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**PROBLEMS FACING
TOXICOLOGISTS IN EUROPE,
ASIA AND PACIFIC RIM**

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As IUTOX achieves its mission by fostering international scientific cooperation for the global acquisition and utilization of knowledge in toxicology, a couple of important objectives of this Union includes

1. The enhancement of opportunities for educational development and exchange toxicology,
2. Broaden the geographic base of toxicology as a discipline and
3. Communicate the value of toxicology for improving human health.

Within this frame to obtain ideas and suggestions on how we can improve our programs and activities we initiated an IUTOX-Survey and requested feedback from our member societies

IUTOX currently has
53 member societies
(more than 24, 000 members)

**The location and number of member societies
contributed to the Survey**

| | % | n |
|------------|----|----|
| Africa: | 10 | 3 |
| Asia : | 26 | 8 |
| Australia: | 3 | 1 |
| Europe: | 39 | 12 |
| America: | 22 | 7 |
| <hr/> | | |
| TOTAL: | | 31 |

Approx. 60 % of the total member societies
Some skipped some questions

In order to have also personal views, we extended this survey to toxicologists such as present/past presidents or EC members of National Toxicology Societies e.g JST, EUROTOX, and others who all are actually members of IUTOX.

The questions of the Survey cover important issues; some are

- 1. Capacity building**
- 2. Recognition of Toxicologists**
- 3. Registered Toxicologist**
- 4. Major problems**
- 5. Needs and Expectations from IUTOX**

The activities in enhancement of the capacity building

Advanced courses: IUTOX activities

1. **RASS** -Risk Assessment Summer School. So far 13 courses organized. (around 25-30 students from more than 20 different countries including underdeveloped and developing countries participated in each course; some fully and some partially supported).
2. **Brazilian Latin America Risk Assessment Workshop**- Started 2008. So far 2 courses held. Around 20 students from the region, participated in each course (Academia, industry and government) (Half of them are fully supported).
3. **Chemical Risk Evaluation Course (in Nigeria, Africa)**- August 17-20, 2009.

The fourth coming Risk Assessment Workshops are;

1. **Brazilian Latin America Risk Assessment Workshop, 2010 in Brazil.**
2. **South Africa, 2010- Risk Assessment Workshop**
3. **Thailand, 2012-Risk Assessment Workshop**

Congresses organized by IUTOX;

1. **ICT Meetings** : Held every three years in different parts of the world
2. **CTDC Meetings** : Congresses on Toxicology in Developing Countries. Held every three years.

For the Meetings fellowships are provided for young and senior scientists from countries where the toxicology is underrepresented.

In every Meeting, Continuous Education Courses are also organized.

Awards-

For SOT Meetings in USA, SOT-ASTRAZENECA Travel Fellowships are also awarded to the junior and senior scientists from less developed countries to attend these Meetings by IUTOX.

Supports;

1. Supports National Society Congresses by providing speakers or other means.

Others ;

The World Library of Toxicology (WLT). This will also contribute to the capacity building of societies who are in need of it.

Newsletter- Up-dated news

EUROTOX is also active in this respect particularly in EUROPE.

1. Organizes "Basic Toxicology" Courses in Central and Eastern Europe
2. EUROTOX Congresses.(CECs, Support for Junior or senior scientists from the Central and Eastern Europe).
3. Training of risk assessors (TRISK).
4. Support to National Society Congresses. (Speciality Sections-Mol. Tox., Carcinogenesis).
5. Short-term Research Grants for young scientists are also available (e.g. Bo Holmstedt foundation)

Recognition of Toxicologists and Registration of Toxicologists.

The desire to have recognition of toxicologists has catalyzed the formation of various certifying boards and registries of toxicologists within the USA, Europe and Asia.

In 1992 at the IUTOX Congress in Rome IUTOX began exploring the possible international harmonization of certification and registration of toxicologists. Thus the International Assembly for the Recognition of Toxicologists (IART) was established

The goal of this assembly is to enhance the quality and influence of toxicology throughout the world through the following:

Mission:

1. To establish a forum for the development of criteria for recognizing qualified experts in toxicology.
2. To assist toxicology organizations in establishing these criteria and using them in the recognition of toxicologists
3. To promote identification of education and training needs to enhance expertise in toxicology

In 1996 EUROTOX established Registry of Toxicologists.

The following countries have National Registers that are presently recognised by EUROTOX as setting maintaining the standard expected for ERT

| | |
|---------|----------------|
| Austria | Norway |
| Finland | Spain |
| France | Switzerland |
| Germany | Turkey |
| Ireland | United Kingdom |
| Italy | Poland |
| Holland | |

Other Certifying boards or society registries;

The ones in which the examination is required;

The American Board of Toxicology

The Japanese Society of Toxicology

The American Board of Veterinary Toxicology

Korean Board of Toxicology

Chinese Board of Toxicology (in development)

CV based;

The Academy of Toxicological Sciences

SURVEY RESPONSES

1. CAPACITY BUILDING

1. Is Toxicology Education at various levels (BSc., MSc., Ph.D.) satisfactory (i.e. theoretically and practically covering the update subdivisions of Toxicology) in your country ?

YES: 61 % (18/ 31 societies)

NO: 39 %

Limited in -Bangladesh, India (only in Vet Colleg),
- Bulgaria, Serbia (Adequately only in one Pharmacy School, Tox. Depart.)

Poland- No basic education

UK- Lack of training in vivo Tox.

Germany- Gradual loss of Tox Departments influenced the education. However, this was compensated by GST education for expert in Tox Prog; 1-5 years.

2) Any demand for Basic/advanced courses (e.g. risk assessment) to you by an organization such as IUTOX.

* Basic courses and advanced courses are expressed to be needed by: 60 % (16/ 27 societies)

Asian - Bangladesh and India

South Eastern European region- Bulgaria, Slovenia, Croatia,

South America- Brasil, Mexico

Germany also declared basic course need for bachelor degrees of pharmacy, biology and chemist graduates as for the basis for Master courses

* Advanced courses by: 71 % (20/28 societies)

Majority of the societies who responded;

West, South and Central European countries, Asian, Pacific Rim countries-Japan, China, Thailand, Korea

3) Adequacy and availability of Research Grants; Fellowships for exchange students, junior and senior toxicologists; attendance to Toxicology Congresses such as IUTOX

TOTAL: YES : 55 % (16/29), NO: 45 % (13/29)

More scientists to be financially supported to attend the IUTOX, CDTC and SOT Congresses and also CECs. More funding support to National Society Meetings.

Asian - Bangladesh and India

South Eastern European region- Bulgaria, Slovenia, Croatia,

South America- Brasil, Mexico

Pacific Rim- China, Japan

4. The status of Toxicology Departments-Their locations (Universities/Institutions).

No Tox Department in Bangladesh.

Independent Tox Departments are in Faculty of Pharmacies-

Europe- France, Turkey, Serbia (only one),

Pacific Rim-Japan

Asia- Iran

Other than that Tox Units are located in Poison Control Centers, Medical Faculties, Vet. Faculties (Clin Tox in Brasil), Scientific Institutes in almost all countries

Are they increasing or decreasing (reasons behind it ?).

Pacific Rim: Increased during the last decade but now stabil-Japan

Increasing: China (due to the fast grow in economy)

Europe: Decreasing : Germany, Italy, UK (due to lobbying from animal rights; CROs- employ large number of toxicologists)

Increasing: Turkey

Asia : Increasing : Iran

2. Recognition of Toxicologists

a) How would you rate public awareness of toxicological issues in your country ?

Total : High: 16 % (5/31) ; Average: 58 % (18/31); Low 26 % (8/31)

Asia: Low : Bangladesh and Iran
None : India

Pacific Rim: Low : Japan (high in Food)
China- Media influence is high (misleading)
South America

Europe: Low : Poland, Bulgaria
Average-Low: UK (Driven by the media, press influence is high; problematic)
Average : Serbia,
Turkey (Driven by the media; problematic)
High : France, Italy, Germany (influence of press is high)

b) Are toxicologists (as individuals or part of Institutions) involved with solving the toxicological problems in your country ?

Total : YES : 81 % (28/31) , NO: 19 % (6/31)

Asia: None : India
Very limited : Bangladesh
Limited: Iran (Iran Society of Toxicology generally involves)

Europe: High : France, Germany, UK, Italy
Average-High: Poland, Turkey, Serbia
Low: Bulgaria

Pacific Rim : High: Japan
Average. China
Very low: South America- Brasil, Mexico

c) How high is the demand for toxicologists in regulatory bodies, Universities, Institutions, Industry and NGOs in your country ?

Asia: None : India and Bangladesh
Very limited : Iran

Europe: High : France, Germany, UK, Italy
Average: Poland, Turkey, Serbia
Low: Bulgaria

Pacific Rim: High : Japan (average for NGOs),
Average: China (High for Universities)
Very low: South America- Brasil, Mexico

3. Registered Toxicologist

Is there a "Registered Toxicologist" system in your country ?

Total: **YES** : 53 % (16/30) , **NO** : 47 % (14/30)

Would the designation of "Registered Toxicologists (RT) " provide you additional opportunities or better pay in the workplace.

Total: **YES** : 57 % (17/30) , **NO** : 43 % (13/30)

Asia: **No** : Bangladesh, India, Iran- No idea.

Europe: **Yes**: 13 European Countries, including France, Germany, Poland, Turkey, UK.

No: Bulgaria, Serbia, Romania- No idea

No job profit or privileges currently : Poland and Turkey

High demand in Industry: France, Germany

Probable: UK. Yet requirement of formal recognition by regulatory authorities is needed.

Pacific Rim : **Yes**: Japan - (Effective in Pharmaceutical Industry)

In process (China)(Believe to be beneficial)

No: South Africa-Brasil, Mexico

4. Major problems

What are the major problems facing toxicologists in your country?

Asia: India: Government does not ask input from outside of the Government professionals

Iran: Lack of registration organisation

Bangladesh: Overuse of antibiotics, food born toxicants pathogenic organisms

Europe: France : Bad communication with public and, weak communication between toxicologists.

Germany: Shortage of Finance, nano particles, need of more systematic research.

UK: In vivo training in Toxicology and pathology, adverse drug reactions, environmental Toxicological issues (e.g. Asbestos)

Turkey : Food safety, Environmental Toxicological issues, Improve financial input.

4. Major problems

Serbia : Environmental, Air quality, Human Health

Pacific Rim: Japan : Increase

-access to advanced educational opportunities, availability and payments of jobs in the field of Toxicology, public awareness and understanding of Toxicological issues, governmental regulatory agencies awareness and understanding of the importance of Toxicology

China: Balance the basic research and applications, how to be more involved in problem solving, In need of more research funds, more senior level training, more recognition of toxicologists by the government and public.

South America, Brasil, Mexico: Children poisoning, metal intoxications in workplace, environmental contamination

5. Needs and Expectations from IUTOX

Asia: India: In need of Training Courses (Basic and Advanced)

Iran: Clinical Toxicologists training

Bangladesh: Training, Aid in securing Research funds, networking with scientific arena-developing countries

Europe: France : To harmonize basic and graduate training through societies

Germany: Solution of problems concerning education. International co-operation would be helpful.

Turkey : Advanced courses

Serbia : Provide continuing education courses (can be long distance too), increase mobility of tutors for the training in Toxicology.

5. Needs and Expectations from IUTOX

Pacific Rim: Japan : - CECs regularly in Japan
- Play a role in shaping regulatory policy regarding Toxicology issues in Japan

China: - CECs regularly in China
- More support to the China, Chinese Society of Toxicology

South America, Brasil:

- Help in establishing the Registry system and the established group of experts thus help to solve the Toxicological problems.

- Increase Toxicological awareness in children by organising courses devoted to the children and/or using International Collaborative Educational Programs like Leonardo de Vinci in Europe.

CHALLENGES

ACTION ITEMS

1. CAPACITY BUILDING

1. Increase providing Basic and Advanced Courses on regular basis (in collaboration with member societies e.g. EUROTOX, ASIATOX).
2. Increase networking (between the developing and developed Toxicology arena) in funding research grants, exchange junior and senior scientists (and tutor training).
3. Increase support for the young and senior scientists to attend the Toxicology Congresses and Courses.
4. Lobby to increase the number of toxicology departments through making good connections with regulatory bodies, governments, industry and Scientific bodies.

2. RECOGNITION OF TOXICOLOGISTS AND REGISTRATION OF TOXICOLOGISTS

To increase the quality of the toxicologists experts and thus their reputation and their input in human health and environmental protection.

1. Harmonize the existing registry systems (RS) through IART-IUTOX by collaboration with the certification boards and society registries.
2. Lobby and thus provide the "official" recognition of Certification of Toxicologists by regulatory authorities and industry.
3. Promote and help the establishment of the Registry systems, in parallel with the increase in capacity building, where needed, e.g. Asia, South America, within the harmonized frame.

Increase public awareness and understanding of Toxicological issues, governmental regulatory agencies awareness and understanding of the importance of Toxicology (e.g. by organising courses, symposiums, or forums for public in collaboration with NGOs and at governmental level-lobbying).

- Increase Toxicological awareness in children by organising courses devoted to the children and/or using International Collaborative Educational Programs like Leonardo de Vinci in Europe.

THANK YOU