jan-Oct 2012.

## **D Plant Chemistry**

Since 1988, the Plant Chemistry Working Group has organized conferences and workshops that have provided opportunities for LMIC natural products chemists to network, update their knowledge about isolation and structure elucidation and learn techniques for preliminary biological screening which they could apply in their own laboratories.

The Working Group organized the International Conference on Functional Molecules in Nature, in Nanjing, China 22-24 September 2012, attended by 115 participants from 11 countries. There were opening lectures by HRH Princes Chulabhorn of Thailand and Kurt Hostettmann, with 16 plenary lectures by eminent Chinese and international scientists, 39 short lectures and 16 poster presentations. The China Pharmaceutical University, Nanjing was co-organizer of the symposium and the State Key Laboratory of Pharmaceutical Biotechnology and the State Key Laboratory of Natural Medicines were also associated with the organization. The main sponsor was the National Natural Science Foundation of China. The aim of the 2012 IOCD International Conference on Functional Molecules in Nature was to discuss trends, present latest results, and exchange ideas relevant to the chemistry and biology (particularly pharmacy) of natural products, including phytochemicals and

microbial secondary metabolites. Session themes included: Bioanalytical and Medicinal Chemistry; Natural Products; Traditional Medicines; Functional Molecules; Natural Bioactives; and Chemical Biology and Ecology.

## **F Microscale Science**

Alex Pokrovsky, Director of the IOCD microscience project, continued to undertake activities to promote the use of microscale kits, including:

- Work continued with Tatarstan and Bashkortostan Republic of the Russian Federation: Dr Pokrovsky undertook missions (the latest in September and October 2012) in Kazan and Ufa to work with two UNESCO-associated centres on microscience experiments. Key aspects were methodological work with the local partners to produce new teaching and learning materials on microscience experiments for the different levels of education and the creation of the new types of microscience kits. New methodological materials were produced in Russian.
- The Gambia: Dr Pokrovsky continued to work with Gambian partners on the preparation of a project document. Due to UNESCO financial difficulties, further work has been delayed.

James Cosentino and Alain Krief engaged in exploratory work to develop collaborative programmes with the African Academy of Sciences, with which IOCD established an MOU in 2012. One area that attracted the interest of the AAS is the introduction of microscale science into training curricula for science teachers. To pursue this, Profs. Cosentino and Krief developed a number of contacts, including with UNESCO in Paris and the RADMASTE Centre in Johannesburg and held a number of meetings with relevant parties, including a joint visit to the AAS in Nairobi in October 2012.

## **3. Secretariat activities**

IOCD's Executive Director is responsible for the conduct of a number of Secretariat core functions and for overseeing the strategic development of the organization.

Secretariat core functions concerned with the general administration and management of the organization include: maintaining IOCD's office at the University of Namur and legal presence as an NGO in Belgium; communications with the governing body, Senior Advisory Council, Working Groups and Projects, potential and actual collaborators and other interested parties; organization of and reporting on the annual General Assembly meetings; overseeing financial disbursements to Working Groups and projects and monitoring, evaluating and reporting on their activities; representation of IOCD at meetings and gatherings. Some of the key functions are conducted in close collaboration with relevant officers of IOCD and/or members of its governing body, the General Assembly, e.g. Michael Tempesta (Treasurer – legal, accounting and insurance costs); Stephen Matlin (General Assembly member – communications, events organization and planning, strategic management).

- Following negotiations with the Executive Director, Namur University accepted to become the official host of IOCD's Secretariat and a Letter of Agreement was received from the University in July 2012. The change of IOCD's official address in Belgium has been notified to the relevant Belgian authorities via IOCD's Belgian lawyers.
- The Executive Director has engaged in discussions with the Mayor of Namur to try to obtain some logistic support from the city for IOCD's activities. The City has offered office space for IOCD's use.
- Both IOCD and OCDI are in corporate compliance with the respective requirements in Belgium and the USA. For OCDI, both US IRS tax filings and Directors and Officers insurance coverage are up-to-date.

During 2011-12, strenuous efforts to develop new approaches and activities, attract new participants and identify potential new funding sources for IOCD. The sections below summarise these efforts.

### **IOCD Strategy Consultations**

In addition to a number of internal strategy consultations held during the period between Alain Krief and Stephen Matlin, they also jointly convened a consultation in Namur on 16 August 2012 involving several interested parties: Dr L. Demiddeleer (Solvay), Dr D. Theis (Siemens), Prof. G. Mehta

(Hyderabad) and Prof. B. Abegaz (African Academy of Sciences, AAS, Nairobi). Prof. J. M. Lehn joined the final stages of the discussion.

## Partnerships

To strengthen its reach and its capacities to attract resources and deliver on its objectives, IOCD has begun a programme of refreshing its collaborations with other organizations. During 2011-12, opportunities for collaboration were developed with three organizations

### **African Academy of Sciences (AAS)**

IOCD signed a Memorandum of Understanding with AAS during a meeting in Namur on 16 August 2012. A news notice, press statement and copy of the MOU were posted on IOCD's website. The MOU provides a framework within which the two organizations will seek ways to collaborate and add value to what each is doing. The aim is to reinforce the impact of each organization's work and ensure that science and technology make their full contribution to development in Africa and elsewhere.

A number of areas of collaboration are currently being explored:

- During a consultation with interested parties held in Namur on 16 August 2012 (see below), plans were discussed for AAS and IOCD to collaborate in assisting countries to develop policies and programmes for strengthening their use of chemistry and other sciences for national development. AAS and IOCD will work to identify appropriate partner countries and sources of support.
- At the invitation of AAS, Alain Krief and James Cosentino visited Kenya in October 2012 for discussions with AAS Executive Director Berhanu Abegaz. One area agreed for joint work was to develop a programme for the introduction of microscale science kits into teacher training programmes in Kenya.
- IOCD's Books for International Development project has delivered a shipment of books and classroom seminar materials to AAS to strengthen its capacity for promoting science in Africa.

### **UNESCO**

UNESCO has recently restructured its relationship with NGOs in general and has created two categories of partnership –Consultative Partner and Associate Partner, with the latter being a higher category that paves the way for potential direct collaborations and mutual projects. UNESCO staff have encouraged IOCD to apply for Associate Partner status and the documentation required for this is currently in preparation.

### **Foerdderverein Uni Kinshasa (fUNIKIN)**

IOCD's governing body agreed in October 2012 to establish a partnership with fUNIKIN, the initiative of Prof. Gerhard. Bringmann (University of Würzburg, Germany) to promote excellence in education in DR Congo and to provide PhD fellowships there. IOCD is now a member of fUNIKIN's 'Directory Panel' and fUNIKIN is now a Partner of IOCD, with the two organizations agreeing that mutual membership will be free from charges on both sides and that each of the two organizations will waive the annual subscription.

## Explorations of new IOCD projects and initiatives

Several contacts were established with individuals and groups conducting projects in the field of science for development, to explore the potential for collaboration, synergy and mutual promotion. These are summarised below: some have already led to concrete proposals that are presented in the Workplan and Budget 2012-13, while others remain at an exploratory stage.

### **Chemistry KnowBase Project**

This project has been developed by Alain Krief and Stephen Matlin and there have been early expressions of interest from several scientists. A proposal for concrete establishment of a Chemistry KnowBase Project was included in the Workplan and Budget 2012-13.

### **Production of medicinal chemistry products using low-cost equipment in LMICs**

Opportunities for the establishment of this project were explored with interested parties.

### **Materials chemistry for LMICs**

Following exploratory contacts between the Executive Director and Prof. Federico Rosei and Prof. Mohamed Chaker (both directors of materials research centres at the Institut National de la Recherche Scientifique INRS, Quebec), the two visited Namur on 20-21 November 2012 to give research seminars at a jointly organized IOCD-NARC event and to hold discussions with Alain Krief and Stephen Matlin about a possible collaboration.

The discussions highlighted that materials science, a multidisciplinary area in which the chemical sciences, physics and engineering make complementary contributions, has great potential to contribute to global development and to tackle a number of major challenges including in the fields of energy, the environment and health. There is considerable potential for building on recent capacity developments in materials science in Africa and the emergence of a number of centres of excellence, networks and institutional collaborations there. At the INRS, Profs. Rosei and Chaker are leading the development of a new institute-wide initiative that plans to build collaborative partnerships with African centres to develop materials for energy. As a result of the discussions, Profs. Rosei and Chaker agreed to make a formal proposal to create and lead a new IOCD initiative on Materials for Energy.

### **Popularising chemistry and related sciences with young people**

Several discussions have been held with persons interested in making science more interesting and attractive to young people. This area will be pursued further during 2012-13.

## **4. Communications**

As noted in the 2011 Annual Meeting of IOCD's General Assembly, it is essential to IOCD's progress and to its mission that IOCD develops its communications approaches in order to more effectively project its role, promote knowledge of its successes and uptake of its ideas and help to attract new participants and funding.

During 2011-12, the Executive Director and Stephen Matlin engaged in extensive work to develop IOCD's communications, including:

- Documents and publications: new IOCD brochure; reports of meetings; articles for publication. An article on IOCD was published in the IUPAC journal, *Chemistry International* (S.A. Matlin. *IOCD: Chemical sciences in development*. *Chemistry International*, 2013, 35(1), 8-11. [www.iupac.org/publications/ci/2013/3501/2\\_matlin.html](http://www.iupac.org/publications/ci/2013/3501/2_matlin.html)).
- Meetings: IOCD-NARC International Symposium and Public Seminar: Namur, 5 July 2012;
- IOCD website: completely overhauled, restructured and new sections written

In addition, IOCD has directly organized meetings through its Working Groups:

- Plant Chemistry Working Group: International Conference on Functional Molecules in Nature, China, 22-24 September 2012;
- Environmental Analytical Chemistry Working Group: in collaboration with the IAEA and Tanzania Atomic Energy Commission, workshop in Arusha in 2011 on the analysis of air particulate matter.

IOCD has also participated in or co-sponsored other international and national events during 2011-12, including:

- John Kilama, head of IOCD's Biotic Exploration Fund (BEF), took part in the Launch of Kenya's new Bioprospecting Strategy at the Safari Park Hotel, Nairobi on 3 November 2011;
- Alex Pokrovsky, head of IOCD's Microscience Project, took part a Training Workshop held in Guyana, June 2011, on microscience experiments, organized by the UNESCO Kingston office, Guyana National Commission for UNESCO and Ministry of Education of Guyana. He also organized a workshop on small scale chemistry during the 14<sup>th</sup> Asian Chemical Congress, 5-9 September 2011, Bangkok, Thailand.
- Stephen Matlin presented a Keynote Lecture at of the 23<sup>rd</sup> International Symposium on Pharmaceutical and Biomedical Analysis (23PBA), held in Brazil, on 9-12 October 2011, of which IOCD was a co-sponsor.
- Carlos Rius participated on IOCD's behalf in the Festival of Chemistry in Cancun (28 October 2012).

## 5 Governance, Administration and Finance

### General Assembly

At the 2012 Annual Meeting of the General Assembly, Prof. Goverdhan Mehta (India) was elected as an additional member.

At 31 December 2012, the membership of the General Assembly and Board was as follows:

Jean-Marie (France) Lehn General Assembly; and Board: President  
Jean Pierre Décor (France) General Assembly; and Board: Vice-President  
Michael Tempesta (USA) General Assembly; and Board: Treasurer  
René Van Grieken (Belgium) General Assembly; and Board: Secretary  
Alain Krief (Belgium) General Assembly; and Board: Executive Director  
John Kilama (Uganda/USA) General Assembly member  
Stephen Matlin (UK) General Assembly member  
Goverdhan Mehta (India) General Assembly member  
Carlos Rius (Mexico) General Assembly member

### Secretariat

The 2012 Annual Meeting of the General Assembly extended the appointment Prof Alain Krief as IOCD's Executive Director until the end of 2014 and appointed Prof Stephen Matlin as Head of Strategic Development.

### Senior Advisory Council

At the 2012 Annual Meeting of the General Assembly, three new members (from Israel, Japan and Pakistan) were elected to serve on the Senior Advisory Council.

At 31 December 2012, membership of the Senior Advisory Council was as follows:

- Prof. Berhanu Abegaz: Executive Director, African Academy of Sciences, Nairobi, Kenya
- Prof. Yitzak Apeloig, Technion-Israel Institute of Technology, Israel
- Prof. Vadim Ivanov: Director, Shemyakin Institute of Bioorganic Chemistry, Russian Academy of Sciences, Moscow, Russia
- Professor Goverdhan Mehta, University of Hyderabad, India
- Prof. Ryoji Noyori, President of RIKEN, Japan
- Prof Atta Ur-Rahman, Karachi University, Pakistan
- Prof. C. N. R. Rao, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India
- Prof. Koji Nakanishi, Columbia University, New York, USA

### Funding

IOCD partly funds its operating expenses and some of its initiatives from an endowment. In addition, IOCD solicits funding from a range of national and international organizations, governments and the private sector to resource most of its initiatives. In particular, each Working Group and Project is tasked with supplementing grants from IOCD by securing the necessary resources externally to finance its activities. Support from the various sources is acknowledged on IOCD's website and in the publications of its diverse activities.

In the USA, IOCD has established a tax-exempt affiliate named OCDI, which is a 501 (c)(3) organization. At 31 December 2011, the membership of the Board of OCDI was as follows:

Jean-Marie Lehn  
Michael Tempesta  
James Cosentino  
Robert Maybury  
Jack Plimmer

The Financial Statement for 2012 is shown below. The Budget approved by IOCD's General Assembly for 2013 was US\$ 83,500.

Stephen A Matlin  
IOCD Special Adviser,  
March 2013