CRI/ICEIT
NEWSLETTER

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Chulabhorn Research Institute

INTERNATIONAL CENTRE FOR ENVIRONMENTAL AND INDUSTRIAL TOXICOLOGY (ICEIT)

CRI's ICEIT has been designated as a
"UNEP Centre of Excellence for Environmental and Industrial Toxicology"

PRESIDENT OF
THE CHULABHORN RESEARCH INSTITUTE

Although Her Royal Highness Princess Chulabhorn is known internationally as the "Scientist Princess", but locally she is also known as a dedicated humanitarian, always ready to help people in need. For her, science and humanitarianism are intertwined. This is why Princess Chulabhorn has strived so hard for several years to promote scientific and technological advancement as a means of improving the quality of life of the Thai people.

During her many missions abroad, H.R.H. Princess Chulabhorn has established contacts with the world's leading scientists, with the aim of seeking scientific cooperation. The Chulabhorn Research Institute (CRI), founded by Her Royal Highness, is a centre for scientific and technological development, which undertakes many projects some of which are conducted jointly with some of the world's most prestigious institutions.

Her Royal Highness Princess Chulabhorn is President of the Chulabhorn Research Institute.

H.R.H. Princess Chulabhorn is steadfast in her readiness to help people in distress. For example, when the Thai government requested CRI to assist with the massive floods caused by the November 1988 rainstorms, she promptly went to inspect the sites of some of the badly ravaged areas to offer help to the victims of one of the worst natural disasters in the country's history. Thus began a restoration and integrated development programme for the flood affected area in Nakhon Si Thammarat and Surat Thani provinces, started by H.R.H. Princess Chulabhorn and executed by CRI. Her other humanitarian efforts include helping those suffering from AIDS, providing protection to the people against common diseases, eradicating rabies and protecting the environment from chemical pollution.

At other times, H.R.H. Princess Chulabhorn, sometimes accompanying Their Majesties King Bhumibhol and Queen Sirikit and sometimes travelling on her own, has visited many poor villages and seen extreme hardship and poverty of people in the remote rural areas of Thailand. Like Their Majesties the King and Queen, she feels compassionately for the unfortunate and is determined to make life better for them, by applying her knowledge. Accordingly, her aim has been to apply science and technology towards improving the quality of life of the Thai people, especially those in more backward areas.

Professor Dr. H.R.H. Princess Chulabhorn is a respected scientist specialising in the chemistry and synthesis of natural products and in Thai medicinal plants, and has

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been a lecturer at Mahidol University since 1985. She is the third person in the world to be awarded UNESCO's Einstein Gold Medal for her contribution to strengthening scientific collaboration in Asia and the Pacific and also the first Asian invited to join England's prestigious Royal Society of Chemistry. Among her other achievements, she is a special advisor to the United Nations Environment Programme and chairperson of the Natural Products Chemistry and Polymer Committee of the Japan Society for the Promotion of Science.

With her strong scientific background, H.R.H. Princess Chulabhorn realises that the national scientific and technological capability of Thailand must be strengthened. Since many centres of higher learning in the country still had insufficient research funds, equipment and knowledgable scientists, H.R.H. Princess Chulabhorn saw the need for a research institute to serve as a national centre for scientific and technological advancement. The centre would also be involved in and provide support to the development projects of Their Majesties the King and the Queen. Thus, in 1987, the Chulabhorn Research institute (CRI) was established to commemorate His Majesty the King's 60th birthday.

CRI AIMS TO IMPROVE THE QUALITY OF LIFE FOR THE PEOPLE

The main research building of the Chulabhorn Research Institute.

As a national centre for scientific and technological development, the Chulabhorn Research Institute (CRI), a brainchild of Her Royal Highness princess Chulabhorn, has an ambitious goal — to help the Thai people live better. It hopes to do this by conducting research, developing human resources through education and training, exchanging information among scientists, and working through special programmes. It also provides support to royal projects initiated by Their Majesties the King and Queen.

Research, the core activity of CRI, is carried out in laboratories in five major areas: natural products, medicinal chemistry and organic synthesis; environmental toxicology; biomedical research; biotechnology; and agricultural research, fishery science and aquaculture. The results of this research are applied to effect improvement in the quality of life of the Thai people.

Human resources are essential to national development. To help build them, CRI has adopted two programmes for education and dissemination of information — the Princess Chulabhorn Science Congress and the International Programme on Environmental and Industrial Toxicology (IPEIT). The Congress is held once every 4 or 5 years, while IPEIT focuses on non-degree education and training.

Exchange of information will lead to innovation and transfer of knowledge. One nation can learn from another. CRI collaborates with other organisations in research programmes to promote direct contact among scientists that will lead to the exchange of scientific information.

CRI's special programmes deal with the problems of immediate concern to the country. Aside from the AIDS programme and the restoration and integrated development of the flood affected area in Nakhon Si Thammarat and Surat Thani provinces, CRI is also working to eradicate rabies, improve irrigation and drainage management for marine shrimp culture, and provide immunization against common diseases in the country's five southern most provinces.

To assist CRI achieve its objectives, the International Centre for Environmental and Industrial Toxicology (ICEIT) and the Centre for Computing and Information Services have also been established. ICEIT concentrates on toxicological studies and research to save the environment from being destroyed and to protect people from being exposed to harmful chemicals.

Situated on Vibhavadee Rangsit highway near the Lak Si intersection, CRI is funded by the government, with support to its various programmes coming from international organisations, including the United Nations Environment Programme, the United Nations Development Programme and the Asian Development Bank.

ICEIT CHOSEN AS UNEP CENTRE OF EXCELLENCE

> ''I have the honour to designate the Institute to be a UNEP Centre of Excellence for Environmental and Industrial Toxicology''.
>
> ***Mostafa K. Tolba***
> *United Nations*
> *Under-Secretary General*
> *and*
> *UNEP Executive Director*

In 1990, the United Nations Environmental Programme (UNEP) designated CRI's International Centre for Environmental and Industrial Toxicology (ICEIT) as the UNEP Centre of Excellence for its "exemplary objectives" and high quality work in the field.

Though dealing in the highly specialised area of toxicology, ICEIT's goal is simply to improve the quality of life of the Thai people. Its establishment has come appropriately at a time when Thailand is undergoing a tremendous industrial expansion. The centre can play an important role in decreasing the adverse impact of industrial chemicals on the environment and on human health.

ICEIT's activities are divided into three areas: conducting research, providing education and training, and promoting public awareness and exchange of information.

In research, the work includes evaluation of environmental and industrial pollutants as modulators of physiological and pathological status and

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INTERNATIONAL CONFERENCE ON ENVIRONMENTAL AND INDUSTRIAL TOXICOLOGY: RESEARCH AND APPLICATIONS

22-26 JULY 1991 — BANGKOK

HIGHLIGHT OF THE CONFERENCE

The first day presented a global view of environmental and industrial toxicology, with identification of the role of toxicology as a key component for sustainable development. We witnessed the presentation of the first UNEP/IRPTC PC-database system on hazard assessment and risk evaluation of chemicals to Her Royal Highness Princess Chulabhorn and CRI to facilitate access to the world's knowledge of chemicals and their biological effects. This is an extremely important resource for Thailand and the region.

The second day embarked on a series of discussions on how chemicals exert toxic effects, mechanisms of chemical carcinogenesis, toxicology of industrial chemicals and highly focused presentations on international issues in environmental and industrial toxicology.

The third day, factors modulating toxicity were discussed in detail, so that it became evident that there were many factors in our diet which can either increase or decrease toxicity. Toxins, antitoxins, carcinogens and anticarcinogens are involved, as well as dietary protein, total calories, fats, vitamins and minerals. Food contaminants are also important because they interact with normal components of the environment. Current knowledge enables most of these problems to be markedly reduced in severity.

Biochemical toxicology is making rapid strides in understanding the mechanisms for the adverse effects of environmental chemicals. This scientific approach to preventing or decreasing toxicity so as to permit living with the contaminants/toxins without hazard, included reports on short-term predictor tests, effective enzyme systems and neurotoxins. Since these systems are useful for laboratories in Thailand and other countries in Southeast Asia, this area proved to be of considerable interest.

Her Royal Highness Princess Chulabhorn inaugurates the International Conference on Environmental and Industrial Toxicology: Research and Applications, on 23 July 1991.

The last day of the conference provided insight into the mechanisms for improving testing and management of chemicals, old and new methods for risk assessment, considered in some detail. It is now clear that scientists, administrators and regulatory officials recognise the need to use these still imperfect methods to help prioritize and set limits on exposure. The major issue of significance was the recognition that the public must now be involved in the decision making process.

The impact of regulatory actions was a focal point of lengthy panel discussions which produced some interesting insights into this very important area of environmental toxicology, and its impact on industry and on the environment.

Overall, it was apparent that there was a need to educate toxicologists, government officials, and the general public. Government and industry must cooperate with academics to produce the personnel needed by society for toxicological problems.

The objectives of the conference were fully achieved. The conference was attended by 440 participants from 34 countries.

Experts discuss the issue of impact of regulatory toxicology on industry and the environment. The experts are (from left) M. Mercier (IPCS), C.F. Reinhardt (USA), H.A.M. de Kruijf (the Netherlands), S. Panich (Thailand), J.W. Huismans (IRPTC/UNEP), R.C. Shank (U.S.A., moderator), R.H. Haynes (Canada), Nay Htun (UNCED), T. Matsushima (Japan), P.M. Newberne (U.S.A.), and G.L. Plaa (Canada).

exploration of the use of biotechnology for detoxification of hazardous wastes and pesticides.

In education and training, the centre, through the International Programme on Environmental and Industrial Toxicology (IPEIT), aims at developing and directing human resources in academic, government and industrial sectors to cope with the problems of hazardous wastes and environmental toxicology.

IPEIT's activities include:

- organising training courses, seminars, symposia, conferences and workshops;
- promoting cooperation with other research institutes; and
- exchanging information.

In the third area of activities, ICEIT promotes public awareness to encourage greater involvement of the people in helping to solve environmental problems. Scientific information from the database system of UNEP's International Register of Potentially Toxic Chemicals (IRPTC), for example, provides an important basis for policy formulation.

ICEIT is supported by the United Nations Development Programme, UNEP and the Asian Development Bank.

CRI to Hold Second Princess Congress for Queen Sirikit's 60th Birthday

The Chulabhorn Research Institute (CRI) will organise the Second Princess Chulabhorn Science Congress on 2-6 November 1992 in Bangkok to commemorate Her Majesty Queen Sirikit's 60th birthday.

Her Royal Highness Princess Chulabhorn will preside over the opening ceremony. The theme for the congress is "Environment, Science and Technology: The Challenges of the 21st Century".

A major activity of CRI, held once every 4 or 5 years, the Princess Chulabhorn Science Congress is a forum for scientists, engineers and policy makers from all parts of the world to discuss and exchange knowledge to promote multidisciplinary approaches to the global environment and health problems. The First Congress took place in 1987.

The Second Congress is organised in honour of Her Majesty the Queen, who will turn 60 next year, in recognition of her outstanding efforts to improve the living conditions of the Thai people.

The programme includes lectures, workshops, symposia, poster sessions and exhibition in environmental health, toxic chemicals, hazardous wastes, biotechnology and biodiversity, The discussions will focus on: research; education and training; monitoring and assessment; regulation, legislation and incentives; and international cooperating systems.

Those interested in participating in the Second Congress can write to:

The Secretariat
The Second Princess Chulabhorn Science Congress
Chulabhorn Research Institute
Office of Scientific Affairs
c/o Faculty of Science, Mahidol University
Rama 6 Road, Bangkok 10400
Thailand

Major topics to be discussed at the Second Princess Chulabhorn Science Congress

Environmental Health

1. Detection and Reduction of Food Contaminants
2. Protection and Improving Drinking Water Quality
3. Protection and Improving Air Quality
4. Traditional Methods for Promoting Environmental Health
5. Occupational Cancer

Toxic Chemicals

6. Testing, Good Laboratory Practices
7. Risk Assessment Procedures
8. Information Exchange Systems
9. Biological Indicators for Monitoring

Hazardous Wastes

10. Source Reduction and Recycling Technologies
11. Design, Construction and Operation of Secured Landfills
12. Treatment and Destruction Technologies
13. Monitoring and Analytical Methods

Biotechnology

14. Risk and Safety Assessment Procedures for Genetically Modified Organisms, Containment and Release
15. Applications for Enhancing *ex situ* Biodiversity Conservation
16. Applications for Sustainable Development (Health, Forestry, Agriculture, Mariculture)
17. Applications for Detoxification of Hazardous Wastes

Biodiversity

18. Assessment and Monitoring Techniques
19. *In situ* Conservation and Rehabilitation Methods
20. Traditional Approaches and Biodiversity Conservation
21. Scientific Methods for Ecoregion Conservation

QUEEN SIRIKIT's

Her Majesty Queen Sirikit saw how difficult living conditions could be for the poor in many of the rural villages she visited. Because the villagers looked upon her as "mother", relieving hardships and making life easier for the poor became her aspiration and life-time commitment.

Among Her Majesty's many projects, Pa Rak Nam (Forests Love Water) is an attempt to deal with water shortage in the northeast of Thailand. The project also aims at encouraging people to help protect forests and rebuild those that have already been destroyed.

Forest destruction has been extensive in recent years. "The public must be taught to realise that it is beneficial for all of us that the forests are allowed to stand," Her Majesty once said. "Someone must tell (the) villagers that they are unwittingly destroying the country's future and their own livelihood by cutting down large areas of forest for human occupation."

Forests help conserve water underground in their root system, which then release the water into streams above ground. Plenty of water would be available if there were more forests.

"(The villagers) want us to provide water by building reservoirs," she said, "but if it does not rain, what water can these reservoirs hold?" "Most Thai farmers have to struggle very hard for their living. Since water is their basic need, we should help them to find as much water as possible."

Her Majesty started the Pa Rak Nam project in 1982. An area of 1 rai (0.4 hectare) at the foothills of Phu Pha Lek in Song Dao District, Sakon Nakhon, was provided as a demonstration forest-planting project to teach people the correct method of planting and caring for young seedlings. Since then, the project quickly expanded, involving more people in nearby villages. Some were provided salaries as an incentive to replant forests as well as to protect them.

Under the project, villages were created for the landless who also were given salaries, rice stores and drinking water reservoirs. Speaking of the Pa Rak Nam villages, Her Majesty said:

"They must have cattle and also carts for carrying things. In the old days, carts were very useful for carrying almost anything. Every family should be given the

Life-Time Commitment To Helping Poor People

Her Majesty Queen Sirikit often accompanies His Majesty King Bhumibhol on his regular visits to the rural areas.

Her Majesty Queen Sirikit is deeply concerned with the living conditions of the people.

opportunity to keep chickens to provide eggs for their children, so that the children do not suffer from malnutrition, and so that their brains can develop naturally as they grow older. Every house should have a loom for weaving and a plot of mulberry for rearing silk worms. They can then weave silk for their own use and for sale to the SUPPORT Foundation*...."

The project incorporates comprehensive measures to enable the villagers to become self-sufficient. Training in various occupations, such as making building blocks, shrimp breeding and farming, and silk weaving, was provided to the villagers who could then earn income from their newly acquired skills after all the trees they had planted grew larger and no longer needed tending.

The rationale behind the project was that if the villagers could live better, they would be less inclined to cut down forests to provide farm land.

Pa Rak Nam is one of Her Majesty's many efforts that clearly demonstrate her relentless determination to help her "children" live better. The project had a small beginning, but its success convinced many others to join in and help expand it to other parts of the country.

Her Majesty's task is difficult and requires a life-time of devotion. In asking others to join her in the fight to achieve this noble goal, Her Majesty said: "Indeed Thailand would become a fully democratic country if everybody helps in the fight against poverty, hunger, and ignorance...."

* Established in 1976 by Her Majesty Queen Sirikit, the Foundation for the Promotion of Supplementary Occupations and Related Techniques (SUPPORT) seeks to train low-income farmers to earn extra income through folk arts and crafts, encourage them to achieve the highest standards of folk arts design and craftsmanship, and secure local and foreign markets for their products.

Her Majesty Queen Sirikit encourages villagers to plant trees in a deforested area.

Her Majesty Queen Sirikit inspects an area under the "Pa Rak Nam" development project.

'EARTH SUMMIT' FOCUSES ON TOXIC CHEMICALS

The United Nations Conference on Environment and Development (UNCED), or Earth Summit, is a major global event, bringing together heads of state and high government officials from around the world to agree on policies and actions that will integrate development and chart a new course for the 21st century. The conference is scheduled for 1-12 June 1992 in Rio de Janeiro, Brazil.

The second session of the UNCED Preparatory Committee, held on 18 March - 5 April 1991 in Geneva, emphasized the need to strengthen the capacities of developing countries to cope with the problems of hazardous wastes and toxic chemicals. Efforts should be made to facilitate the optimal use of existing and new technologies for cleaner production so as to minimize adverse environmental impact from hazardous wastes.

The meeting also called for early entry into force and full implementation of the Basel Convention on the Transboundary Movement of Hazardous Wastes and their Disposal and the Bamako Convention on the Ban on the Import of All Forms of Hazardous Wastes into Africa.

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IRPTC PRESENTS DATABANK TO HER ROYAL HIGHNESS PRINCESS CHULABHORN

The International Register for Potentially Toxic Chemicals (IRPTC) presented its databank to Her Royal Highness Princess Chulabhorn during the opening session of the International Conference on Environmental and Industrial Toxicology: Research and Applications, on 23 July 1991.

The databank is to be used at Chulabhorn Research Institute, where the information system will be transferred into personal computers to assist scientists in evaluating data on chemicals. IRPTC's computerized data system contains 17 data profiles of toxicological properties of chemicals to support hazard assessment and risk evaluation of chemicals.

The IRPTC-PC system was presented to Princess Chulabhorn by Dr. Jan W. Huismans, Director of IRPTC.

IRPTC Data Profile Structure

1. Identifiers, properties and classification
2. Production/Trade
3. Production processes
4. Use
5. Pathways into the environment
6. Concentrations
   - 6.1 Loss/persistence
   - 6.2 Concentrations
   - 6.3 Human intake
7. Environmental fate tests
   - 7.1 Biodegradation/biotransformation
   - 7.2 Photodegradation
   - 7.3 Hydrolysis
   - 7.4 Sorption
   - 7.5 Evaporation
   - 7.6 Oxidation
   - 7.7 Model ecosystem studies
8. Environmental fate
9. Chemobiokinetics
   - 9.1 Absorption
   - 9.2 Distribution
   - 9.3 Bioconcentration factor
   - 9.4 Metabolism
   - 9.5 Excretion
10. Mammalian Toxicity
11. Special Toxicity studies
    - 11.1 Biochemical interactions
    - 11.2 Carcinogenicity
    - 11.3 Mutagenicity
    - 11.4 Neurotoxicity
    - 11.5 Behaviour
    - 11.6 Sensitization
    - 11.7 Interacting agents
    - 11.8 Primary irritation
    - 11.9 Immunotoxicity
    - 11.10 Reproduction
    - 11.11 Teratogenicity
12. Effects on organisms in the environment
    - 12.1 Aquatic toxicity
    - 12.2 Terrestrial toxicity
13. Sampling/preparation/analysis
14. Spills
15. Treatment of poisoning
16. Waste management
17. Recommendations/legal mechanisms

IRPTC – Information Storehouse for Hazardous Chemicals

The International Register of Potentially Toxic Chemicals was established by the United Nations Environment Programme (UNEP) in 1976, following a recommendation of the 1972 United Nations Conference on the Human Environment held in Stockholm. The central unit of the register, known as the Programme Activity Centre (PAC), was set up in Geneva that same year.

IRPTC maintains a databank of centralized computer files linking a formal network of government-nominated institutions. It embodies a concept for managing information in a consistent, scientifically sound fashion. Data are presented in 17 "logical" files covering identification and physical/chemical properties, production, use, environmental fate tests and environmental fate, mammalian and ecotoxicity, waste management and so on. The combination of all data from each file on a given chemical is the principal product from the databank and is called a Chemical Data Profile. IRPTC is also a scientific tool for recording and sharing data used to identify the hazards and assess the risks posed by chemicals to human health and the environment, leading to information-sharing partnerships.

In early 1990 IRPTC initiated a process aimed at enhancing its data dissemination capabilities making use of modern computer technology. As IRPTC operates a global network for exchange of information on chemicals, its solution to data dissemination should also be globally applicable. Microcomputer techno-

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INTERNATIONAL TRAINING COURSE ON ENVIRONMENTAL AND INDUSTRIAL TOXICOLOGY: POLLUTION CONTROL AND ASSESSMENT

18 November — 12 December 1991
Bangkok, Thailand

Increasing use of chemicals is inevitable in the development process as well as in the promotion of better standards of living and human well-being. A thorough knowledge of toxicology together with proper management is vital for the prevention of chemical hazards and safeguarding human health and the environment from the adverse effects of chemicals. Sucessful programmes for chemical safety require suitably trained human resources in the government, industrial and academic sectors as well as awareness of the general public.

At present, in developing countries, more qualified personnel in toxicology and environmental management are urgently needed. In collaboration with the Asian Institute of Technology, the International Centre for Environmental and Industrial Toxicology of the Chulabhorn Research Institute considers it important to organise a training course in Environmental and Industrial Toxicology: Pollution Control and Assessment to assist developing countries in human resource development.

The course will attempt to integrate the fundamental principles of toxicology and engineering practices to foster a multidisciplinary approach to the safe use of chemicals in development. The use of database, such as the International Register of Potentially Toxic Chemical (IRPTC) database, will also be introduced.

Registration is limited. Those wishing to register in the training course are advised to do so before 20 October 1991. The tuition fees are as follows:

1. Part 1 and Part 2 US$750
2. Part 1 only US$350
3. Part 2 only US$400

To register for the course, please write to the following address:

"Environmental and Industrial Toxicology: Pollution Control and Assessment"

Chulabhorn Research Institute
Office of Scientific Affairs
c/o Faculty of Science, Mahidol University
Rama 6 Road, Bangkok 10400, Thailand
Tel: 66-2-247-1900, Telefax: 66-2-247-1222
Telex: 84778 UNIMAHI TH

PARTIAL LIST OF FACULTY

Part I

R.A. Becker, U.S.A.
J.F. Borzelleca, U.S.A.
D. Calamari, Italy
F. de la Iglesia, U.S.A.
J. Duffus, U.K.
D.J. Ecobichon, Canada
I. Munro, Canada
P.M. Newberne, U.S.A.
M. Ruchirawat, Thailand
R.C. Shank, U.S.A.
H. Vainio, France
R. Plestina

Part II

B-E. Bengtsson, Sweden
K. Bhattarai, Asian Institute of Technology
S. Fujii, Japan
S. Muttamara, Asian Institute of Technology
C. Polprasert, Asian Institute of Technology
L. Reutergardh, Sweden
H. Schroder, Denmark
S. Tanaka, Japan
F.T. Tran, Asian Institute of Technology
J. Verink, Germany
A. Vespry, Asian Institute of Technology
C. Visvanathan, Asian Institute of Technology
Y-H. Zhuang, People's Republic of China.

TRAINING COURSE PROGRAMME

Part I: Environmental and Industrial Toxicology (18-27 November 1991)

Session 1: Global Aspects of Environmental Toxicology

- Chemicals in the environment
- Exposure to potentially toxic substances

Session 2: Principles of Toxicology

- Dose response relationship
- Absorption and distribution
- Excretion
- Metabolism
- Factors affecting toxicity
- Acute toxicity and subchronic toxicity
- Chronic toxicity

Session 3: Target Organ Toxicology: Responses to Environmental Toxicants

- The skin and eyes (occupational)
- The gastrointestinal tract and liver
- The kidney
- The respiratory tract
- The nervous system
- The immunological system

Session 4: Chemical Carcinogenesis and Occupational Cancer

- Mechanisms of carcinogenesis
- Environmental and industrial carcinogens
- Occupational cancer

Session 5: Pesticides and Agrochemicals

- Classification, registration and code of conduct, safety and exposure
- Mechanism of pesticides toxicology
- Protection and treatment
- Safe and efficient use of pesticides
- Pesticide waste management/disposal

Session 6: Industrial Chemicals Posing Threat to Health and Environment

- Fate and distribution of chemicals in the environment

Session 7: Risk Assessment and Management of Chemicals

- Evaluation of chemical toxicity
- Biological Monitoring of Human Exposures
- Risk evaluation and assessment
- Factors affecting hazardous and risk assessment process
- Risk management

Part II: Pollution Control and Assessment (28 November -- 12 December 1991)

Session 8: Monitoring of Industrial Pollution and Analytical Techniques

- Basic concept of ecosystems
- Pollutional effects on ecosystems
- Systems approach to energy and environment
- Analysis of pollutant parameters in water, air and soil samples
- Analysis of toxic/hazardous compounds.

Session 9: Industrial Pollution and Control

- Industrial processes and waste characterization
- In-plant waste minimization, recycling and clean-up technology
- Liquid effluent treatment and control
- Gaseous emission and control
- Solid/hazardous waste treatment and control
- Toxicological study and experimentation on industrial wastewater treatment
- Field visits

Session 10: Non-industrial pollution

- Agricutural-related wastes including pesticides and their impacts on ecosystem
- Indoor pollution (asbestos, paints, household chemicals), sources, control and abatement technology

Session 11: Impact Assessment Procedure

- Screening
- Preliminary impact assessment
- Full impact assessment
- Case study
- Field visits to Eastern Seaboard Industrial Estate

Session 12: Preventive Strategy and Technology

- Policy strategy and trends
- Cleaner processes and recycling option.

OUR NEWSLETTER AIMS TO RAISE PUBLIC AWARENESS

Today, we find ourselves becoming more dependent on chemicals in our daily life. Because of this, we also expose ourselves to greater health risks from chemical contamination. Industries discharging toxic gases into the air, pesticides used in farming poisoning the water, all have contributed to harming the environment. The problem is already critical in many countries. Here in Thailand, industrial expansion, driven by rapid economic growth in the last few years, has been the chief factor causing the environment to deteriorate and the quality of life to worsen.

Scientific and technological advancement, one of the main engines of economic growth, has been responsible for the introduction of a large number of new chemicals. According to an estimate, there are more than eight million known chemicals. Around 70,000 are in common use, including pharmaceuticals and pesticides, and as many as 1,000 new chemicals are introduced into the market each year. Among these are cancer-causing agents.

We create between 300 and 400 million tonnes of hazardous waste each year. Their safe disposal has become a worldwide concern; the cost involved is so prohibitively high that many developing countries have no alternative but to ignore the problem because of lack of financial resources. In fact, many of these countries have turned into dumping grounds for industrial by-products. The use of pesticides has also sharply increased, and there are now more varieties available in the market.

The growth of chemical production has been rapid during the last few decades. The annual production of synthetic organic chemicals has doubled every seven to eight years, from about a million tonnes in the 1930s to hundreds of millions of tonnes in recent years. Without proper control, the use of toxic products in the future will continue to accelerate.

How can we make the best use of chemicals without slowly killing ourselves? The harmful effects of chemicals can be prevented or at least minimized by creating public awareness.

This is our first issue of the ICEIT Newsletter. Our aim is to act as a source of information to create awareness of environmental problems. We are relying on the scientists, technocrats, toxicologists, students and trained personnel in this field of study to help make our world a better place to live in. For these target groups, this newsletter is a source of information to keep them abreast of new studies, findings and relevant problems faced by the developing countries, particularly those in the Asian-Pacific region.

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IRPTC Presents Databank to Her Royal Highness Princess Chulabhorn

logy, as it relates to both hardware and software, has now advanced to a stage that it is possible to manipulate and interrogate large and complex data sets such as the IRPTC data bank on chemicals. It also allows large scale data dissemination without considerable financial resource implications for the user. However, software to assist the expert to manipulate such data sets, did not exist as yet and had hence to be developed by IRPTC making use of existing data base management systems.

The target date for release of the IRPTC data base for use on personal computers was set for mid-1991. Although work on the system is still continuing, IRPTC is proud to announce that it has met its target date. To demonstrate its dedication to achieving its major objective of facilitating access to data on chemicals worldwide, and at the same time its conviction that institutions such as the Chulaborn Research Institute will have a crucial role to play in its data dissemination policy, IRPTC has chosen the Chulabhorn Research Institute to be among the prime users of its database system. On 23 July 1991, Dr. J.W. Huismans, Director of IRPTC handed over the first official registered copy of the IRPTC PC-database system to Her Royal Highness Princess Chulabhorn, President of CRI, during the first session of the International Conference on Environmental and Industrial Toxicology: Research and Applications which was held in Bangkok from 22-26 July 1991. Thereafter, Dr. Huismans and Mr. Dominique Chuteaux, IRPTC database manager, gave a demonstration to Her Royal Highness and her staff on the content and use of the database.

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'Earth Summit' Focuses on Toxic Chemicals

The Preparatory Committee urged that developing countries' financial, technical, institutional and human capacities be increased and strengthened to help manage toxic chemicals and hazardous wastes.

On pesticides, measures such as testing and classification, labelling, and assessment of health impact were discussed. The Preparatory Committee also called for full implementation of the London Guidelines for the Exchange of Information on Chemicals in International Trade, the Prior Informed Consent procedures and the FAO Code of Conduct on the distribution and use of pesticides. Sustainable agricultural systems and integrated pest management should be promoted.

The Preparatory Committee is considering comprehensive international strategies for environmentally sound management of toxic chemicals and hazardous wastes.

The adverse impact of toxic chemicals is one of the main concerns of the Preparatory Committee. Chemicals are vital to development; if improperly managed and controlled, they have serious consequences on human health and the environment and on the achievement of sustainable development — Earth Summit's main goal.

The ICEIT NEWSLETTER is published quarterly by the International Centre for Environmental and Industrial Toxicology of the Chulabhorn Research Institute, supported in part by the Asian Development Bank. It is intended to be a source of information to create awareness of the problems caused by chemicals. However, the contents and views expressed in this newsletter do not necessarily represent the policies of ICEIT.

Correspondence should be addressed to:

ICEIT NEWSLETTER
Chulabhorn Research Institute
Office of Scientific Affairs
c/o Faculty of Science, Mahidol University
Rama 6 Road, Bangkok 10400, Thailand
Telex: 84770 UNIMAHI TH
Telefax: (662) 247-1222
Tel: (662) 247-1900