

**HISTORY of IUTOX**  
**International Union of Toxicology**  
**1977–2007**

# *History of IUTOX*

## The International Union of Toxicology 1977–2007

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<http://www.iutox.org>



## Preamble

In our time, living in the information age, any opportunity to communicate in writing to a designated audience is a great treat. It is an even a greater pleasure, if the topic deals with something with which you have been involved for a very long time and which is close to your heart. Therefore, it was with overwhelming joy I accepted the invitation to write the *History of IUTOX*, updating the earlier publication by Jens Schou and Christian Hodel, when asked by Ali Karakaya, the present President of IUTOX. My only hesitation was the short time-frame given, which was to have it ready in time for the ICT XI in Montreal, in order to celebrate 30 years since ICT began in Toronto. I clearly remember how long it took to produce the first publication “*Historical Notes on the Foundation and Functions of the International Union of Toxicology*.” However, with modern techniques available and the help of the professional administrators of IUTOX, I took on the challenge.

Having attended all ICTs and the last three CTDCs, having been a director of the IUTOX Executive Committee (EC) for six years and the IUTOX treasurer for three years, and having worked with all ECs with the RASS program, I have personal memories of most of what has happened to IUTOX during its time of existence. To correct and replenish my memory, I have had access to all minutes and other written material from at least the last 15 years, including the *Historical Notes*, and other publications, which are listed under References. I have also asked the former presidents of IUTOX and the presidents of the organizing committees of ICTs and CTDCs to write a page on their memories of working with IUTOX. However, most of all I am grateful to my long-time very good friend Erik Dybing, who has helped me with the compilation of memories, and, with his fluent pen, compensating for my shortcomings in that respect.

It feels slightly odd to talk about history when dealing with only the last 30 years of a thousand year long phenomenon—toxicology. However, individuals working in the field of toxicology, toxicologists, only have been organized worldwide for a short period in modern times. If you are interested in the REAL long-term history of toxicology and toxicologists, you have to turn to other sources (Reference 1).

Before continuing writing and reading, it is tempting to consider how a compilation of a history essay may differ from a toxicology report, with which we all as toxicologists are familiar. In fact, there is not that much difference. In both cases it is a matter of describing what has happened and analyzing causality between different things and events. However, while toxicology often has a clear hypothesis to be answered, the main aim of history writing often is to answer why things happen. In both cases there might be reasons to modify the accounts due to new facts and knowledge. In toxicology it is done intentionally by new studies, while in history changes occurring over time have to be taken into account. Thus, an historical analysis should include what happened and, possibly, why. In addition, it might include consequences and evaluations of whether what happened was good or bad. Of particular interest and value would be to compare the outcome and consequences of activities with possible plans available, and, in that way, learn for the future. However, there have not been enough time or resources to perform such an evaluation in the present work, even if some subjective judgments are unavoidably included in the text.

(Continued on page 4)

In the same way that there is no such thing as a free lunch, there is no objective account of history. We all see things through our own spectacles, influenced by our memories, views and opinions, which, by necessity, reveal different pictures for everyone. This is not always bad, since my views could give readers at least some new aspects and thoughts and, in that way, have a value beyond just the pleasure of recognition. Thus, besides the aim of providing the history of IUTOX, the aim of this account also is to evaluate what has happened in order to be able to build on the past and to improve the function of IUTOX in the future. For instance, I think that it is most important that our discipline gets a more attractive and appealing image, possibly with a new name with a more positive connotation than “toxicology.” With the right of an author to express his views freely, some of the views in this publication are not within the main stream of opinions and all awkward views have not been avoided, hoping they will initiate constructive rather than counterproductive thoughts and attitudes for the best future for IUTOX and toxicology.

Stockholm in June 2007

Torbjörn Malmfors, MD, PhD



### A DEDICATION:

*To the Memory of  
Professor  
Bo Holmstedt,  
a true international  
scientist in toxicology,  
inspiring, with great  
visions, and the second  
president of IUTOX.*

A young author and his mentor Bo Holmstedt.

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## Introduction

In order to celebrate the 30-year anniversary of the first International Congress on Toxicology (ICT I) at the time when ICT is back in Canada in 2007, the IUTOX Executive Committee (EC) has decided to produce a printed, updated, version of the history of IUTOX. Although it has been a short time since the first account, *Historical Notes on the Foundation and Functions of the International Union of Toxicology*, was published in 1998, important changes have occurred that motivate a printed description of what happened, written by one of those who took part in IUTOX events during that time period.

The *Historical Notes* were compiled by Christian Hodel and Jens Schou and published by IUTOX just before ICT VIII in Paris in 1998. Since then a short summary of that publication (Reference 2) and an updated version of the historical account have been published, the latter dedicated to the memory of the late Christian Hodel (Reference 3). In addition, the fourth President of IUTOX, Paolo Preziosi, in 2005 wrote an editorial on toxicology for the Encyclopedia of Toxicology (Reference 4). All these publications can be found on the IUTOX Web site, [www.iutox.org](http://www.iutox.org), which probably will be the sole site of historical accounts in the future.

The *Historical Notes* paid some attention to the history of toxicology, but mainly focused on the foundation of IUTOX, which was a many-year process involving many people. As the first publication might be difficult to obtain, it is the intention here to shortly summarize in a personal way the most important points of the previous text and to update the old tables. In this way the new publication should fulfill two aims: first as an account of what has happened and second as a register of people involved and scientific topics presented and discussed. As can be seen from the table of contents, the



account of the last decade has been divided into two parts: first the administrative achievements mainly by the EC, and second the scientific activities including educational events. This is in line with the objectives of IUTOX, which are to foster international scientific cooperation among toxicologists and to ensure continued training and development of toxicologists worldwide.

Christian Hodel stands at a photo of him and Jens Schou in front of the poster on the Historical Notes of IUTOX.

There are three things that stand out in particular and probably will be considered as the most important accomplishments in the 10 years since the last publication. First, after many negotiations, all toxicologists in the world will work united under the banner of IUTOX—as there is now an agreement that the Congresses of Toxicology in the Developing Countries (CTDC), which earlier had been organized by an *ad hoc* group of toxicologists from developing countries, are to be integrated into IUTOX. This has motivated an additional historical note regarding how this activity was developed in parallel with IUTOX during the 1980s and 1990s. Second, thanks to general technical developments, IUTOX has entered the Internet age, which has



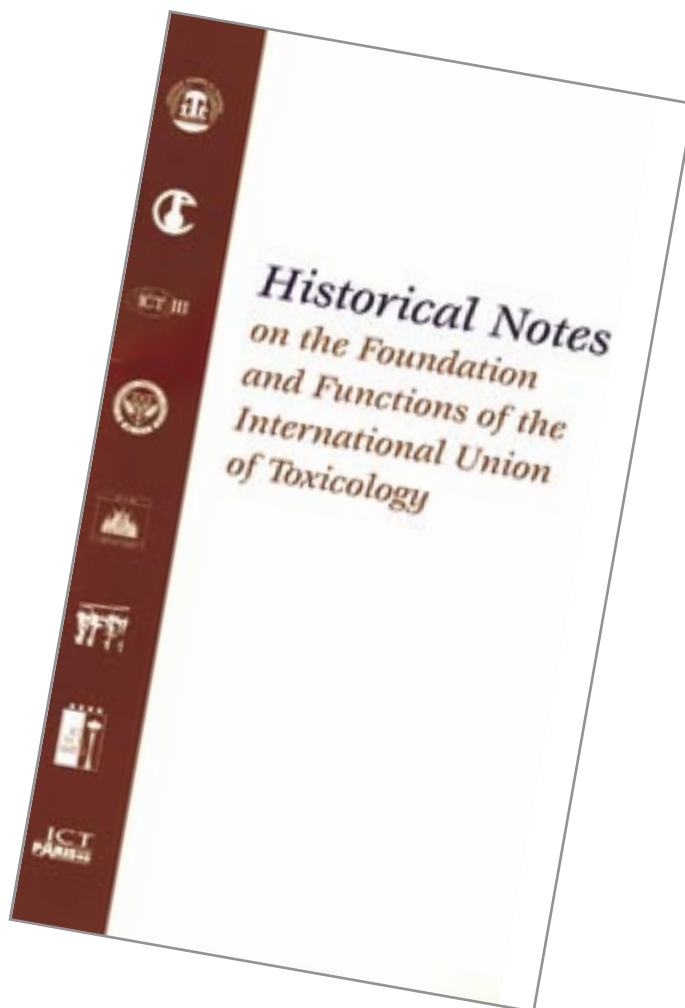
Christian Hodel

improved communication radically. This has made contacts with the member societies much easier and has made printed newsletters superfluous, perhaps even future printed history accounts. Third, after many attempts, IUTOX has developed a nice and representative logo, which can be used in a positive way when marketing the image of toxicology.

In order to give the historic account a wider and more variable perspective, former presidents of IUTOX and presidents of ICT and CTDC organizing committees have been asked to contribute with their written memories, which have been included to a great extent unedited.



Jens Schou



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# *The Foundation of IUTOX*

## **BACKGROUND FOR THE INTERNATIONALIZATION OF TOXICOLOGY**

The history of toxicology is almost as long as the history of mankind, but modern toxicology has its roots in the progress of the chemical industry in the 20th century. While toxicology during Antiquity partly dealt with how natural products could be used to have a toxic effect, for instance, killing game and poisoning your enemies, modern toxicology is more focused on how to use chemicals synthesized by man in a safe way. This has made it necessary to study possible adverse effects of chemicals in a systematic fashion in order to find out how chemicals, e.g. medicines, pesticides, food additives, cosmetics, and household products, interact with biological systems and, most importantly, how much of the chemical products can be used safely. In addition, toxicologists deal with how to control the ever increasing global, chemical pollution around us. Thus, toxicology has taken on two different roles, one scientific and one regulatory.

## **EST AND SOT COLLABORATION LEADING TO THE FOUNDATION**

The thalidomide catastrophe in the late 1950s–early 1960s catalyzed the development and also the formation of toxicological societies: the Society of Toxicology (SOT) in the USA in 1961 and the European Society for the Study of Drug Toxicity (ESSDT) in Europe in 1962. The more chemicals became an important factor in global industrial development, the more toxicology became an international discipline—especially in developed countries. The first ideas of the formation

of an International Union of Toxicology (IUTOX) appeared already in 1968, but it took several years of discussions before these ideas materialized.

At the memorable congress of the European Society of Toxicology (EST) in Montpellier, France in 1975, important decisions were made by representatives of both SOT and EST in order to found an international toxicology organization. It was also agreed to organize the first International Congresses on Toxicology in Toronto, Canada in 1977 and the second congress in Brussels, Belgium in 1980. Subsequently, a Steering Committee\*, laid down the plans for IUTOX and proposed the constitution, finances and nomination of officers. On July 6, 1980 in Brussels, IUTOX was formed and the first Executive Committee was elected by delegates representing 13 different toxicology organizations, of which 9 were legally designated as “founding” members, see Table 1.

## **THE GENERAL SCOPE**

There were some initial difficulties in getting IUTOX to function according to the proposed Statutes, which underwent minor revisions during coming years. However, the general scope of the Union was expressed in the following way:

“The Purpose of the Union shall be to foster international scientific collaboration among national and other groups of toxicologists and promote world-wide acquisition, dissemination, and utilization of knowledge in the science of toxicology, in particular by sponsoring International Congresses on Toxicology for the benefit of mankind.”

*“The Purpose of the Union shall be to foster international scientific collaboration among national and other groups of toxicologists and promote world-wide acquisition, dissemination, and utilization of knowledge in the science of toxicology, in particular by sponsoring International Congresses on Toxicology for the benefit of mankind.”*

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\*1977–1980 Steering Committee: Dietrich Henschler, Germany; Sheldon D. Murphy, USA; Robert G. Burford, Canada; Roberto Chaves-Chavarría, Costa Rica; Leon Golberg, USA; Harold C. Grice, Canada; Esther Cholnoky, Hungary; Olga Benesova, Czechoslovakia; Bo Holmstedt, Sweden; Gabriel Plaa, Canada; Jens Schou, Denmark; Yasuhiko Shirasu, Japan; Samuel Schwartsman, Brazil; René Truhaut, France; Vladimir Vojvodic, Yugoslavia

TABLE 1

MEMBER SOCIETIES OF IUTOX				
NAME	FOUNDING MEMBERS	MEMBER SINCE	MEMBERSHIP IN 1998	MEMBERSHIP IN 2007
Academy of Toxicological Sciences		2007		216
American Academy of Clinical Toxicology		2000		520
American College of Toxicology		2000		853
Argentine Toxicological Association		1986	270	285
ASIATOX		1995	300	300
Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists		1988	237	567
Austrian Society of Toxicology		2006		134
Brazilian Society of Toxicology		1990	219	255
British Toxicology Society	X	1980	850	950
Bulgarian Toxicological Society		2003		62
Chinese Society of Toxicology		1996	200	199
Croatian Toxicological Society		2001		204
Danish Society of Pharmacology and Toxicology		1998*	211	150
Egyptian Society of Toxicology		1983	230	235
Estonian Society of Toxicology		2001		45
European Associations of Poison Centres and Clinical Toxicologists		1998*	280	339
EUROTOX	X	1980	660	566
Finnish Society of Toxicology	X	1980	350	314
French Society of Clinical Toxicology		1995	192	192
French Society of Toxicology	X	1980	450	335
German Society for Experimental and Clinical Pharmacology and Toxicology		1998*	656	831
Hellenic Society of Toxicology		1998	84	100
International Neurotoxicology Association		2000		85
Iranian Society of Toxicology		2003		125
Irish Society of Toxicology		1998*	106	106
Israeli Society of Toxicology		1998		43
Italian Society of Toxicology		1980	530	525
Japanese Society for Clinical Toxicology		1997	1,135	1,135
Japanese Society of Toxicology	X	1980	1,711	2,300
Korean Society of Toxicology		1994	500	500
Latin American Association of Toxicology (ALATOX)		2000		60
Latvian Society of Toxicology		2000		16
Mexican Society of Toxicology		1996	250	100
Netherlands Society of Toxicology		1983	700	700

(Continued on page 9)

**MEMBER SOCIETIES OF IUTOX (continued)**

<b>NAME</b>	<b>FOUNDING MEMBERS</b>	<b>MEMBER SINCE</b>	<b>MEMBERSHIP IN 1998</b>	<b>MEMBERSHIP IN 2007</b>
Norwegian Society of Pharmacology and Toxicology		1983	125	262
Polish Society of Toxicology		1998		305
Portuguese Pharmaceutical Society		2007		120
Russian Society of Toxicology		1998		298
Slovenian Society of Toxicology		2001		63
Society of Toxicology of Canada	X	1980		199
Society of Toxicology, India	X	1980		442
Society of Toxicology, USA	X	1980	4,500	8,000
Spanish Association of Toxicology		1988	415	395
Swedish Society of Toxicology	X	1980	430	403
Swiss Society of Toxicology		1980	115	135
The Toxicology Society of South Africa		2003		70
The Toxicology Society of Taiwan		1998	206	206
The Turkish Society of Toxicology		1998		134
Toxicological Society of Thailand		1995	150	199
Toxicology Cuban Society		2007		200
Union of Hungarian Toxicologists		1980	92	92
<b>TOTAL</b>			<b>17,599</b>	<b>24,533</b>

\*Member Societies that were confirmed member societies in 1998, but for which a specific join date is not known.

TABLE 2

<b>IUTOX EXECUTIVE COMMITTEES (1980–2007)</b>					
<b>OFFICERS</b>					
<b>PERIOD</b>	<b>PRESIDENT *</b>	<b>1ST VICE-PRESIDENT **</b>	<b>2ND VICE-PRESIDENT***</b>	<b>SECRETARY-GENERAL</b>	<b>TREASURER</b>
1980–1983	S L Friess USA	D Henschler Germany	B Holmstedt Sweden	R G Burford Canada	C Hodel Switzerland
1983–1986	B Holmstedt Sweden	P Gehring USA	F Sakai Japan	W N Aldridge UK	J S Schou Denmark
1986–1989	P Gehring USA	P Preziosi Italy	H Fukuda Japan	J E Gibson USA	J S Schou Denmark
1989–1992	P Preziosi Italy	J Hook USA	H Fukuda Japan	J E Gibson USA	G Zbinden Switzerland
1992–1995	C Klaassen USA	A Rahde Brazil	C Bismuth France	K Savolainen Finland	Ch Schlatter Switzerland
1995–1998	I F H Purchase UK	D J Reed USA	T Satoh Japan	K Savolainen Finland	Ch Schlatter Switzerland
1998–2001	G Sipes USA	R Glomot France	T Satoh Japan	M Karol USA	J MacGregor USA
2001–2004	E Dybing Norway	A Karakaya Turkey	Y Kurokawa Japan	M Karol USA	T Malmfors Sweden
2004–2007	A Karakaya Turkey	R Kroes The Netherlands	T Inoue Japan	A W Hayes USA	A Bürkle Germany
*Past-President the following period up to 2004					
** President-elect from 2001					
*** Vice-President from 2001					
<b>DIRECTORS</b>					
1980–1983	W N Aldridge UK	E Fournier France	M Ikeda Japan	P Gupta India	G Plaa Canada
1983–1986	P L Chambers Ireland	E Cholnoky Hungary	J E Gibson USA	D Henschler Germany	M Ikeda Japan
1986–1989	P L Chambers Ireland	T Malmfors Sweden	G Zbinden Switzerland	I F H Purchase UK	B H Thomas Canada
1989–1992	C Klaassen USA	K Savolainen Finland	C Bismuth France	I F H Purchase UK	B H Thomas Canada
1992–1995	D J Reed USA	B Priestley Australia	A Rico France	S Lee Korea	D Davies UK
1995–1998	M Karol USA	P DiMarco Australia	R Glomot France	T Malmfors Sweden	A Pinter Hungary
1998–2001	J Bus USA	P DiMarco Australia	E Dybing Norway	R Paoletti Italy	A Pinter Hungary
2001–2004	K Ryzdzynski Poland	G Galli Italy	K Chipman United Kingdom	P Wright Australia	J MacGregor USA
2004–2007	K Ryzdzynski Poland	G Galli Italy	K Chipman United Kingdom	B Hales Canada	S Barros Brazil

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## *Important Events During the First 20 Years, 1977–1998*

This short summary of the first 20 years of IUTOX mainly is based upon the *Historical Notes*. Further details from this period can be found in the personal memories written by former Presidents of IUTOX and Presidents of the ICT and CTDC Organizing Committees up to 1998, see Appendices I, II, and III.

### **THE WORK OF THE EXECUTIVE COMMITTEE**

During the three years preceding the legal formation of IUTOX, the executive function of the Union rested with the Steering Committees. Its major tasks were to constitute an Executive Committee (EC), to prepare the Statutes and By-Laws for the founding of IUTOX, and to appoint a Program Committee for ICT II in Brussels. Members of that Committee met in Brussels in November 1978 to decide on the program, operations, and budget. At ICT II, the Steering Committee was responsible for the inauguration of IUTOX and handed over the responsibility for IUTOX to the newly elected EC, see Table 2.

At its first meeting, the EC decided to create a Program Committee, a Membership Committee, and a Nominating Committee. In addition, in 1981, a Publication Committee was constituted. Much of the work of the EC was done by these sub-committees until 1986 when the sub-committees for the first time were renamed and restructured, a process which continued until 1997 when the following commissions were instituted:

1. Commission of Strategic Development, to help direct the work of the EC to achievable objectives.
2. Commission of Education, to develop educational activities.



3. Commission of New and Developing Societies, to encourage the development of societies of toxicology in new disciplines or where no geographical societies exist.
4. Commission on International Relations, to foster relationships between IUTOX and the International Council of Scientific Unions (ICSU), the International Program on Chemical Safety (IPCS), and other international organizations.
5. Commission on Communication, to prepare and distribute the Newsletter and manage the IUTOX Web site.

Five IUTOX Presidents:  
Ali Karakaya, 2004–2007,  
Glenn Sipes, 1998–2001,  
Erik Dybing 2001–2004,  
Curtis Klaassen 1992–1995,  
and Iain Purchase,  
1995–1998.

The titles and descriptions of these Commissions represent fairly well the content of the work of the EC during this period. The most important task for the EC was arranging the tri-annual ICTs by selecting suitable venues, appointing local organizers, and supervising the conduct of the congresses. At the beginning, there was a need for expansion of the organization by recruiting new member societies and finding other financial resources, as initial membership fees were not sufficient to run the Union. The ICTs functioned as an

important source of money, albeit variable. At the end of this period, in 1998, IUTOX had 32 member societies representing more than 17,000 toxicologists world-wide, see Table 1, and had assets of 300,000–400,000 USD, which was considered a reasonable security fund for the planned activities.

## INTERNATIONAL RELATIONS AND COMMUNICATION

As toxicology is an interdisciplinary science with much in common with other biomedical disciplines such as pharmacology, biochemistry and physiology, relationships with organizations of these disciplines were on the agenda from the very beginning. However, the collaboration was limited to joint symposia with various international organizations at the ICTs. Even within the toxicology family, collaboration was not easy. Societies of toxicology in developing countries collaborated and organized Congresses on Toxicology in Developing Countries, in Buenos Aires (1987) and in New Delhi (1991). It would take many years before the developing countries were integrated into IUTOX, see text further on.

Another important issue on the agenda for an international organization such as IUTOX was communication, especially with the globally distributed members. Printed material with the names *IUTOX Broadsheet* and *IUTOX Newsletter*, respectively, in different formats and designs, were published annually and disseminated to the member societies in order to inform them of important IUTOX activities and events. However, due to limited resources and techniques, this way of communication was not efficient enough to keep the toxicology community updated on what was going on at the international level. Therefore

changing to the Internet would come as a timely solution to this problem.

## SCIENTIFIC ACTIVITIES

As expressed in the general scope of IUTOX, the major purpose of the Union is to promote the science of toxicology. From the beginning it was evident that this would be done primarily by sponsoring international congresses of toxicology, as that would be the most cost-effective way of using the limited resources available. The first ICTs were more cumbersome to the EC than they later would be, as there were no traditions and the member societies were reluctant to take on the organizing responsibility. However, when the routines for the ICTs were established, competition to organize the ICTs started and eventually an improvement of the quality of the congresses became evident. Proceedings were published.

Another way of promoting the science of toxicology was education in various forms. Continuing Education Courses were introduced for the first time at the ICT VII in Seattle, USA in 1995. Since then, they have been a regular component of the ICTs, see Appendix IV. Limited resources have prevented more extensive educational projects, even when urgently needed, particularly in developing countries. However, a number of workshops and one-off courses have been arranged through the years. An extraordinary opportunity to sponsor education opened up when EST and SOT decided to co-sponsor a Summer School on Risk Assessment of Chemicals. Thanks to the close relationship between the course organizer and the IUTOX President at the time, RASS, as it was named, was given IUTOX sponsorship status. RASS is still a standing program of IUTOX, more detailed descriptions further on.

## *The Executive Committees and Their Achievements, 1998–2007*

It would appear that the major task of IUTOX, sponsoring international congresses on toxicology for the benefit of mankind, would not require much work by the EC other than selecting a willing host society and overseeing the work. However, as seen in the *Historical Notes*, the EC took on other tasks in line with the initial scope of the organization; see the list of the commissions 1997, page 11. In that way, the work of the EC became quite burdensome for those on the EC, as they had to meet several times during their period of service and work in between the meetings. Four to six one to two day meetings of the EC were conducted during each three-year period between the ICTs. There are detailed minutes from these meetings, which reflect what was discussed and decided. The topics of the discussion and decisions can simplistically be divided into IUTOX administrative matters and scientific activities, besides the practical matters of the EC.

In this chapter, the administrative matters will be summarized in five parts, each one in reasonably chronological order, the three first describing regular matters and the next two dealing with two *ad hoc* matters—CTDC and IART.

### **CONSTITUTION CHANGES AND RECRUITING NEW MEMBER SOCIETIES**

As in all organizations, Statutes and By-Laws have to be modernized from time-to-time in order to improve the performance of the organization. The most notable changes during the last decade are those connected with the integration of the Congresses of Toxicology in Developing Countries (CTDCs) into IUTOX, see text further on, and those involving the presidential offices. In order for the incoming president



to prepare himself or herself for the office, a President-elect position was created, replacing one of the vice-presidential positions. Ali Karakaya was the first to be elected into that office, while the sad death of the latest President-elect, Robert Kroes, will make it necessary to recruit a new President, without three years of preparation, during the 2007 General Assembly in Montreal.

In order to avoid a 9-year long period of service in the EC, the Past President has been made *ex-officio*, but retaining the duty as chairperson of the Nominating Committee. Erik Dybing was the first President to step down directly from the EC after his term ended. The Nominating Committee has an important function and the Nominating Committee member names are listed in Table 3.

Recruiting new member societies, which is the duty of both the Membership and the Developing Countries Committees, has been continuous and the present IUTOX Member Societies are listed, see Table 1. There are now 51 national and regional member societies of IUTOX representing more than

The 2001–2004 Executive Committee in Guilin in 2003: Torbjörn Malmfors, Glenn Sipes, Ali Karakaya, Meryl Karol, Erik Dybing, Kevin Chipman, Tetsuo Satoh, and Paul Wright.



The 2004–2007 Executive Committee in Tampere, Finland: Robert Kroes, Kevin Chipman, Corado Gali, Silvia Barros, Tohru Inoue, Erik Dybing (2001–2004 President), Ali Karakaya, Barbara Hales, and A. Wallace Hayes.

24,000 toxicologists world-wide. Unfortunately, multiple member societies have IUTOX dues in arrears for over three years and, without payment, are under the threat of being expelled from IUTOX membership during the 2007 General Assembly.

In order to improve the finances of IUTOX, a new institutional membership type was approved at the 2004 General Assembly and the Finance Commission has begun, with limited success so far, attempting to recruit institutional members.

### ADMINISTRATION, INFORMATION, AND FINANCIAL DEVELOPMENT

An ever-increasing demand on administrative control of international organizations and problems with dealing with three different currencies (USD, CHF, and

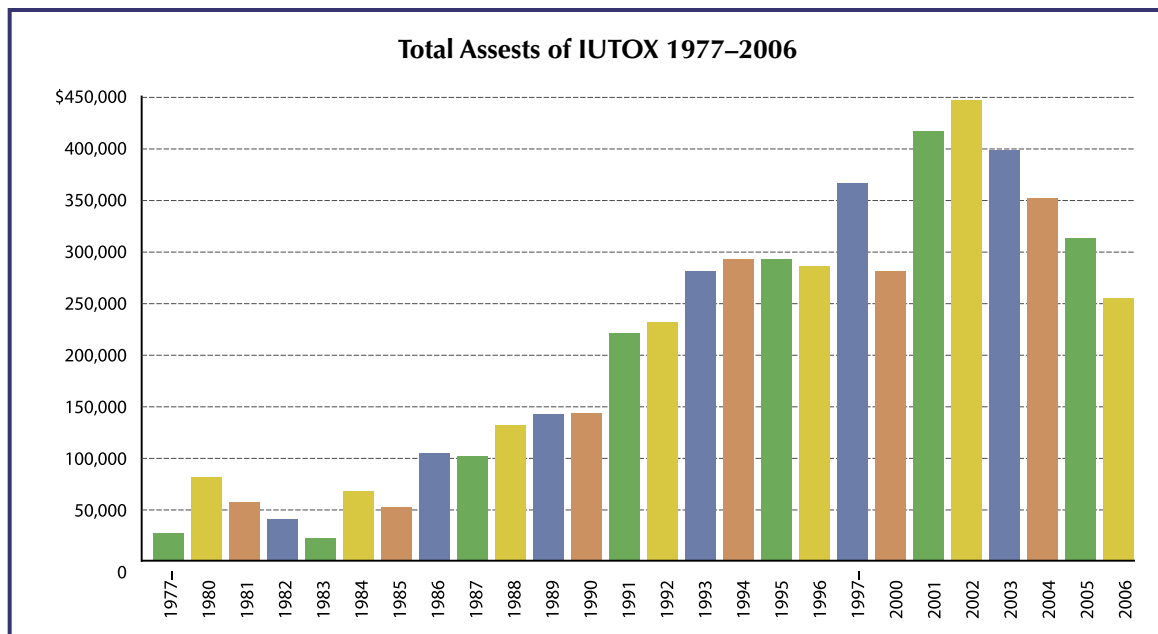
EURO) in two different countries (USA and Switzerland), as well as the officers, including the Treasurer, in still other countries, made it necessary to consider hiring a professional management firm for IUTOX. At the EC meeting in Nashville in 2002, the EC decided to engage Association Innovation and Management (AIM), which had experience working with similar organizations. This has definitively improved the quality of the day-to-day administration of IUTOX.

The more work performed by the EC, the greater the need for information and interaction with the member societies. This has been enhanced during the last decade thanks to the availability of the Internet. Printed newsletters and ordinary mail were used to stay in contact with the toxicology community world-wide until 2001. Former Secretary-General, Kai Savolainen, assumed responsibility as the editor of the last printed newsletters after stepping down from the EC. Don Reed started the IUTOX Web site at the end of the 1990s and in 2002 it was updated and modernized into the present **www.iutox.org**. The Web site made it possible to radically improve contacts not only with the member societies, but also with all toxicologists globally. On the IUTOX homepage, see page 2, a visit to the various menu options makes it possible to explore all of its functions, including information on commission reports, membership, meetings, publications, and awards, to name a few. An ongoing challenge is to engage the member

TABLE 3

NOMINATING COMMITTEES (1992–2007)						
PERIOD	CHAIRMAN					
1992–1995	P Preziosi Italy	E Dybing Norway	L Smith UK	H Endou Japan	A Wong Brazil	G Sipes USA
1995–1998	C Klaassen USA	HG Neumann Germany	D S Davies UK G	Dirheimer France	S B de Barros Brazil	J MacGregor USA
1998–2001	I F H Purchase UK	L Manzo Italy	P Wright Australia	I M Chang Korea	S Berlunga Brazil	M McClain USA
2001–2004	G Sipes USA	A Drugav Hungary	E Harpur UK	T Satoh Japan	S B de Barros Brazil	D Acosta USA
2004–2007	E Dybing Norway	H Autrup Denmark*	P K Gupta India	K Mitsumori Japan	L Saldivar Mexico	R Snyder USA

\* Replaced By H Bolt, Germany



societies to make use of this excellent opportunity to communicate with IUTOX and with other member societies.

At the same time that the Web site was modernized, the present IUTOX logo was created to try to symbolize toxicology in a global context. With both an image of a globe and a dose-response curve in the new logo, the activities of IUTOX should be recognized and, in addition, the logo should be a useful tool in marketing IUTOX and toxicology world-wide.

In addition to the regular income from membership dues and ICTs, IUTOX has had to rely upon financial support from sponsors to be able to fund its various activities and congress fellowships. The financial outcome of ICTs has varied depending on many factors, not the least of which is the geographical location of the congress. Integrating the CTDCs into IUTOX is expected to impose new financial constraints on the organization. Other sources of income are being sought, for instance recruiting institutional members. The financial development is shown in the diagram above.

## RELATIONS TO OTHER SCIENTIFIC ORGANIZATIONS

During the first two decades, IUTOX developed many contacts with other scientific organizations as described in the *Historical Notes*. Albeit not the most important event, membership in the International Council of Scientific Unions (ICSU) was not mentioned. In 1997, an IUTOX commission on International Relations, to foster relationship between IUTOX and ICSU, the International Program on Chemical Safety (IPCS), and other international organizations was created. Under the commission chairmanship of Remi Glomot (1998–2001), IUTOX had many interesting contacts with IPCS, OECD, EMEA, ECETOC, and most of all ICSU.

The latter resulted in joint projects with other international unions to discuss and



Ali Karakaya in front of the IUTOX marketing information poster.



Inauguration of CTDC 3 in Cairo in 1995.

write state-of-the-art publications on environmental estrogens and genetically modified foods, for which much credit should be directed to Iain Purchase.

It is unfortunate that the interest in contact with ICSU seems to have diminished considerably. Further financial support from ICSU to IUTOX was not received for a grant proposal involving an online postgraduate toxicology education program and the EC found that decision to be quite remarkable as capacity building was one of the major themes for ICSU.



Announcement of CTDC 5 organiser in Antalya in 1999 by José Castro (far right), and Semra Sardas (second from left) handing over the Egypt cup to Han Huaqiong (far left), representing China. Ali Karakaya (middle) and Sameeh Mansour (second from right).

Disinterest in contacts between IUTOX and ICSU was further emphasized at the ICSU scientific union members' meeting in Paris 9–10 February 2004, at which the author was present. There were many unions within ICSU that were interested in scientific problems related to toxicology. Even if some unions did not recognize them as toxicological problems, they would probably be interested in collaboration if they were approached in the same way as had been done in the cases of state-of-the-art publications described above. However, future collaborations will require time, effort, and, most of all, a successful

marketing of IUTOX and toxicology by being present at ICSU meetings and making contacts with other scientific unions.

## ACHIEVING A GENUINE GLOBAL ORGANIZATION—THE HISTORY OF CTDC

### Initiation

The initial discussions on forming an international organization of toxicology took place between representatives from developed countries, from the USA and from Europe, as described in the *Historical Notes*. Thus, the formation of IUTOX inevitably became influenced by the ideas from that part of the world, even if the scope spoke about “world-wide acquisition, dissemination, and utilization of knowledge in the science of toxicology” and the authors of the first publication even wrote about the “globalization of toxicology.” Among the founding member societies, the only one that belonged to a country that could be regarded as a developing one was the Society of Toxicology, India. The sole toxicologist with roots in the developing part of the world mentioned among those involved in the foundation of IUTOX was P. Gupta from India.

The first active sign of IUTOX taking into consideration the developing world was the formation of the Commission on Developing Countries under the presidency of Perry Gehring in 1986. The Commission had responsibility for creating a list of member society candidates from developing countries. A further step was the restructuring of the commissions in 1997 when the Commission of New and Developing Societies was created to encourage the development of societies of toxicology where no societies existed. But IUTOX still treated toxicology in developing countries as an observation from high above. This was reflected by writing and presenting papers on the intention and willingness to support toxicology in developing countries, but with very little concrete and financial support. Despite the fact that the first international congresses on toxicology in developing

countries took place during the period covered by the *Historical Notes*, they were only briefly mentioned.

The one person who really put the developing countries on the agenda of IUTOX was José A. Castro from Argentina. In his memory notes, he describes how he noticed major differences between the needs and priorities in toxicology in developed countries compared to those in developing countries. He got the idea to organize a meeting on toxicology in developing countries (DCs) and asked for financial support from IUTOX. The author has a vivid personal memory from the EC meeting and the heated discussion, that took place between the President of IUTOX and José Castro about the size and type of IUTOX support. The controversy over such support probably prolonged the full globalization of toxicology by almost 20 years.

The first five DC congresses, later called CTDCs, were carried through more or less independently of IUTOX; see below under Scientific Congresses and Memories of the CTDC organizers. The IUTOX EC kept a close watch of what was happening in the developing countries and supported the CTDCs in different ways. Among other things, the EC held a meeting in Antalya, Turkey in 1999 in conjunction with the CDTC 4. At the same time, members of the EC contributed to the scientific activities at this congress. It then became more and more obvious that the CTDCs should be coordinated with IUTOX activities. This became even more apparent during the planning of the CTDC 5 in Guilin, China in 2003, when the officers, particularly the IUTOX President Erik Dybing, carried out much of the organizational work. But then the negotiations to integrate the activities of CTDCs into the activities of IUTOX had already begun.

### **The Negotiation Period**

When the restructured Commission of New and Developing Societies started to plan its activities towards developing countries,

it was obvious that it competed with the ideas of the CTDCs and its supporters. Although competition could be stimulating, it was not desirable to have a fight over the limited resources

available and therefore the idea of setting up a direct collaboration between the CTDCs and IUTOX emerged. After the successful cooperation in Antalya in 1999 and a supportive discussion at the General Assembly in Brisbane in 2001, the newly elected EC, with Erik Dybing as President, appointed a Task Force to explore direct collaboration. The Task Force members were Erik Dybing (chair), José Castro, Sameeh Mansour, Ali Karakaya, Junshi Chen, Torbjörn Malmfors, Meryl Karol, and Peter DiMarco. Furthermore, in that time period, Ali Karakaya, the organizer of CDTC 4, had been elected as the President-elect of IUTOX.

The Task Force met in 2002 in Nashville at the annual meeting of SOT and in Istanbul later that year at the EUROTOX annual congress. Also, based upon numerous contacts between the members of the Task Force, a proposal was worked out and discussed further in 2003 in Salt Lake City at the annual meeting of SOT and in Guilin at the CTDC 5. Although the negotiations within the Task Force involved both personal conviction and commitment, they were carried out in a friendly, rational and constructive fashion. Ultimately, the only viable solution, of integrating the CTDCs into IUTOX, was accepted.

In the end, there were only winners. The work of the CTDC pioneers will be recognized within IUTOX, José Castro received the IUTOX Merit Award in 2001, and toxicologists from all parts of the world will have a global organization to lean against in their professional conduct.



Erik Dybing and Sameeh Mansour.

## **Evidence of Mission Completed**

As a result of the negotiations, CTDCs will alternate with the ICTs on a 3-year interval basis, and the organizers of the CTDCs will be selected according to the same principles as those of ICTs. Member societies from developing countries shall be treated equally to those from developed countries and receive the help they desire. Following a 2004 By-Laws revision, the chair the new standing Developing Countries Committee, will be one of the IUTOX EC members from a developing country.

## **Sustained Continuation**

In order to preserve the momentum of the anticipated integration of the CTDCs into IUTOX, an agreement was reached in 2003 with the Croatian Society of Toxicology and EUROTOX for a joint meeting in Croatia in 2006, thus this became CTDC 6. The congress, which took place in Cavtat, was well attended and held at a very nice venue by the Mediterranean Sea.

The Developing Countries Committee continues actively trying to recruit member societies from developing countries.

The Society of Toxicology of South Africa has been appointed as the organizer of the CTDC 7 in 2009. Hopefully by then, the alteration of ICTs and CTDCs will be fully established and the organizing committees of ICTs and CTDCs ideally will collaborate in order to obtain an optimal integration.

## **IART (INTERNATIONAL ASSEMBLY FOR THE RECOGNITION OF TOXICOLOGISTS/ INTERNATIONAL ASSEMBLY OF TOXICOLOGY ACCREDITATION ORGANIZATIONS)**

## **A Late Wake-Up to a Mission Impossible**

Everyone who has tried to explain what toxicology is must have experienced that it is not that easy and has been frustrated that

there is no globally accepted definition of toxicology and toxicologists. Luckily, the founders of IUTOX did not worry too much about that, but went ahead and accepted that there were various versions of the meaning of these two crucial terms. Maybe they were wise enough to know that words have no meaning by themselves, but get their meaning from how the words are used and thus did not worry about the lack of consensus on definitions.

However, at the beginning of the 1990s discussions started within IUTOX to overcome the claimed deficiency of not having a single description of toxicology and particularly of a toxicologist. It is not difficult to understand this initiative, as a toxicologist should be as generally recognized and identified as a physician, a pharmacist or other similarly old professions. Furthermore, the American Board of Toxicology (ABT), had been established already in 1979 to recognize standards for professional competency in the field of toxicology and similar discussions were ongoing within EUROTOX and within some individual European national toxicological societies. After EUROTOX had established the accreditation title EUROTOX Registered Toxicologist (ERT) in 1996, IUTOX felt obliged to tackle the problem of multiple definitions and did so by organizing a workshop on harmonization at ICT VIII in Paris in 1998.

## **Hurdles to Overcome**

Representatives from various toxicological organizations met and discussed the major parts of toxicology such as education, training and experience, and tried to define appropriate career paths for toxicologists.

However, even if that approach had worked for some national societies, it became apparent that this procedure was too simplistic to work on a global scale. With hindsight, many obvious problems can be recognized. First, toxicology has become a wide, multidisciplinary subject covering

everything from molecular biology to clinical medicine, as well as the philosophy of the science. Second, toxicology is a secondary discipline based upon knowledge in different primary disciplines, especially chemistry, biology, medicine, and engineering. Third, the tasks of toxicologists vary from almost basic research to clinical therapy and to legal advice, just to mention a few. Fourth, everyone does not perceive the aim of toxicology and toxicologists in the same way.

It was very optimistic to believe that it would be feasible to obtain global consensus on what constitutes a toxicologist, considering that these four problem areas, and certainly there are other ones, are perceived differently by toxicologists coming from developing countries in comparison to developed countries. Thus, to find a descriptive definition should have been recognized as an insurmountable obstacle and any stipulated definition would probably not have been acceptable. It might have been more constructive to start from the aim of the discipline and the profession of today, which is quite different from what it was when toxicology was first recognized as a discipline and practiced as such.

### **Fruitless Attempts**

Even if the attempt to harmonize the description of toxicology and toxicologists did not succeed, it is important that IUTOX develops an effective program for the enhancement of the appreciation and image of toxicology in the scientific community and society at large. This is presently done in cooperation with SOT, EUROTOX, ASIATOX, and other member societies. However, in order to avoid repeating all the efforts of harmonization, a short account of what has been done will be given here.

After the harmonization workshop in Paris in 1998, representatives from the same organizations met in New Orleans at the SOT annual meeting in 1999. The main conclusion was to charter an “International Assembly of Toxicology Accreditation

Organizations” (IART) at the ICT IX in Brisbane in 2001. IART (now named “International Assembly for Registration of Toxicologists”) was formed at the 2000 annual meeting of SOT in Philadelphia and a working group was created and met in London during the EUROTOX 2000 congress. The minutes of the meeting chaired by Tetsou Satoh describe ambitious action plans, but it is obvious that there were many problems to be solved. A central issue was how to relate the three levels of toxicological activity occurring in the national, regional and global arenas. Another major problem was how to finance and manage the rather extensive plans.

At the General Assembly of IUTOX in Brisbane during ICT IX in 2001, the purpose and constitution of IART were presented. After discussion, support was given for IUTOX’s active participation in IART and for acceptance of a Memorandum of Understanding between IUTOX and IART. The activities of IART continued with a meeting of the IART Steering Committee in Istanbul at the annual EUROTOX congress in 2001 and in Nashville at the annual SOT meeting in 2002. At the latter meeting, By-Laws of IART were discussed, as well as other problems such as finances and how to identify and to elect suitable officers.

However, due to the difficulties encountered when trying to implement the action plans, the IART Steering Committee voted to legally dissolve IART as an independent body. However, the goals and objectives of IART were to be maintained under the structure of IUTOX. This was agreed upon by the EC of IUTOX at its meeting in Baltimore in 2004.

### **From a Suit to a Thumb of a Glove**

Thus, after many years of work and many meetings, it was obvious that the original aim of a global, comprehensive harmonization of definitions for toxicology and toxicologists could not be reached. There are probably many reasons for this failure. Some of them are referred to above as

hurdles to overcome, which might have been anticipated already at the conception level, others may have been related to the difficulties in practicing global, idealistic collaboration.

In order to save what was left and not completely give up the hope of harmonization, the IUTOX EC established a Certification and Registration Task Force in 2004. The objective of the Task Force is to promote and enhance the profile and recognition of toxicologists world-wide. Whether this Task Force will be more successful than IART, only the future can

tell, but the original hurdles are still there. IUTOX will never have the power to set criteria for evaluation to be used in the same way all over the world. However, IUTOX could contribute by supporting its member societies in establishing and consolidating criteria adapted to local needs and requirements. In this way IUTOX could give support to the more important task, namely to enhance the appreciation and image of toxicology in the global scientific and public community. In this way the aim of the IUTOX certification and registration effort has become more realistic than the ambitious undertaking initially envisioned.

TABLE 4

INTERNATIONAL CONGRESSES OF TOXICOLOGY (ICT) (1977—2007)					
NUMBER, YEAR, AND TITLE	CITY AND COUNTRY	ATTENDANCE	SYMPOSIA & WORKSHOPS	NUMBER OF ABSTRACTS	PRESIDENT/ SECRETARY
ICT I, 1977: Toxicology As a Predictive Science, <i>Academic Press</i>	Toronto Canada	950	9		H Grice/ R Burford
ICT II *, 1980: Mechanisms of Toxicity and Hazard Evaluation, <i>Elsevier</i>	Brussels Belgium	1,200	10		M Mercier/ R Lauwerys
ICT III, 1983: Developments in the Science and Practice of Toxicology, <i>Elsevier</i>	San Diego USA	900	6	300	W Clayton/ I Holson
ICT IV, 1986: New Concepts and Developments in Toxicology, <i>Elsevier</i>	Tokyo Japan	1,100	7	472	F Sakai
ICT V *, 1989: Basic Science in Toxicology, <i>Taylor &amp; Francis</i>	Brighton UK	1,500	11	615	D Davies/ A Boobis
ICT VI **, 1992: Toxicology from Discovery and Experimentation to the Human Perspective, <i>Elsevier</i>	Rome Italy	1,200	27	730	P Preziosi/ V Cuomo
ICT VII, 1995: Horizons in Toxicology Preparing for the 21st Century, <i>Elsevier</i>	Seattle USA	2,300	21	1,300	C Klaassen/ J Wood
ICT VIII **, 1998: Chemical Safety for the XXIst Century, <i>Elsevier</i>	Paris France	1,514	25	970	J R Claude/ R Glomot
ICT IX, 2001: Toxicology and Sustainable Development—Meeting the Challenge, <i>Elsevier</i>	Brisbane Australia	968	26	643	M McManus/ P Wright
ICT X, 2004: Living in a Safe Chemical World, <i>Elsevier</i>	Tampere Finland	1,400	32	917	K Savolainen/ H Tähti
ICT XI, 2007: Toxicology: Discovery Serving Society	Montreal Canada				M Jurima- Romet/D Cyr
* Together with EST					
** Together with EUROTOX					

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## *Scientific Activities, 1998–2007*

While the main task of the EC is to administer IUTOX, including its scientific activities, the scientific activities as such are a matter for all toxicologists and all those interested in toxicology. However, this *History of IUTOX* will only deal with those scientific activities initiated or sponsored by IUTOX. According to its mission, IUTOX shall stimulate scientific activities, mainly by dissemination and utilization of knowledge in the science of toxicology, but not by initiating or conducting scientific research as such. Thus, besides sponsoring ICTs and CTDCs, IUTOX should engage in various educational matters and also in evaluation and communication of toxicological knowledge. However, as the resources of IUTOX have been limited, little regular activities besides the ICTs and CTDCs have been carried out. What has been done in addition are activities, which will be presented below as examples of what a global organization such as IUTOX could successfully do within the present scope, albeit with limited resources available.

A real challenge to a toxicological historian would be to analyze the changes of the scientific topics over the years. This is particularly interesting with regard to the descriptive definition of toxicology and certification of toxicologists, as well as the imaging and marketing of toxicology. Are the essential sub-disciplines the same as they have been or are there any new ones, for instance “omics,” of different kinds? In this publication such an analysis can only be performed on the basis of what has been presented at the ICTs and CTDCs, and, due to lack of time and resources, only superficially can be done from the titles of the plenary, keynote, abstract presentations, symposia, workshops, and roundtables, see [www.iutox.org](http://www.iutox.org), about IUTOX, History of IUTOX Appendices, Appendices V and VI.

When analyzing the content of the congresses, it was noticed that the format introduced at the beginning of the 1990s is still almost the same with invited, longer oral platform presentations grouped together in symposia and workshops, poster sessions with submitted shorter presentations, free communications, and a few plenary lectures and debates. The difference between symposia and workshops has never been very clear and probably as a consequence only the term symposium is used at ICT XI. Here, roundtable discussions also are introduced.

However, the way of publishing the Congress Proceedings has changed during the last decade. Previously, the printed material was a compilation of the submitted abstracts handed out in advance, while full papers were published as proceedings after the congresses. In 2007 in Montreal, the abstracts will be electronically available on the Internet prior to the meeting and as a CD-ROM distributed at the Congress. There will not be printed proceedings following the meeting, but journal articles will be published on key lectures simultaneously with the Congress.

### INTERNATIONAL CONGRESSES

#### ICTs

After the successful ICT VIII in Paris in 1998, see the memories of Jean-Roger Claude, the toxicologists of the world looked forward to ICT IX in Brisbane in 2001, despite the long travel for non-Aussies and some uncertainties about what was going on down under, see the memories of Mick McManus. Next in line of the ICTs was ICT X in Tampere in 2004, for which the Finnish Society of Toxicology had been selected as organizers after having faithfully applied and marketed this venue three times, see the memories of Kai Savolainen. There are



Kai Savolainen and Hanna Tähti marketing the ICT X.

no memories of events in ICT XI in Montreal in 2007 in this publication, as it has not yet taken place, but hopefully it will be a memorable and successful congress as

well. Some facts related to ICT VIII to ICT X can be found in Tables 3 and 4, together with similar data from the earlier ICTs.

### CTDCs

As described above, IUTOX also is now responsible for the CTDCs and therefore it is appropriate to give an account of the congresses before their integration into IUTOX. Table 5 shows some facts related to CTDC 1 to CTDC 5, and also CTDC 6, which was sponsored by IUTOX in collaboration with EUROTOX and the Croatian Society of Toxicology in Cavtat in 2006. The first meeting, which was titled “1st Congress of Toxicology in Developing Countries (DC),” was organized by the Toxicology Research Center, CITEF–

CONICET in Buenos Aires in 1987. As it was considered a success, the representatives from developing countries decided to continue such congresses. Instead of having a permanent administrative organization, the coming organizers were selected *ad hoc* at the end of each of the congresses and in this way five congresses were held. As there were no strict rules for how to conduct the congresses, slightly different acronyms were used, but in order to simplify this presentation “CTDC” (Congress of Toxicology in Developing Countries) will be used for all of these congresses.

Thus, the format, as well as the size of the CTDCs varied. Numbers found in Table 5 have been retrieved from the organizers, who also have been kind enough to write an account of the recollections of “their” CTDC. In these short essays, interesting details of the meetings can be found.

### Other Scientific Meetings

IUTOX has regularly been asked to sponsor different national and international scientific meetings. During the years, a policy has been developed to support only those meetings where IUTOX has a real influence on the aim and content of the program.

TABLE 5

CONGRESSES OF TOXICOLOGY IN DEVELOPING COUNTRIES (CTDC)					
NUMBER, YEAR, AND TITLE	CITY COUNTRY	ATTENDANCE	SYMPOSIA/ WORKSHOPS	ABSTRACTS/ POSTERS	PRESIDENT/ SECRETARY
CTDC 1, 1987	Buenos Aires, Argentina	300	14	140	J Castro
CTDC 2, 1991	New Dehli, India	700	10	170	P K Ray/P K Seth
CTDC 3, 1995: Together for Human and Environmental Welfare, <i>EHP</i>	Cairo, Egypt	450	17	98	S Mansour
CTDC 4, 1999: Chemical Safety for Every Country	Antalya, Turkey	294	12	200	A Karakaya/ S Sardas
CTDC 5, 2003: Toxicology in New Century—Opportunity and Challenge, <i>Elsevier</i>	Guilin, China	280	9	100	C Ye/E Dybing/ P Zhou
CTDC 6, 2006 Together with EUROTOX	Cavtat, Croatia	1,100	21	521	D Prpić-Majić/ R Turk/D Plavec

## THE SCIENTIFIC CONTENT OF THE CONGRESSES

This analysis of content is primarily done by studying the titles of plenary sessions, including plenary and keynote lectures, symposia, workshops and roundtable discussions at the congresses and registering differences between the first congresses and later ones, see Appendices V and VI. No objective method has been used but the views expressed are based upon the occurrence of specific words and subjective impressions. The increase in the number of symposia and workshops of the congresses with time has made it possible to include more presentations, which introduces further uncertainty in the analysis. The content is characterised arbitrarily, as there is no generally accepted standard, according to sub-disciplines of toxicology, methods, chemicals, results, and other scientific disciplines involved.

### ICTs

The content of the first four ICTs was dominated by topics we today consider the central core of basic toxicology, thus, very much a review of the state-of-the-art during the 1980ies.

At the ICT V in Brighton in 1989, with the title “Basic science in toxicology,” ecotoxicology was included and has then been an ever increasing topic in later congresses. It was also then the term risk assessment appeared in the titles for the first time.

At ICT VI in Rome the plenary lectures dealt with for instance, the toxic oil syndrome (TOS), calcium dependent mechanisms of cytotoxicity and programmed cell deaths and the use of white rot fungi in the degradation of environmental chemicals.

At the ICT VII in Seattle in 1995 genetically engineered mammalian cell systems and *in vivo* transgenic models were introduced. Other new topics were apoptosis, toxicology of nitric oxide and risk communication.

At the ICT VIII in Paris the toxicological impact of polymorphisms and gene susceptibility were discussed. The validation and acceptance of alternative methods were reviewed.

At the ICT IX in Brisbane in 2001 ecological risk assessment as a tool for sustainable development was treated. Disrupting chemicals, oxidative stress, toxicogenomics, and proteonomics appeared.

At the ICT X in Tampere in 2004, ethics and the precautionary principle were discussed. Effects of chemicals but also effects of physical agents were also included when cancer risk of mobile phones appeared in the programme.

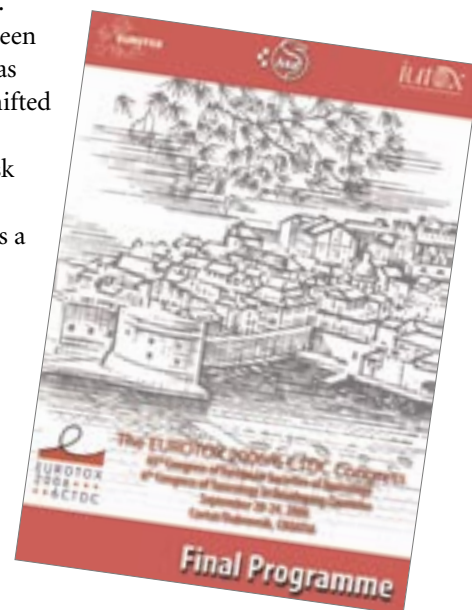
At the ICT XI in Montreal in 2007 there are many topics, which reflect the discussion of current problems in society, such as obesity, global environmental effects, pediatric drugs and nanomaterials.

In summary, the content of the ICTs, has expanded from 30 years ago to include new disciplines such as ecotoxicology, new methods including genetically modified systems, new chemicals such as genetically modified organisms and their products, and nanomaterial, new results such as different types of “omics,” and other scientific disciplines such as ecology and psychology. Very little has been omitted.

An interesting change has been that the aim of the studies, as reflected by the titles, has shifted somewhat from exploring mechanisms of action to risk and/or safety assessment, even if “mechanisms” makes a comeback at ICT XI.

### CTDCs

The content of the CTDCs was much the same as those of ICTs, except with reference to conditions in the developing countries.



## EDUCATION

According to the mission of IUTOX, it is self-evident that the Union should be involved in educational matters, as that is the basis of all knowledge. However, as IUTOX, like other scientific organizations, has limited financial resources, it is important that the activities to be supported are carefully selected in order to get the best possible return on investment. Bo Holmstedt, the second President of IUTOX, opened the symposium on training in toxicology at the European Society of Toxicology (EST) meeting in Montpellier in June 1975 by reviewing toxicology in Europe and finished with one of the main recommendations of the Medical Research Councils of Europe (EMRC): "The main emphasis of training (in toxicology) should be at the postgraduate level."

Thus, it seems obvious that IUTOX should not compete with regular academic programs, but should organize *ad hoc* education either where there is a particular need, for instance in developing countries, or when there is a need for a highly specialized type of education, which is not commonly available. A third type of educational activity, which is easily and relatively cheaply organized, is what has been called Continuing Education Courses (CECs) in conjunction with the international congresses (ICTs and CTDCs). IUTOX has undertaken all three types of educational programs and a short account will be given below.

### Courses and Lectures in Developing Countries

A Commission on Education was created in 1986. At the beginning, it was mainly concerned with RASS, see more below, and trying to initiate CECs at ICTs. In order to find out the member society wishes and needs for education, surveys were conducted. As expected, the member societies were very much in favor of having courses and lectures that were sponsored

by IUTOX and organized in their own countries. The topics and formats varied by country, but risk assessment seminars were frequently mentioned. Subsequently, plans for different educational activities were developed and carried out.

In order to make the education available for as many toxicologists as possible, particularly where no regular basic training exists, educational material has been donated and translated into different languages. These activities have been very much appreciated and, given additional funding, could be expanded. More details on the educational program can be found in reports from the Commission on Education published in the IUTOX Newsletters, in a review article by Erik Dybing, *et al*, (Reference 6 ) from which Table 6 is copied, showing examples of Continuing Education Programs and on the IUTOX Web site under Continuing Education Program, where later activities are listed. However, before continuing with such educational activities, an evaluation of the outcome of the programs is desirable.

At a workshop on educational needs for developing countries in Antalya at CTDC 4 in 1999, with representatives both from developed and developing countries, there were many views expressed, which should be taken into account when planning further educational activities in the developing world. IUTOX should investigate, in collaboration with its member societies, the status of toxicology as a science and a profession in academia, authorities/government agencies, and industry, in order to determine the most appropriate type of training in developed and developing countries, respectively. While the former countries generally prefer a more theoretical approach, the latter ones favor a more practical one. These preferences may be also expressed in another way: the developed countries would like to have toxicological experts available, while the developing countries would prefer to have different professionals such as chemists, biologists, physicians and engineers with toxicological knowledge.

TABLE 6

CONTINUING EDUCATIONAL EVENTS DURING 2001–2004			
HOST/MEETING	LOCATION	TIME	EDUCATIONAL EVENT
University of Carabobo	Valencia, Venezuela	14–15 June 2001	CE Course (in Spanish), Lectures
Chinese Society of Toxicology	Nanjing, China	15–16 October 2001	CE Course, Lectures
Toxicology Society of South Africa	Pretoria, South Africa	6–8 May 2002	Lectures
Argentine Toxicological Association	Buenos Aires, Argentina	18 September 2002	Lectures in Spanish
Toxicogenomics Workshop	Santiago, Chile	30 September–1 October 2002	Lectures
Slovenian Society of Toxicology	Ljubljana, Slovenia	25–26 October 2002	CE Course, Panel Discussion
Estonian Society of Toxicology	Tallinn, Estonia	25 April 2003	CE Course
Georgian Association of Toxicologists	Tbilisi, Georgia	17 October 2003	Lectures in Russian
5th Congress of Toxicology in Developing Countries	Guilin, China	11 November 2003	Education Round Table Discussion
ASIATOX	Bangkok, Thailand	1 February 2004	Lectures
Mexican Society of Toxicology	Guadalajara, Mexico	29 March 2004	Lecture in Spanish
10th International Congress of Toxicology	Tampere, Finland	15 July 2004	Educational Workshop
Society of Toxicology (India)	Thiruvananthapuram, Kerala, India	29 October 2004	CE Course

Another way of scientific capacity building in developing countries which could be more efficient, would be to use the latest developments in online learning, coupled with specialist mentoring by local and international academics. One of the long-range educational projects of IUTOX has involved the delivery of online postgraduate toxicology education to developing countries to meet their urgent need for toxicology education. This project has been based on the fully-online teaching programs at the Key Centre for Toxicology, Royal Melbourne Institute of Technology (RMIT), University, Melbourne, Australia. The practical or data-based projects are tailored to local chemical issues and co-mentored by local scientists. There are now ten courses

that cover general, environmental, occupational and food toxicology, toxicity testing, chemical evaluation, and risk assessment included in the RMIT program.

### RASS

At the beginning of the 1980s, Bo Holmstedt suggested that EST and the Society of Toxicology of USA initiate a summer school in toxicology to foster qualified toxicologists needed for the future development of toxicology. As a model for a summer school he had in mind the Gordon Conferences and the meetings between Nobel Laureates and young scientists at Mainau, where the main principle was informal discussions in order to share knowledge and experience.

The term “summer school” did not only imply that it was conducted during the summer, but also that its main pedagogic principle was the full-time interaction between students and masters under pleasant conditions.

When Bo Holmstedt became President of IUTOX in 1983, it was decided that the summer school should be run by this global organization to reach an international audience. Risk assessment was chosen as an appropriate and timely topic for the intended pedagogic model, as it is based to a great extent on judgments and experience. The summer school was given the name of the Risk Assessment Summer School, with the acronym RASS.

In order to fulfill the intentions of Bo Holmstedt, three issues were given special attention, the faculty, the venue and the study material. The faculty members were carefully selected among experienced toxicologists, who were interested in the concept of the summer school and agreed

to participate during the whole course. They were recognized as outstanding experts with long-time experience in hazard and risk assessment in the major areas of toxicology. Besides toxicologists, a psychologist—Paul Slovic, a well-known expert in risk perception, was invited to cover the judgmental issues of risk assessment. Instead of the faculty providing material for the discussions, which were the major activity, the students were instructed to write a study case on risk assessment of a real chemical or product prior to attending the summer school. To promote the learning process, the venues were selected to provide a stimulating and creative environment for both mind and senses, combining pleasure and education, see Table 7.

The RASS students were to be scientifically qualified in toxicology (preferably at the doctoral level), have some practical experience with academic, industrial or regulatory affiliation, be not more than 35 years of age and be able to communicate in English.

TABLE 7

RASS, TIME, VENUE, NUMBER OF STUDENTS AND COUNTRIES				
RASS NUMBER	TIME	VENUE	COUNTRY	NUMBER OF STUDENTS/ COUNTRIES
I	August 1985	Menstrup Kro	Denmark	23/7
II	August 1987	Airlie House, Virginia	USA	27/8
III	October 1990	Hotel Europa, Anacapri	Italy	28/14
IV	August 1992	Grotto Hotel	Bermuda	20/11
V	August 1994	Manor Groves	England	24/15
VI	August–September 1996	Royal Garden, Hua-Hin	Thailand	24/11
VII	August 1998	Toftagården, Gotland	Sweden	28/16
VIII	October 2000	Pueblo Acantilado, Alicante	Spain	32/23
IX	October 2002	Ta Cenc, Gozzo	Malta	26/20
X	September–October 2004	Höri, Hemmenhof	Germany	24/16
XI	September 2006	Höri, Hemmenhof	Germany	25/22
XII	September 2007	Höri, Hemmenhof	Germany	25/20
<b>TOTAL</b>				<b>306/50</b>

Most of the time during RASS is spent on the study cases written by the students. First, the cases are discussed in detail in the break-out groups with a faculty member as tutor. Next, the cases are further discussed among the group members or with the tutor, if necessary, and then, the author prepares himself/herself for the plenary discussion a day later. All cases are then discussed *in plenum*.

The principles, details of the conduct, and experience of the RASS program have been summarized in a written manual published on the IUTOX Web site. The courses have been evaluated at the end of each course and from these evaluations it has been obvious that the overwhelming value of RASS to the students has been the preparation, discussion and presentation of their written study cases. More details on the evaluations can be found in the published manual; however, the real value can only be judged by the individuals themselves.

It is also difficult to know if RASS has fulfilled the hopes of the late Bo Holmstedt, i.e. that it should promote toxicology; however, it is noteworthy that many former RASS students can be found in leading toxicology positions. Furthermore, the summer schools have successfully combined pleasure and toxicology education. Hopefully, future education in toxicology should, at least to some extent, be based upon the principle of RASS in order to fulfill the visions of the old toxicologists.

Besides the satisfaction of the students, the success of RASS has been evidenced by the fact that the faculty members continue coming back course after course, without any compensation other than accommodation support and sometimes travel expenses. Over the years, the faculty has become a strong team, which enthusiastically has supported and further developed



RASS into a very special event. They have truly fulfilled the vision of a summer school by being present all the time to share their experience with the young experts-to-be. Their contributions have been invaluable, very much appreciated by the students, and heartily acknowledged by the organizers, including Birgitta Lewander who has expertly carried out most of the administrative burden.

Faculty and students of RASS X in Germany in 2004.

### **Continuing Education Courses (CEC)**

At the beginning of the 1980s SOT USA made attempts with refresher courses at its annual meetings and in 1985 these were turned into four Continuing Education Courses organized by a newly appointed Continuing Education Committee. Appreciating the value of this activity, the chairman of the IUTOX Education Commission tried to convince the organizers of the following ICTs to include a CEC program. It was not until ICT VII in Seattle that this program was introduced and made a success, and has been continued at every following ICT. When the CTDCs were integrated into IUTOX, the CEC concept was also introduced at CTDC 5 in Guilin in 2003. The titles of the various courses can be found in Appendix IV.



A joyful IUTOX President, Iain Purchase, 1995–1998.

## STATE-OF-THE-ART PUBLICATIONS

An unspoken, but still self-evident mission of IUTOX is to take the lead in evaluating the state-of-the-art, both within its own discipline, but also in adjacent ones. This is, of course, a tremendous task, which needs financial resources and a much larger administrative organization than the present one.

With this in mind, the work of Iain Purchase in taking on the problem of addressing the

impact of estrogens on the environment as well as health hazards of genetically modified foods (GMO) under the umbrella of ICSU, has been highly admirable, see the memories of Iain Purchase. Not only did these initiatives result in interesting publications, but also in scientific workshops among toxicologists and other disciplines that have been of great value for the understanding of these toxicological issues and hopefully have led to increased knowledge and future collaboration.

## *Awards*

The Deichmann Award Lectures, which were established in 1983, have continued at the ICTs, see Table 8.

The IUTOX Merit Award was instituted in 1998. It is presented to an individual in recognition of a long and distinguished career in toxicology at the international level. Achievements in academia, public service or industry may be recognized. Emphasis should be on contributions that have strengthened the field of toxicology. The names of the awardees are listed in Table 8.

The Robert L. Dixon International Travel Award, sponsored by the Toxicology

Education Foundation, is given to a graduate student in the area of reproductive toxicology to enable the student to attend the International Congress of Toxicology meeting.

Another IUTOX award is the International Congress of Toxicology IUTOX Early Toxicologist Award, with the purpose of recognizing and stimulating outstanding research in toxicology by newly established investigators. A number of other IUTOX travel fellowships are awarded to help defray the travel costs of ICTs and CTDCs, see the IUTOX Web site.

TABLE 8

DEICHMANN AWARD LECTURES AND MERIT AWARD WINNERS		
NO YEAR	MERIT AWARD	DEICHMANN AWARD LECTURE
ICT III, 1983		B Holmstedt, Sweden
ICT IV, 1986		T Sugimura, Japan: Studies on the Environmental Chemical Carcinogenesis in Japan—A Sketch of Historical Background and Recent Progress
ICT V, 1989		D G Harnden, UK: The Molecular Basis of Inherited Susceptibility to, and Action of Carcinogens
ICT VI, 1992		R Paoletti, Italy: Cholesterol Modulation in the Cell Metabolism and Multiplication
ICT VII, 1995		C C Harris, USA: Molecular Epidemiology and Human Cancer Risk Assessment
ICT VIII, 1998	Seymour Friess	J Weissenbach, France: Human Genome Mapping and Sequencing: Perspectives for Toxicology
ICT IX, 2001	José Castro	D Vaux, Australia: Apoptosis and Toxicology—What Relevance?
ICT X, 2004	Iain Purchase	J Toumisto, Finland: Do Mechanisms Help Risk Assessment—Example Dioxins
ICT XI, 2007	Tetsuo Satoh	A B Okey, Canada: An Ah Receptor Odyssey to the Shores of Toxicology

## MERIT AWARD WINNERS



Seymour L. Friess, 1998



José A. Castro, 2001



Iain F. H. Purchase, 2004



Tetsuo Satoh, 2007

*Merit*

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## *Conclusions—Past, Present, and Future Roles of IUTOX*

### **THE MOST IMPORTANT ROLE OF IUTOX SO FAR**

It is not that difficult to conclude that bringing together toxicologists from around the world at scientific meetings, ICTs and CTDCs, is the most important IUTOX achievement so far, albeit not that complicated. That task has been successfully accomplished by IUTOX and has been important for the science and practice of toxicology. This was what the pioneers had in mind when they worked hard to create an independent organization for toxicologists apart from other disciplines such as pharmacology. At the beginning, there were difficulties in reaching out to all corners of the globe, but with diligent work, lead by the ECs, more and more national toxicological societies were included into the IUTOX family. The integration of CTDCs into IUTOX was an important event, in that it avoided the threat of having more than one global organization of toxicology.

Other activities of IUTOX during the first 30 years of existence might not have had the same impact on toxicology, most likely due to limited financial support. However, different educational activities such as RASS and the Continuing Education Program, and attempts to put together state-of-the-art publications, are examples of tasks where IUTOX has played important roles.

### **WHAT COULD BE IMPROVED?**

It is always easy to construct a wish-list of things that could be improved, but only seriously considered and realistic proposals from the author's point of view will be mentioned.

First of all, the image of toxicology has to be more attractive to other scientists and

their organizations, to decision makers, and to the general public, among others. This is not an easy task, but it is absolutely necessary if plans for improvement are to be considered.

Second, IUTOX has to seek collaboration with other organizations with similar aims and activities on their agenda. Toxicology is not only a multidisciplinary science, but it deals with problems that are taken on by other sciences without the specialized knowledge of toxicology. Under the umbrella of ICSU and from its strong globally united position, IUTOX should try to initiate multidisciplinary collaboration in the same way that this is done on different local levels, for instance nations, universities or departments.

Third, as a global organization, IUTOX has to pay particular attention to the parts of the world where there are no toxicology societies or where toxicology needs support. Even if education is an obvious way, such an initiative has to take into consideration the particular local/regional needs and what can be achieved within the resources available.

Fourth, it is necessary to improve the IUTOX finances in order to implement those ideas and plans, that are considered worthwhile. Even if it is not feasible to afford executing or managing practical projects, planning and supervising various tasks requires financial resources.

Fifth, all these proposals require that all individuals interested in toxicology are positively engaged in the purposes of IUTOX. Because without the good will of individuals, an idealistic organization such IUTOX cannot be successful.



The Author

*“The image of toxicology has to be more attractive to other scientists and their organizations, to decision makers, and to the general public. IUTOX has to seek collaboration with other organizations with similar aims and activities on their agenda.”*

Sixth, modern techniques offer other ways of operating a global organization more efficiently and less expensively and in an even more environmentally friendly way than in the past. Therefore, it would be a good idea to review the Statutes and By-Laws and make those changes, that would improve the running of the Union.

### **THE FUTURE OF IUTOX**

IUTOX has fulfilled the modest aim laid down by the founders. Now it has to be decided how to proceed. Either the beaten

track could be safely used to continue to serve the toxicology community in the same way, or the aim can be expanded with similar endeavors to those already tried. Unless toxicology makes an important scientific breakthrough or another calamity happens, much worse than that caused by thalidomide, there is little possibility that the politicians and other decision makers will allocate enough interest and resources to expand the activities of IUTOX beyond the present level. Crying wolf will not work to get attention!



## *Acknowledgements*

I want to thank Ali Karakaya, the present President of IUTOX, for giving me the opportunity to write the History of IUTOX, Wally Hayes for his professional editing, and Erik Dybing, past President of IUTOX for all his help and support. Thanks also to all who have contributed with information and in particular to past presidents of IUTOX and presidents of ICT and CTDC organizing committees who have submitted their memories. I am also very grateful for the help of Shawn Lamb and her collaborators, Sue Curran and others at AIM, with editing and turning my written material and photos into a presentable publication.

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## *Memories of Past Presidents of IUTOX*

### SEYMOUR L. FRIESS

*President of IUTOX, 1980–1983*

As I think back about important events more than thirty years ago leading to the development of IUTOX, several aspects of the meetings and interactions among colleagues from both sides of the Atlantic occur to me with special pleasure. The first is the great dedication to the development of the discipline of modern toxicology, as well as their foresight and determination, shown by members of the Councils and Executive Committees of the Society of Toxicology (SOT) and the European Society of Toxicology (EST) of those days. Indeed, starting from professional roots and training in pharmacology and related experimental sciences, many of the members of these societies suffered a few qualms at the prospect of attaching future alliance to a newly formed International Scientific Union. But these admirable people persisted in the foundation and structural development of IUTOX, recognizing the need for broad new guidelines and publication support of a multidisciplinary experimental science that would go on to underpin the worldwide flood of improved procedures and publications on an ever expanding host of useful chemicals. Even back then, the focus on fundamental toxicology leading to internationally acceptable principles of chemical hazard assessment and risk evaluation for exposed human populations and the environment was clearly recognized by the SOT and EST memberships.

Affairs did come to a final decision on IUTOX, as I recall, in the course of critical

meetings and open discussions at a fine IUPHAR meeting in Helsinki in 1975. Heated debate, pro and con with respect to the founding of IUTOX, preceded a general decision to go forward. The strong alliance between the goals of pharmacology and modern toxicology would always continue, of course, but the future development of toxicology for high-usage chemicals would proceed on its own course and timetable.

The entire series of events in the early 1970s leading to the establishment of IUTOX afforded great personal pleasure to me. But just as important to me was the set of personal relationships that developed among key players from the SOT and EST organizations of these times. The spirit of international cooperation and the friendships that evolved along with the growing IUTOX structure have provided lasting pleasure in my bank of memories.

Finally, I would also like to pay tribute to the continued devotion and service of the many generations of officers and councillors of IUTOX over the past 30 years. They have maintained the solid scientific character of the Union and have guided its growth into a truly worldwide organisation serving all mankind. The growth itself is a solid demonstration that the decision taken at Helsinki was correct!



Seymour L. Friess

*“Heated debate, pro and con with respect to the founding of IUTOX, preceded a general decision to go forward. The growth itself is a solid demonstration that the decision taken at Helsinki was correct!”*

## PAOLO PREZIOSI

*President of IUTOX, 1989–1992*



Paolo Preziosi

*“Although our union had been an associate member of the ICSU since 1987, the road toward full membership was long and difficult.”*

**M**y term as President of the International Union of Toxicology (IUTOX) began with a stormy crossing of the English Channel on my way back home from the 1989 Congress in Brighton, where I had been elected. The turbulence was fortunately short-lived, and the three years of my presidency (1989–1992) were serene, pleasant, and stimulating. The period included several important events in the life of our Union, which I'd like to recall here.

- a) The IUTOX supported the very successful Third Risk Assessment Summer School (RASS III) held in Capri, Italy (October, 1990). Twenty-nine students from 14 different countries took part. The IUTOX Executive Committee subsequently voted to organize RASS IV to be held in Bermuda, August 22–30, 1992.
- b) The Union drafted an Official Statement on Chemical Warfare, which was published in *Trends Pharmacol. Sci (TIPS)* (vol. 12, no, 3, p. 88, 1991).
- c) In conjunction with the International Programme on Chemical Safety (IPCS), we organized two workshops in South America. The first, which focused on the Prevention and Management of Poisonings, was held in Montevideo, Uruguay on March 4–7, 1991. The second was held in Porto Alegre, Brazil, March 16–18, 1992, and it focused on the development of a Poison Control Programme in South America.
- d) IUTOX representatives actively collaborated in drafting the revised edition of the International Union of Chemical and Applied Chemistry (IUPAC) Glossary of Terms used in Toxicology.

- e) We provided financial support for the Second International Congress of Toxicology in Developing Countries, which was held in New Delhi, India from November 24–28, 1991.

Two important initiatives were planned and completed during my term of office. The first involved recognition of the IUTOX as a nongovernmental organization (NGO) of the World Health Organization (WHO). I am sincerely grateful to Prof. Michel Mercier, Director of the WHO-IPCS, for his constant support of the IUTOX application for NGO status and for his active involvement in numerous joint initiatives by the IUTOX and IPCS. We worked closely and productively to improve poison control in South America and in the organization of the IPCS-IUTOX Symposium during the VI International Congress of Toxicology in Rome.

The second major achievement of my Presidency was the IUTOX application for full membership in the International Council of Scientific Unions (ICSU). Although our union had been an associate member of the ICSU since 1987, the road toward full membership was long and difficult. The “voyage” began in 1990 at a meeting of the ICSU in Bulgaria. Discussion was raised over the IUTOX’s recently announced opposition to the looming threat of chemical warfare in the Gulf War. After months and months of complex negotiations, which were initially conducted with the able guidance of Dr. Julia Martin Lefèvre, the IUTOX application was finally accepted, and the Union was formally recognized as a full member of the ICSU shortly after the end of my term of office as Past President.

## IAIN F. H. PURCHASE

*President of IUTOX, 1995–1998*

It was a great honor to be elected as President because of the realization that IUTOX has so many societies as members and so many individual toxicologists with an interest in its work. It was a daunting challenge to try and satisfy those interests.

As President of IUTOX, I came in contact with the International Council for Science (ICSU, the international organisation representing all branches of scientific endeavour through its 29 Scientific Union and 112 National Scientific Members). IUTOX is a Scientific Union Member. Many of the Scientific Unions are much larger, often with larger budgets, more members and their own journals. Nevertheless, some of the problems faced by the international community require an important contribution from toxicology. One such issue was that of the impact of oestrogens on the environment. We were able to join with the International Union of Pure and Applied Chemistry (IUPAC) and the International Union of Pharmacology to apply for an ICSU grant to prepare a Monograph on 'Natural and Anthropogenic Environmental Oestrogens: The Scientific Basis for Risk Assessment'. This was successfully completed and published in the IUPAC journal. (*Pure and Applied Chemistry* 70, (1998), 1617–1865). IUTOX on its own simply does not have the resources to produce a monograph of this magnitude and collaboration on international scientific issues is important in amplifying the influence of toxicology.

Building on the success of this work, IUTOX was successful with the International Union of Nutritional Sciences (IUNS) in a bid for the preparation of a Monograph entitled: 'Genetically Modified Foods for Health and Human Nutrition: The Scientific Basis for Benefit/Risk Assessment'. This was

supported by 5 International Unions and Published in the IUNS journal (*Trends in Food Science and Technology* 14, (2003), 182 *et seq.*).

Of course there were many other tasks that the Executive Committee and IUTOX members dealt with successfully. The International Toxicology Congress in Paris is just one example of how individuals contributed to the overall development of toxicology during that period.

One most successful and enjoyable task was the result of an invitation from the Israeli Society of Toxicology for the Committee to meet in Israel to encourage the development of toxicological science in that country and to encourage their membership if IUTOX. We held our scheduled Executive Committee meeting in Eilat and then travelled north to run a seminar on Risk Assessment in Toxicology in Jerusalem. This was most interesting as each member of the Executive Committee spoke about their area of scientific expertise, a change from the business normally carried out at the committee meetings. There was a good turn out and lively discussion suggesting that the 'ad hoc' symposium achieved its aim of providing a focus for developing interest in aspects of toxicology. The Israeli Society of Toxicology is now a member of IUTOX. Apart from the business of IUTOX and the scientific discussions on risk assessment, we were privileged to visit some of the historical sites of the country and swim in the Dead Sea.

I have good memories of my time with IUTOX, not just from the work we were able to do, but from the contact with toxicologists from around the world.



Iain F. H. Purchase

*“It was a daunting challenge to try and satisfy those interests.”*

## GLENN SIPES

*President of IUTOX, 1998-2001*



Glenn Sipes

*“The best memories are those of the hard work, dedication, volunteer spirit and good humor provided by the outstanding toxicologists on the Executive Committee.”*

I served as President of IUTOX from 1998–2001. One vivid memory was being elected on one day and having to serve as President the next day, with no previous Executive Committee experience. Well, ignorance is bliss and some higher power must have felt compassion. The higher power happened to be a dedicated, motivated Executive Committee.

A key decision made early was to hold the first Executive Committee meeting in Guadalajara, Mexico. This venue was chosen to emphasize that IUTOX was interested in nurturing the development of toxicology in Latin and South America. At this meeting, representatives of the Mexican Society of Toxicology and ALATOX discussed their societies with the Executive Committee and offered some suggestions as to how IUTOX could assist them and other toxicology societies in the region. These suggestions were incorporated into the IUTOX 1998–2001 strategic plan, which was the major outcome of this meeting.

The 1998–2001 Strategic Plan had eight long-range goals with several specific objectives. Four of the long-term goals were “people-oriented.” They were to assist in the career development of young toxicologists, to pursue capacity building in toxicology, particularly in developing countries, to broaden the geographical base of toxicology as a discipline and a profession and to provide a means for the international accreditation of toxicologists. During this three year period, 10 new societies became members of IUTOX. Specialized meetings were held/organized in South Africa, Chile, Mexico and Eastern Europe. Programs were instituted to provide educational materials and courses in native languages. Over 130 fellowships were provided for young scientists to attend ICT IX, RASS and specialized toxicology meetings. Sponsorship of RASS, publication of the Monograph on

Environmental Estrogens and presentation of this monograph at ICT IX and numerous regional meetings allowed IUTOX to promote the continued development and use of the safety evaluation/risk assessment process for chemical safety and to disseminate knowledge in toxicology, particularly to developing societies and to young toxicologists. To fund these programs, IUTOX developed partnerships with the private sector, member societies, the National Institute of Environmental Health Sciences and ICSU. This funding was organized through the Commission on Finance and Marketing, which was served by an appointed *ad hoc* advisory group. An important outcome of this Commission was the establishment of the criteria for Institutional Members of IUTOX. As the above summary suggests, development and publication of a strategic plan was critical. It defined IUTOX’s purpose, laid out the framework to proceed and served as a template to judge success. By focusing on the above-mentioned goals and objectives, we were able to continue its development as the leading international scientific, non-governmental body that addresses global issues in toxicological sciences and advances the discipline and profession of toxicology world wide.

Serving as President of IUTOX is an honor that carries major responsibilities. It provides significant opportunities, which include: new friendships, new lands, and new experiences. Visits to South Africa, Chile, Turkey, Mexico, Australia, and England while being President certainly generated many fond memories. The colleagues in these places were a true delight. However, the best memories are those of the hard work, dedication, volunteer spirit and good humor provided by the outstanding toxicologists on the Executive Committee. It is amazing how talented professionals can work together and succeed when they volunteer their time to an organization in which they believe.

**ERIK DYBING**  
*President of IUTOX, 2001–2004*

I believe the most important achievement during my presidency was the integration of the Congresses of Toxicology in Developing Countries (CTOX-DC) into the IUTOX organization. These congresses had previously been independent meetings to promote toxicology in countries where the science and discipline had been under development. The initial congress was arranged in Buenos Aires in Argentina in 1987 by José Castro. Further congresses had been held at four year intervals in India in 1991, Egypt in 1995 and Turkey in 1999. In Antalya in 1999, it was proposed to arrange the next congress in 2004 in China, but initially IUTOX did not have any role in this planning. However, the Executive Committee proposed to the General Assembly in 2001 that a Task Force examine the possibility for integrating the CTOX-DC activities into IUTOX in order to continue the world-wide strengthening of toxicology. This Task Force was appointed and charged with addressing a number of issues, including a) timing of the International Congresses of Toxicology and CTOX-DCs (congress cycle), b) timing of general assemblies, c) terms of office, d) needs for statute changes, and e) economy.

This Task Force made a number of recommendations: to include the Congresses of Toxicology in Developing Countries (hereafter abbreviated CTDC) as an IUTOX activity in line with the International Congresses of Toxicology (ICT); to alternate, each on a 3-year cycle, the CTDC and ICT; the cycle of ICTs to continue in 2004, 2007, 2010 and the CTDCs to be held in 2003, 2006, 2009, and so on; for the next CTDC in 2003 to be arranged in Guilin as a joint activity between the Chinese Society of Toxicology (CST) and IUTOX; that the following CTDC in 2006 be held in Croatia; and that the necessary minor changes to the Statutes and By-Laws be decided on at the General Assembly in 2004.

The 5th Congress of Toxicology in Developing Countries was arranged in Guilin during 10–13 November in 2003. This became a truly joint collaborative effort between the CST and IUTOX, with detailed programming, planning and conduct of the congress. A special challenge was the SARS epidemic that broke out in the early months of 2003 and threatened the whole arrangement. But fortunately, we were able to stand up to this threat so that we could experience a very successful congress in the end. This was especially due to the excellent collaboration at a personal level between CST and IUTOX officers.

My best personal memory from my period as IUTOX President was the opening ceremony of the ICT X in Tampere, Finland on 11 July, 2004. At this time I was able to both look back on an interesting and rewarding three-year period as president, and to look forward to the growth of IUTOX under new leadership. ICT X had attracted more than 1,400 toxicologists from 75 countries. The congress was opened by the congress president Kai Savolainen and the president of the Finnish Society of Toxicology Jyrki Liesivuori. I was happy to thank the Finnish Society for the perseverance in bidding for the congress (they won after their third effort!), their excellent preparations for the congress, and their interesting and comprehensive scientific programme. I was also very pleased with presenting Iain Purchase with the 2004 IUTOX International Merit Award. Thereafter, Jouko Tuomisto held a very thought-provoking Deichmann Lecture on dioxin research, in which he, amongst others, placed toxicological issues in a larger risk-benefit perspective. Being fond of good music, I very much appreciated the opening ceremony's Rajaton Vocal Ensemble, which gave a phenomenal contribution by rounding off the ceremony with 'The voice is boundless'.



Eric Dybing

*“A special challenge was the SARS epidemic, which broke out in the early months of 2003 and threatened the whole arrangement.”*

**ALI E. KARAKAYA**  
*President of IUTOX, 2004–2007*



Ali E. Karakaya

*“As a scientific discipline toxicology is becoming a critical tool for making the best decisions to protect human health and the environment.”*

As IUTOX President I am in the last month of my term. It will finish with the world toxicological community getting together at the “XI International Congress of Toxicology” in Montreal in July. The theme of the ICT XI meeting - “Toxicology: Discovery Serving Society” - emphasizes the role of toxicology throughout the world as a scientific force for the betterment of the conditions of life for humanity. As a scientific discipline, toxicology is becoming a critical tool for making the best decisions to protect human health and the environment. I believe that not only the quality of the scientific program of this congress, but also the scientific

communication and the interaction of over two thousand toxicologists from all corners of the world will make a significant contribution to the global function of toxicology.

IUTOX has continued to grow as a global organization. Five toxicology societies have become members in the 2004–2007 period and institutional members have started to become a part of the IUTOX family, this for the first time ever.

The world toxicology community will be getting together again for the 7th Congress of Toxicology in Developing Countries (7th CTDC) in Sun City, South Africa in 2009

and ICT XII in Barcelona, Spain in 2010. The venues for our 2012 (8th CTDC) and 2013 (ICTXII) meetings will be determined at the IUTOX Montreal Assembly. We have distinguished candidates to host these congresses: bids have been submitted by Korean and Mexican Societies for ICT XII and Indian and Thai Societies for the 8th CTDC.

I am pleased to report that the objectives set by the IUTOX strategic plan at the beginning of our term have been actualized as had been planned. I believe that you have been following these activities through the IUTOX web-site.

It is with great pleasure and confidence I hand over the responsibility for leading our society to the new President who will have to be elected at the General Assembly in Montreal as Robert Kroes, who had been elected as the President for the 2007–2010 term at the General Assembly in Tampere in July 2004, unfortunately and tragically lost his battle with cancer on December 28, 2006. The world toxicological community shall longingly remember Bobby, who was an enthusiastic, charming, and witty man with an exceptional personality.

I am sure that our organization will continue to develop under the leadership of the new President.

## *Memories of Organizers of ICTs*

### DONALD S. DAVIES

*ICTV, 1989*

The scientific programme of this congress emphasized the role of basic science in toxicology, I believe with considerable success as recorded in the published proceedings. The editorial committee was determined to publish the proceedings promptly and this was achieved and set a standard for succeeding congresses.

As with all international scientific congresses, a dominant concern during the preparations was the financial viability of the venture. To our great relief, it turned out to be a success financially and IUTOX and the British Toxicology Society benefited from that success.

Much hard work was done on the social programme which proved to be popular with delegates and partners. I remember two events in particular from the social programme.

At the Opening Ceremony the Band of the Grenadier Guards (they usually guard Buckingham Palace) entertained us with a display of marching and a programme of music. I was sitting next to the late Gerry Zbinden who was disappointed that I did not stand up and take the salute. His comments when the band played Rule Britannia are best kept unsaid.

A Regency style Gala Evening was held on Wednesday at the Corn Exchange which included a buffet supper, entertainment and dancing. My abiding memory of the event was the appearance of Franz Oesch in splendid Regency Costume. (I do not have a photograph unfortunately).



Donald S. Davies

*“The editorial committee was determined to publish the proceedings promptly and this was achieved and set a standard for succeeding congresses.”*



## PAOLO PREZIOSI

ICT VI, 1992



Paolo Preziosi

*“The social program was rich and varied with a buffet dinner in Villa Caffarelli at the Campidoglio, a gala evening at Palazzo Pallavicini-Rospigliosi, in the Casino dell’Aurora named for the famous fresco created by the great Guido Reni (1575–1642), and a host of other interesting optional activities.”*

The overall theme of this congress was “Toxicology: a Science for the Wellbeing of Mankind,” and as its symbol, we chose the magnificent Arch of Constantine that stands at the heart of Rome’s historic centre. The monument was erected in 315 AD in honour of the Roman Emperor who put an end to the ferocious persecution of the Christians by his predecessors and inaugurated an era of peace that lasted until his death in 337. Our objective was to examine all of the major toxicological issues facing the world during the last decade of the 20th century, and to this end, we had put together an impressive scientific program that included the Deichmann Lecture, five plenary lectures, 14 Symposia with 75 lectures, 13 Workshops with 65 participants, a debate on “Toxicology, media and public opinion,” a viewpoint session on “Certification of Toxicologists,” four platform sessions, and four poster presentations.

There were also several interesting symposia that had been organized jointly with important international scientific bodies like the International Union for Pure and Applied Chemistry (IUPAC) (“Monitoring of biological effects of human exposure to industrial chemicals”); the Toxicology Section of the International Union of Pharmacology (IUPHAR) (“Molecular basis for differences in susceptibility of toxicants”); the European Societies of Toxicology (EUROTOX) (“Classification of chemicals based on newer scientific concepts”), the International Programme on Chemical Safety (IPCS) (“Behavioral and developmental neurotoxicology”); the European Association for Poison Centres and Clinical Toxicology (EAPCCT) (Symposium on “Toxicology of combustion products” and a Workshop on “Immunotherapy in the management of

poisoning”); and the European Chemical Industry Ecology and Toxicology Centre (ECETOC) (“Hazard assessment in ecotoxicology”).

There were over 1200 registered participants from all over the world and thirty exhibitors.

The social program was rich and varied with a buffet dinner in Villa Caffarelli at the Campidoglio, a gala evening at Palazzo Pallavicini-Rospigliosi, in the Casino dell’Aurora named for the famous fresco created by the great Guido Reni (1575–1642), and a host of other interesting optional activities.

The congress was followed by four satellite meetings on “Neurotoxicological aspects of pesticides and neurotoxins,” “Toxicological evaluation of chemical interactions: relevance of social, environmental and occupational factors,” “Addictive drugs and addictive states: the state of the art” and “The IX International Symposium on microsomes and drug oxidations.”



## JEAN-ROGER CLAUDE

ICT VIII, 1998

ICT VIII (July 5–9, 1998) was the first international meeting of Toxicology organized in Paris, hosted by the French Society of Toxicology. It was for me a considerable honor but also a risky challenge to be designated as the President of the Organizing Committee. Fortunately, I had a good team with special mention for Chantal Bismuth and Remi Glomot. In the course of the Opening Ceremony, I dedicated this meeting to my dear Master Professor Rene Truhaut, who passed away in 1994, and who was a pioneer for modern toxicology.

Among all the scientific events occurring during this symposium, I keep especially in mind the lecture given by Bruce Ames: to welcome Bruce was for me something tremendous! In the same way, the Deichmann lecture given by Jean Weissenbach: “Human genome mapping and sequencing: Perspectives in Toxicology” was also a major contribution if we consider all the subsequent developments in functional genomics, in “OMIC technologies”, etc... Very appreciated also was the debate on the use of transgenic animal models for carcino-

genicity studies with a dazzling analysis by my friend Jay Goodman. From a general point of view, and without any vanity, when I now read the program, I notice 2 key points: first, most of the renowned toxicologists of the end of the 20th century participated in the meeting as speakers, chairs, etc...secondly, most of the topics covered the main area of interest in toxicology, including the topics of interest for industry (and not only for Academia).

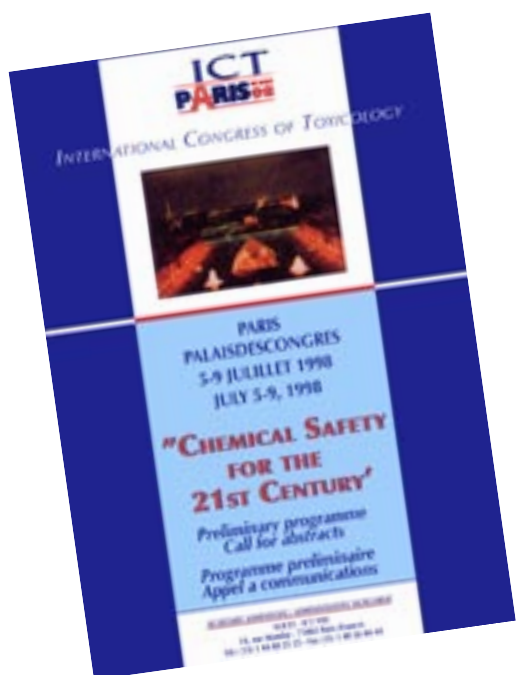
Concerning now my personal strong emotions, as I said previously, to welcome Bruce Ames was memorable. I also remember the beautiful reception at the City Hall and the gold medals offered by the Mayor of Paris (a rare favour), and the gala dinner-cruise on the Seine. The reception in the City Hall was held the day of the semi final of the soccer world championship and we were informed just 3 hours before the ceremony that the Champs Elysees would be closed to traffic (transportation by bus was planned). This left us less than 3 hours to organize the travel of more than 600 people by the metro, but all finally worked well and people were really happy to take the metro and to see the happiness of French people due to the game. Another anecdote about the gala dinner: it was a rainy day and I was desperate because a dinner cruise in the rain, without the sightseeing tour of Paris by night, would have been a disaster. But, by a miracle, at 6:00 PM, the rain stopped and we had a wonderful sunset on the Seine. What a relief! At the end of the closing ceremony, we were all moved to tears when many colleagues and friends came to say: “thank you and goodbye”.

Six years of work! And two days later, the French team won the world championship of soccer! What a year!



Jean-Roger Claude

*“Six years of work! And two days later, the French team won the world championship of soccer! What a year!”*



## MICHEL E. MCMANUS

ICT IX, 2001



Michel E. McManus

*“ICT IX was the best International Congress of Toxicology ever. The meeting was a financial success.”*



This Congress was held at Brisbane Convention & Entertainment Centre in Australia from 8 to 12 July 2001 and was opened by The Honourable Paul Lucas, Minister for Innovation and Information Economy in the Queensland State Government. The theme of the Congress was “Toxicology and Sustainable Development—meeting the challenge.” It was the first major toxicology conference to be held in the Southern Hemisphere and was jointly hosted by the Australasian Society of Clinical & Experimental Pharmacologists and Toxicologists (ASCEPT) and the International Union of Toxicology (IUTOX). A

total of 968 delegates from 52 countries attended the Congress, including 167 from Australasia. Probably the best way to report on the success of the Congress is to repeat the comments of the incoming President of IUTOX, Professor Dr. Erik Dybing of Norway, at the closing ceremony when he said, “The meeting was a financial success, which was in part due to the special efforts of the local Congress Organizing Committee that consisted of: John Miners, Sarah Roberts-Thomson, Margaret Hartley, Kathie Knights, Sally McCann, Rod Minchin, Andrew Somogyi, Paul Wright and Jorma Ahokas. We were also fortunate to have received very strong support from the IUTOX Executive Committee, especially Dr. Glenn Sipes, President of IUTOX, plus Drs. Judith MacGregor, Meryl Karol, Tetsuo Satoh and Erik Dybing. The financial assistance that was received from our two major sponsors, who were the Gillette Company and the National Institutes of Environmental Health Sciences (NEIHS) and the National Toxicology Program of the U.S. Department of Health & Human Services, plus many other sponsors, was critical to the success of the Congress.

At the opening ceremony Dr. Glenn Sipes presented the IUTOX Merit Award to Dr. José Castro of Argentina who was an exceedingly worthy recipient of this prestigious award for his outstanding contributions to toxicology. The prestigious Deichmann Lecture of ICTIX entitled “Apoptosis and toxicology—What relevance?” was given by Dr. David Vaux of the Walter & Eliza Hall Institute in Melbourne. This lecture was a *tours de force* walk through the field of apoptosis and sent a powerful message for all of us involved in toxicology. It clearly set the scene scientifically for a refreshing and educationally rewarding Congress. Other plenary lectures were given by: (1) Dr. Steve DeArmond of University of California, San Francisco on “The pathogenesis of prion diseases,” (2) Dr. Takashi Sugimura of National Cancer Centre in Japan on “Food and cancer” and, (3) Dr. Kenneth Olden of NEIHS on “The new genomic knowledge: a new frontier for toxicology.” A special public lecture was also given entitled “Gene manipulation of food—Is DNA toxic?” by Dr. Peter Gresshoff of the University of Queensland. The Continuing Education Sessions of the Congress were well received and the contributions of Dr. Torbjorn Malmfors and Dr. Bill Pennie are gratefully acknowledged. A total of eight junior fellowships and 20 senior fellowships were awarded to scientists from around the world to attend the Congress. A record of the abstracts presented at the meeting can be found in *Toxicology*, vol. 164 (1-3), 2001.

The hard work of Drs. Peter Di Marco, Susan Tepe, Brian Priestly, Paul Wright, Roger Drew and Michael Moore was instrumental in securing this Congress for Australasia. Further, the assistance we received from members of the International Scientific Committee and the National Scientific Committee in making this Congress a success is gratefully acknowledged.

## KAI SAVOLAINEN

### ICT X, 2004

I have attended all the IUTOX Congresses (ICTs) since the 5th one in Brighton in 1989. I remember the 10th International Congress of Toxicology that was organized in 2004 in Tampere exceptionally well because I was the President but did not have many chances to listen to the lectures. I remember though very well the session organized at this Congress by Erik Dybing. The session on “Global challenges for toxicological education” very well reflected the long ways IUTOX had traveled and also the effective execution of the strategies and goals of IUTOX. The emphasis of the session was on education of toxicology and its challenges in developing countries. The presentations of Dr. Makalinao from the Philippines, Dr. Rojas from Venezuela and Dr. Gulumian from South Africa were impressive and underlined the importance of IUTOX activities in these countries. It became also quite obvious that the possibilities of IUTOX to have a positive impact on the development of the toxicology discipline are marked provided that targeted actions are undertaken.

I remember very well the bidding of the Finnish Society of Toxicology for the ICT. For the first time, the Society bid for the Congress in Rome in 1992, and did very well. Next time was in 1995 in Seattle at the

ICT VII, when the Finnish Society got the smallest amount of votes. I was asked at that meeting whether the Finnish Society would give up after such poor success. My response was that the Finns never give up. We continued working for the bid, and I did some 50 trips also to promote the bid between 1995 and 1998, and the other members of the Executive Committee of the Finnish Society did the same. It was with a great pleasure when assessing the situation before the General Assembly in Paris in 1998 when we felt relatively sure that we would win the bid. But you never know for sure before you have seen the votes. Thus the counting of votes was exciting, but the result, winning at the first round was a rewarding experience. After nine years of hard work we finally could start working for the Congress!



Kai Savolainen

“After nine years of hard work we finally could start working for the Congress!”



## *Memories of Organizers of CTDCs*

### JOSÉ A. CASTRO

CTDC 1, 1987



José A. Castro

During the 1970s I had the opportunity to visit different parts of Argentina and other Latin American countries trying either to promote the need of toxicology or to attend meetings related to existing toxicology. Simultaneously, I became a member of SOT, EUROTOX and ASPET and I enjoyed the boom of toxicology in the USA and Europe and the excitement of presenting the competitive work of my laboratory in mechanistic aspects of toxicology.

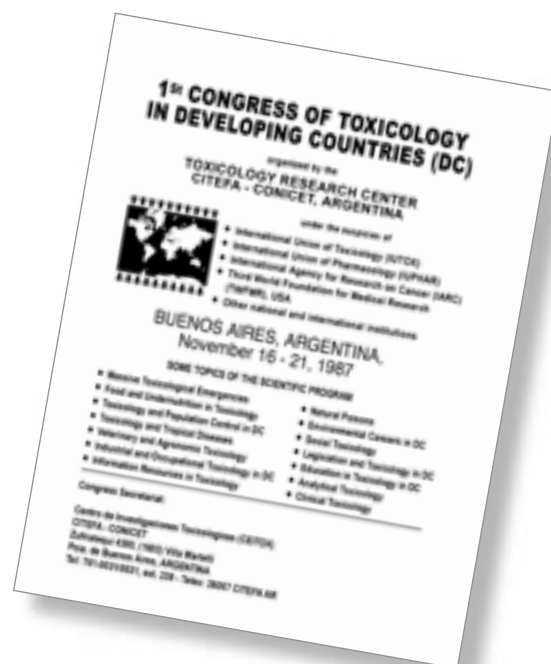
*“It was shocking for me to realize the major differences existing between the needs and the priorities of Developed Nations (DN) and Developing Countries (DC) of the world in relation to toxicology-related matters. Differences were not only quantitative but also qualitative. Further, not all the problems in DCs were faced or solved in the past by DNs. In addition, when that was done in DNs, the practical positive applications of that toxicology knowledge was possible there because of the already existing educational/economical/social/environment that frequently is not the case in DCs. By that time, I visualized a given group of problems related to toxicology that was either more intensively occurring in DCs or was almost uniquely existing in DCs. Those matters were poorly or totally unrepresented in the SOT/Eurotox Meetings. However, IUTOX came up!*

It was shocking for me to realize the major differences existing between the needs and the priorities of Developed Nations (DN) and Developing Countries (DC) of the world in relation to toxicology-related matters. Differences were not only quantitative but also qualitative. Further, not all the problems in DCs were faced or solved in the past by DNs. In addition, when that was done in DNs, the practical positive applications of that toxicology knowledge was possible there because of the already existing educational/economical/social/environment that frequently is not the case in DCs. By that time, I visualized a given group of problems related to toxicology that was either more intensively occurring in DCs or was almost uniquely existing in DCs. Those matters were poorly or totally unrepresented in the SOT/Eurotox Meetings. However, IUTOX came up!

At the time I had the dream of seeing IUTOX as a sort of United Nations of Toxicology. However, societies of toxicology in DCs were rare or absent in IUTOX. By that time I was a designated member of the IUTOX Scientific Committee and I was a member of the Toxicology Section of IUPHAR. By the end of 1979, I promoted the existence of the Argentinian Society

of Toxicology, which soon applied to be a member of IUTOX. About 1985, I got the idea of hosting a first meeting on toxicology in DCs (that occurred in 1987).

We got the help of many idealistic toxicologists around the world, to be speakers and help. The Meeting was exciting, encouraging and successful. It was ethically and scientifically motivated and of idealistic nature. However not everybody understood that message. We got understanding and moral or economic support from my Institute, IARC, WHO, IUTOX, IUPHAR, TWFM and the many speakers and attendees coming by themselves. The environment was very stimulating and we made strong links with friends. Together with them the continuation was ensured in other DCs (India, Egypt, Turkey) until the transfer of this meeting was made to IUTOX. We felt at that time that the early idealistic message was definitively understood and that in IUTOX the DCs now have a bright future in toxicology.



**P. K. RAY**  
*CTDC 2, 1991*

The Congress was inaugurated at the Hotel Ashoka in New Delhi, by the Hon'ble Minister of Environment and Forests, Government of India, Mr. Kamal Nath. Prof. P. K. Ray, President of the Congress welcomed the guests and elaborated on the need of organizing CTDC. He emphasized that a large number of issues had been chosen to be discussed in this forum, especially to highlight those, that are typical of developing countries of the world. Prof. P. K. Seth gave the vote of thanks.

Ten symposia, and 49 scientific sessions were organized in a 5-day long congress to discuss subjects on pesticides, heavy metal toxicity, air and water pollution, indoor air pollution, waste disposal, various waste treatment technologies, mass education and awareness program, need for poison control centers, training of doctors in toxicology, laws covering pollution control measures and their deficiencies, etc.

### **Resolutions**

The Congress took the following resolutions:

1. It was decided that in subsequent Congresses, the surviving Presidents of all the previous congresses will be invited to have an assessment as to what has been achieved thus far since it was started.
2. The Congress should be organized every 4th year in a cycle in different parts of the world.
3. Scientists from both the developing as well as developed nations of the world should be invited to participate.
4. Issues and problems pertaining to developing country scenarios should get prominence for presentation and discussion.
5. The Congress appreciated the fact that the developing countries' toxicological and pollution problems are somewhat different in nature and character and so should be dealt with special measures and attention.



6. The Congress noted that the various developing nations are lagging far behind in terms of both knowledge and technologies regarding toxicological problems and their mitigation.
7. It was noted that work is required to educate people of various developing countries, especially in their local languages, to make them aware of pollution issues, toxicological hazards and their mitigation.
8. The Congress noted that work is required to bring in sufficient laws to control pollution problems and to implement the existing laws where they exist already in a stricter manner.
9. The Congress appreciated that the pollution problems are global problems and should be handled globally joining hands with each other and one another.
10. The Congress felt the necessity of establishment of poison control centers in various developing countries equipped with trained doctors and proper medicines and gadgets.
11. Anxieties and concerns were expressed about the growing pollution problems in the developing world, particularly for their efforts of rapid industrialization and extensive agriculture without much control measures at hand, increasing consumerism, extensive urbanization, loss of food and fodder, depletion of drinking water, abnormal behavior of weather, repetitive drought and flood, extensive water and air pollution, adulteration, increased release of green house gases, etc.

*“The congress highlighted that continuous cooperative and collaborative efforts must continue between the developed and developing countries of the world to exchange knowledge, impart training, share technologies etc., so that the developing countries can benefit from the developed countries of the world.”*

## SAMEEH A. MANSOUR

CTDC 3, 1995



Sameeh A. Mansour

*“The Egypt cup carries a message from Egypt to the world community to support toxicological and environmental issues in DCs; based on the fact that improvement of these concerns will reflect on our shared planet.”*

I take much pleasure in providing some personal information about the 3rd CTDC, which I organized in Cairo, Egypt in 1995. Up to mid 2004 there were no written rules or formal procedures for organizing DC-Toxicology Congresses. Except the 6CTDC in Croatia, the past five meetings were organized “out of the IUTOX umbrella”. At the 2nd CTDC in New Delhi I remember there was no good desire from the delegates to offer hosting the 3rd CTDC. Prof. P.K. Ray, the President, and other scientists asked me to do this. I was not prepared for such a task, but appreciating the colleagues’ desire and I accepted to take the risk of organizing such big event without any provisional cover of world community sponsorship!

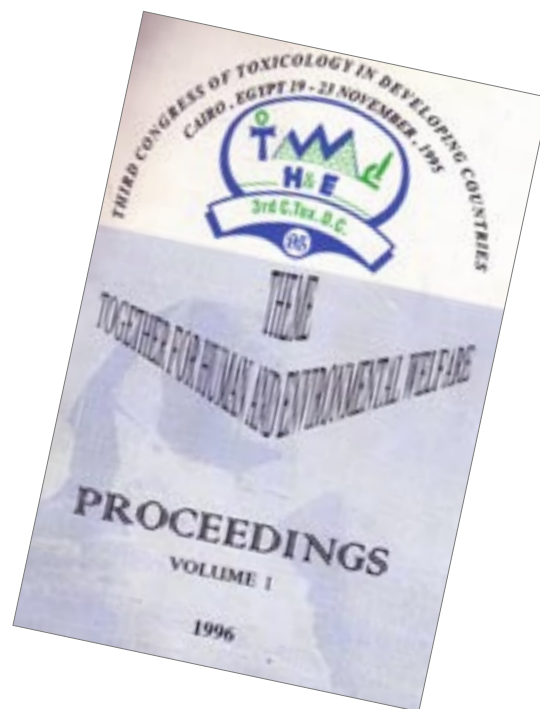
During preparation for the 3rd CTDC, I was always wary about passing the meeting to the next volunteer!! It was an “idea” in my head, and my colleagues in the Organizing Committee welcomed it, that is to establish a: “EGYPT CUP FOR THE PROMOTION OF SCIENTIFIC RESEARCH IN DEVELOPING COUNTRIES”.

The proposal was partly aiming at encourage volunteers to carry out the up-coming congresses in their countries; avoiding such a critical situation as we faced at the New Delhi meeting. The subject of the Cup was officially released to the world community one year before the date of the 3rd CTDC. Fortunately, there was an obvious easy passage of the next meeting to the Turkish delegates where Dr. Semra Sardas received the Cup at the Closing Ceremony in the presence of the representative of President

Mubarak, Prof. Dr. Venice K. Gouda, the Minister of Scientific Research at that time. Thereafter, the Cup transferred to China and Croatia.

At the 4th, the 5th, & 6th CTDCs, I was lucky to address the Egypt Cup transfer to the concerned organizers. In every occasion, I explain the theme behind the Cup donation, that it carries a message from Egypt to the world community to support toxicological and environmental issues in DCs; based on the fact that improvement of these concerns will reflect on our shared planet. In addition it was added that each country receiving the Cup would share Egypt’s Message! In the Closing Ceremony of the 5th CTDC, I expressed my hope that the Cup would remain a “symbol” characterized as the CTDCs and that now the IUTOX would supervise the transfer of the Cup!!

This is the story of the “Egypt Cup,” which may be not preceded at scientific meetings. A Meeting Report on the 3rd CTDC including photos is published in: Environ. Hlth.Perspec., vol. 104(3): 324-325 (1996).



## ALI E. KARAKAYA

CTDC 4, 1999

Turkey was selected as the venue of the 4th CTDC at the 1995 Cairo meeting. The “4th Congress of Toxicology in Developing Countries” held in Antalya Turkey in 1999 had certain characteristics that were first from the viewpoint of IUTOX and these may be listed as follows:

- It was the first time ever that the CTDC met “Under the Auspices of International Union of Toxicology”. As the President of the 4th CTDC, I had requested that this congress meet under the auspices of IUTOX and the IUTOX Executive Committee approved the said request.
- The IUTOX Executive Committee held an EC-meeting at the venue of a CTDC conference for the first time.
- IUTOX organized a workshop entitled “Environmental Oestrogens” at the CTDC-Antalya meeting. This, too, was a first for IUTOX.

José Castro, Sameeh Mansour, Ali Esat Karakaya, and Semra Sardas, the organizers of the CTDCs, and the IUTOX representative Peter Di Marco, held a meeting on the evening of the gala dinner to determine the venue of the 5th CTDC. Of the two candidates (South Africa and China), China was elected by a majority vote as the venue of the 5th CTDC. The result was announced during the gala-dinner and the CTDC cup was handed-over to Han Huaqiong, the Chinese representative.



Ali E. Karakaya

Meanwhile, in an informal chat at the meeting with the former IUTOX President Glenn Sipes and Director Judith McGregor, I expressed the view that it would be beneficial and auspicious if the CTDCs were integrated into IUTOX. They supported this idea. Later, on March 25, 2001, I received a communication from Erik Dybing outlining the IUTOX plan regarding this issue. I then sent Erik my detailed views regarding the matter on May 6, 2001.

Following these communications the integration process started.



“The “4th Congress of Toxicology in Developing Countries” held in Antalya Turkey in 1999, had certain characteristics that were first from the viewpoint of IUTOX.”

## ERIK DYBING CTDC 5, 2003



Erik Dybing and Pingkun Zhou in Guilin China in 2003.

*“The congress participants very much enjoyed the gracious hospitality of their Chinese Host.”*

This was the first CTDC held as a formal event under the IUTOX umbrella. The congress was a collaborative arrangement

between the Chinese Society of Toxicology (CST) and IUTOX. A number of officers from the executive committees of the two societies were involved with the preparation and conduct of the meeting, with Pingkun Zhou as Secretary-General of the meeting carrying an especially heavy burden. Although the number of participants was lower than expected (280), most probably

related to the effects of the previous SARS epidemic, the congress was a scientific success.

The program contained 5 excellent plenary lectures:

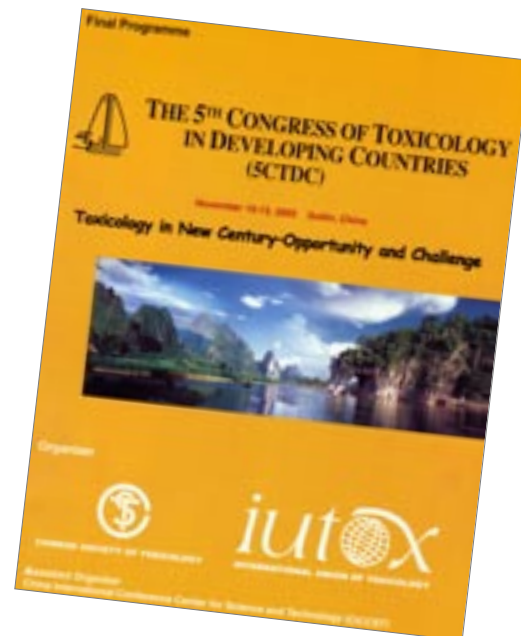
1. Junshi Chen, P.R. China: Challenges to developing countries after joining WTO: risk assessment of chemicals in food;
2. Burke Fishburn, The Phillipines: Tobacco-induced burden of disease in developing countries;
3. Joanna Tempowski, Switzerland: Pesticide poisonings in developing countries—challenges and opportunities;
4. Irma Makalinao, The Phillipines: The protection of children’s environmental health in developing countries: roles of the poison control centres; and
5. Ken Olden, USA: Genomics in environmental health research—opportunities and challenges.

In addition, the program had symposia and workshops on the following topics:

- Arsenic contamination of drinking water in developing countries.
- Occupational health challenges in developing countries.
- Pesticides and health risks in developing countries.

- Contribution of life style factors for acquired susceptibility to environmental disease in developing countries.
- Safety issues in the use of herbals in medicine and foods.
- Waterborne diseases versus chlorination by-products.
- Poison control services in developing countries.
- Outdoor and indoor air pollutants in developing countries.
- Evaluation of genetic risks of environmental compounds using laboratory models with human cells.

Further, the program contained a toxicology information resources session, a toxicology education roundtable session and two continuing education courses (advances in clinical toxicology: poisons & poisoning in developing countries; and chemical carcinogenesis—experimental assessment), as well as a poster session. The congress presentations were published as a special proceedings issue in Toxicology Letters edited by A. Wallace Hayes. The congress participants very much enjoyed the gracious hospitality of their Chinese hosts.



## APPENDIX IV

### *Titles of Continuing Education Courses*

#### **ICT VII**

International Perspectives on Health Risk Assessment  
Molecular Biology for Toxicologists  
Recent Advances in Xenobiotic Metabolism  
International Harmonization of Toxicology Requirements for Pharmaceuticals  
Cellular and Molecular Mechanisms of Apoptosis  
Chemically Induced Alterations in Gene Expression

#### **ICT VIII**

Chemical Hypersensitivity  
Oxidative Stress Risk, Risk Assessment, and Risk Communication  
Recent Advances in Carcinogenicity  
Natural Toxins  
Flow Cytometry in Toxicology

#### **ICT IX**

Basic Elements of Risk Assessment  
A Biotechnology Platform for Toxicology, Tools in Toxicology  
New Issues in Risk Assessment Methodology

#### **ICT X**

Bioinformatics and *In Silico* Methods in Toxicology  
Predicting the Toxicity of Chemical Mixtures  
Biomarkers of Early Organ Damage/Disease  
Toxicogenomics and Metabonomics:  
Application to Risk Assessment  
Risk Assessment and Risk Communication  
Molecular Epidemiology

#### **ICT XI**

Pathology for Non-Pathologists  
Development and Interpretation of Toxicokinetic Data for Risk on Safety Assessments  
“Omics” in Toxicology  
Immunotoxicology  
Balancing Scientific Safety Study and Animal Welfare Refinement, Replacement, and Reduction Objectives  
Cardiotoxicity of Non-Cardiac Drugs

#### **CDTC 5**

Advances in Clinical Toxicology  
- Principles of Poisoning  
- Poisoning by Selected Drugs  
- Environmental Poisonings  
Chemical Carcinogenesis—Experimental Assessment

#### **CTDC 6**

Assessment of Immunological Health in Occupational Exposed Workers  
Biomarkers as Predictive and Mechanistic Tools in Toxicology  
Dealing and Debating about GMOs  
Genotoxicity and Cell Cycle Control  
Clinical Toxicology on Its Way to Evidence Based Medicine



The Purpose of the Union shall be to foster international scientific collaboration among national and other groups of toxicologists and promote world-wide acquisition, dissemination, and utilization of knowledge in the science of toxicology, in particular by sponsoring International Congresses on Toxicology for the benefit of mankind.



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