



REGIONAL CHEMICAL HELPDESK

A Joint Initiative between the Chulabhorn Research Institute (CRI) and the World Health Organization Regional Office for South-East Asia (WHO/SEARO)

Report on “International Workshop to Strengthen Capacities for Sound Chemicals Management in South-East Asia Region”

The World Health Organization, Regional Office for South-East Asia (WHO/SEARO) and the WHO Collaborating Center for Capacity Building and Research in Environmental Health Science and Toxicology at the Chulabhorn Research Institute (CRI), through the Chem HelpDesk, organized the International Workshop to Strengthen Capacities for Sound Chemicals Management in South-East Asia Region on 24-27 May 2011 at the Chulabhorn Research Institute, Bangkok, Thailand. The objectives for this workshop were to:

1. Raise awareness about International Health Regulations (IHR), other international agreements and the role of public health;
2. Promote and strengthen the role of public health for the sound management of chemicals, including chemical incidents;
3. Promote the use of the recently developed WHO Human Health Risk Assessment Toolkit;
4. Evaluate the draft WHO Training and Teaching Material for the Public Health Management of Chemical Incidents; and
5. Promote use of the Chem HelpDesk in the implementation of IHR.

Thirty-six participants attended the workshop:

- 23 representatives from IHR (Ministry of Health) and SAICM (Ministry of Environment) Focal Points in 9 member countries of the WHO South-East Asia Region
- 4 resource persons from the University of Wales Institute Cardiff, the UK Health Protection Agency and the United Nations Environment Programme (SAICM)
- 8 representatives from the World Health Organization, including WHO HQ in Geneva, WHO SEAR in New Delhi, and the Country Offices for India and Thailand
- an observer from Mahidol university (representing the Network for WHO Collaborating Centres and National Centres of Expertise in Thailand)

The opening ceremony for the workshop consisted of a welcome address by Associate Professor Dr. Mathuros Ruchirawat, Vice-president for Research of the Chulabhorn Research Institute and Deputy Director of the WHO Collaborating Centre for Capacity Building and Research in Environmental Health Science, opening remarks by Dr. Maureen Birmingham, the WHO Representative to Thailand, and an introduction of participants and vote of thanks by Dr. Salma Burton, Regional Adviser-Occupational Health, WHO SEARO and a group photo session for all participants, respectively.

The workshop was separated into 6 sessions:

The first session was entitled “International frameworks and chemical safety”, co-chaired by Dr. Mathuros Ruchirawat (CRI) and Dr. Maureen Birmingham (WR Thailand). This session included presentations on “International conventions & WHA resolutions” by Dr. Kersten Gutschmidt (WHO/HQ), the “Importance of chemical safety in SEAR” by Dr. Salma Burton (WHO/SEARO), “Health sector engagement in the Strategic Approach to International Chemicals Management” by Ms. Nora Gioconda Silva Ortega (SAICM), “Role of the WHO Collaborating Centre for Capacity Building and Research in Environmental Health Science” by Dr. Daam Settachan (CRI), “International Health Regulations” by Dr. Stella Chungong (WHO/HQ), and “The regional context in International Health Regulations” by Dr. Richard Brown (WHO/SEARO). Each presentation was followed by a short discussion session where participants were encouraged to ask questions or provide comments.

The second session was entitled “Country presentations on public health and chemicals”, chaired by Dr. Jutamaad Satayavivad (CRI). Representatives from the 9 member countries of the WHO South-East Asia Region represented at the workshop, i.e. Bhutan, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor Leste, presented a brief profile of their respective countries regarding priority chemicals and chemical-related issues that need immediate attention, examples of beneficial chemical safety and chemicals management activities, and chemical incidents, including key issues related to chemical safety and chemicals management that need to be highlighted to the meeting. Each presentation was followed by a short discussion session, mainly for questions for clarity.

The third session was entitled “Core public health functions”, chaired by Professor Gary Coleman (University of Wales Institute, Cardiff). This lecture session covered “Risk assessment and risk communication” by Dr. Richard Brown (WHO/SEARO) and the “WHO Risk Assessment Toolkit” by Dr. Kersten Gutschmidt (WHO/HQ), followed by examples of how the WHO Risk Assessment Toolkit is used by Dr. David Russell (UK Health Protection Agency) and Dr. Daam Settachan (CRI). Participants were very receptive of the tools on risk assessment that were already available and that were currently in development, as presented in this session.

The fourth session was entitled “Public health and chemical incidents”, chaired by Dr. Stella Chungong (WHO/HQ). This lecture session began with the “Aim and objectives”, and “Chemical incidents: an introduction, including manual and IHR” by Dr. Kersten Gutschmidt (WHO/HQ), 4 topics from Professor Gary Coleman (University of Wales Institute, Cardiff), including the “Outline of the training material”, an “Example lecture on response”, an “Example lecture on recovery” and the “Buncefield case study”, followed by the “Hungary case study” and “Ferry boat exercise” by Dr. David Russell (UK Health Protection Agency). The final presentation of the session was on an “Example of web based training” by Dr. Peter Sykes (University of Wales Institute, Cardiff). Since the objective of this session was to introduce the training material on Public Health Management of Chemical Incidents, participants were encouraged to ask questions and provide comments on the

content of the material that was presented. The main comment received in this session was that the examples and scenarios used in the training material may not be applicable to the situation in this region, and the scenarios that were more typical of a country within this, and other, regions should be included.

The fifth session was entitled “Chem Helpdesk and was chaired by Dr. Salma Burton (WHO/SEARO). This session comprised an “Introduction to the Chem Helpdesk project” by Dr. Daam Settachan (CRI), an “Introduction to the Chem HelpDesk weblog” by Dr. Anurat Chapanond (CRI), followed by a short hands-on session that provided an opportunity for the participants to use the Chem HelpDesk weblog. This was followed by a session, introduced by Dr. Kwanrawee Sirikanchana (CRI), where participants were divided into 5 groups and asked to address 7 questions related to chemical safety and chemicals management in the region, including submitting a question to the Chem HelpDesk weblog, and 4 questions related specifically to using the Chem HelpDesk. The objectives of the group discussion were (a) to prioritize issues related to chemical safety and chemicals management in the South-East Asia region, (b) to share experiences related to chemical safety and chemicals management, and (c) to determine needs and expectations of potential users of the Chem HelpDesk. At the end of the group sessions, representatives from each group presented findings/comments/suggestions to the meeting for discussion.

The sixth session was the “Closing session including conclusions, next steps and closing remarks”, chaired by Dr. Salma Burton (WHO/SEARO). Dr. Burton summarized each of the sessions of the workshop, including the results of the discussions. This was followed by comments from representatives of each of the participating countries, and finally by the representatives of WHO HQ, SAICM and CRI. The session was then closed by Dr. Burton.

Summary of Session 5: Chem HelpDesk – Group Discussions

Participants addressed the 7 questions related to chemical safety and chemicals management and 4 questions related specifically to using the Chem HelpDesk, as follows:

Section 1: Chemical safety and chemicals management

(1) What are the priority chemicals and/or chemical-related issues in the South-East Asia Region that need immediate attention?

Priority chemicals were separated into 7 groups:

- Petro-chemicals: Petroleum combustion by products (air pollution)
- Fertilizers
- Pesticides/Herbicides: Aluminium phosphide (suicides), Carbamate, Endosulfan, Lindane (treatment of lice), Organochlorine, Organophosphate

- Heavy metals: Arsenic, Cadmium (contaminated in fertilizer and paint), Lead (recycling batteries and paints), Mercury (healthcare, gold mining (small scale) and florescent lights)
- POPs: DDT (accepted for public health use), Dioxins and Dioxin like substance
- Toxic industrial chemicals: Aluminium, Asbestos, Calcium carbide (used as ripening agent), Chlorine (pulping paper, bleaching powder and water purifications), Fluorides
- Others: Cyanide, VOCs, CKD (Cement Kiln Dust), GBHC (Gamma benzene hydrochloride)

Chemical-related issues:

- Dumping, siting of new industries without EIA, illegal importation, low awareness of health risk, indiscriminate use of chemicals, Lack or inadequate legislation/regulation and poor implementation
- Inadequate policy (preparation for future development and address current issues on chemical management)
- Inadequate knowledge among farmers regarding use of pesticides in agriculture and non-use of protective equipment
- Use of obsolete insecticides (shelf-life as well as banned pesticides)
- Proper management (Handling, use, storage, transportation, disposal)
- Insufficient Regulatory enforcement
- Non availability of competent professionals
- Poor awareness among general public, professionals, decision makers and politicians
- MEAs related to chemicals like Rotterdam, Stockholm, Basel etc are not under same umbrella
- Lack of Globally Harmonized System
- Hazardous Chemicals Accident/Incident Management
- Lack of Human Resources capacity
- Hazardous Materials (HAZMAT) Vehicles
- Awareness and Preparedness for Emergencies at Local Level (APELL) programme, developed by United Nations Environment Programme's Industry and Environment Office (UNEP IE), to be institutionalized
- Increased diseases
- Pollution
- Contamination of food
- Issues on Disposal
- Regulatory issues

(2) What are the knowledge gaps in the area of chemical safety and chemicals management?

The participants deemed that the knowledge gaps were:

Topics	Knowledge gaps
Production / Processing / Research	<ul style="list-style-type: none"> • Lack of new technologies • Laboratory facilities absent or poor • Very little or no financial, human and technical resources • Insufficient research done to establish association of chemicals to diseases in SEAR
Procurement / Import / Transport	<ul style="list-style-type: none"> • Different agencies involved in chemical events management affecting coordination. • Countries which are importing food items do not have enough knowledge of the levels of chemical contamination in the items.
Receipt / Storage / Inventory / Use	<ul style="list-style-type: none"> • How to handle new chemicals • Location of the chemicals / warehouses
Waste	<ul style="list-style-type: none"> • Lack of knowledge on Hazardous Waste Management
Environmental, Health, and Safety Management	<ul style="list-style-type: none"> • Short term and long term impact of these chemicals on human and environment health. • There is no knowledge on the health effects of use of nanoparticles in industry.
Data management	<ul style="list-style-type: none"> • Risk mapping • Planning and preparedness • Little consideration for chemical issues in disaster management plans and strategies • Identifying of hazardous sites and risks involved • No hazard management protocol and lack of data on hazard levels • Lack of data on unauthorized use of hazardous chemicals • Lack of proper Chemical profiles/classification • Toxicity information • Full information of commercially branded chemicals and pseudo names
Others	<ul style="list-style-type: none"> • Specialised training lacking at National level • GIS based Emergency Management System • Lack of Coordination between various stakeholders

(3) What factors do you think are responsible for causing problems related to chemicals in the South-East Asia Region? What should be the solutions and which agencies/organizations/ institutions (e.g government or non-government levels) should be involved in solving these problems?

Factors	Solutions	By whom
<p>Toxicology/Ecotoxicology:</p> <ul style="list-style-type: none"> • Lack of information sharing with the community in terms of toxicity of widely used chemicals as well as action to be taken in case of poisoning • Waste management • Insufficient information about the hazards 		<ul style="list-style-type: none"> • Media, Government agencies (Health and environment)
<p>Funding opportunities:</p> <ul style="list-style-type: none"> • Lack of financial resources • Poverty and lack of funding • Lack of funds for research 	<ul style="list-style-type: none"> • More allocation & cost-effective use • PPP, Raising the issue at international forums and donor forums 	
<p>Best practices related to chemical safety/chemicals management:</p> <ul style="list-style-type: none"> • Lack of technical support • Insufficient technical knowhow • Inadequate lab support • Technical inadequacies like no EIA carried out • Development of need based technology for detection, protection and monitoring • Development of new Biomarkers & Indicators for Chemical toxicants 	<ul style="list-style-type: none"> • Mapping of technical resources available to be done and additional support from WHO • Training specially on equipment to handle in emergencies • Software for Risk Assessment 	<ul style="list-style-type: none"> • WHO
<p>Multilateral Environmental Agreements (MEAs):</p> <ul style="list-style-type: none"> • Lack of political • Insufficient regulatory enforcement • Poor enforcement of Rules & Regulations • Weak political commitment • Lack of necessary laws/rules/regulations • Lack of standards/effluent quality guidelines/pollution controls 	<ul style="list-style-type: none"> • International Organizations need raise these issue at the international forum • Coordinated efforts at national and international level between various regulatory authorities and multilateral international agreements • Training of the enforcement personnel • Establishment of a surveillance system for chemical incidents. • Advocacy and policy 	<ul style="list-style-type: none"> • govt. (Ministries of related areas- Environment, agriculture, industries, health,) • NGOs • Civil rights organizations • Media

<ul style="list-style-type: none"> • Storage/transport issues • Lack of awareness among policy makers and regulators • Gaps in enforcement of law • Insufficient regulatory measures 	<ul style="list-style-type: none"> • Political commitment • Legislation and monitoring • Strict implementation of regulations 	<ul style="list-style-type: none"> • International stakeholders
<p>Other:</p> <ul style="list-style-type: none"> • Inadequate human resource • Poor policy implementation • Lack of public awareness • Industrial lobbies • Population explosion • Quality and safety measures • Poor socio-economic status • Disaster Management Plans at all echelons of governance • Epidemiological studies on HAZCHEM • Lack of competencies among workers on preventing/controlling contamination • Environmental Impact Assessment prior to establishment of a Chemical facility • Poor awareness at all levels = Administration, CSR & PPP • Poor land use planning • Critical Analysis of available technology alternatives for acquisition • Development of Safer & Cost effective alternatives • Poor coordination among different stakeholders • Lack of awareness among industry – owners, managers, workers and agricultural workers • Lack of awareness among general public and media • Lack of evidence on adverse consequences, effects • Large informal industrial sector • Medical management & Antidotes • Lack of facilities for monitoring of pollution/contamination 	<ul style="list-style-type: none"> • Need for increase • Public awareness campaigns • Awareness raising 	

(4) Which of the following fields do you think most require advice from experts? Please provide your reasons.

A: Toxicology/Ecotoxicology

B: International programs/activities related to chemical safety/chemicals management

C: Funding opportunities

D: Best practices related to chemical safety/chemicals management

E: National and International opportunities for collaboration

F: Multilateral Environmental Agreements (MEAs)

G: Enhancing sustainability of capacity for chemicals management.

H: Other (please specify)

Most of participants in each group agreed that all the areas mentioned above were those most requiring advice from experts.

(A) Toxicology/ecotoxicology; the reasons were

- Highly technical subject which is poorly understood by most of the people involved in production, storage, transport and use of chemicals and
- Large number of new chemicals being introduced about which there is a need of updated knowledge,

(C) Funding opportunities; with the reasons

- For implementation of chemical safety related projects and research studies and
- The root of all the problems is lack of funds and it is necessary for implementation of chemical safety related projects and research studies, and

(D) Best practices related to chemical safety/chemicals management. The reason was most of the countries in the region lack in this field to ensure the most effective use of available funding.

The other area requiring expert advice was immediate response following incidents.

(5) Which countries, either inside or outside the South-East Asia Region, have good examples of best practices in chemicals management? Please provide examples.

Most of the participants agreed that the UK had good examples of best practices in chemicals management, for example management of the Buncefield incident. The Hungary case study of the sodium hydroxide leakage from the aluminum plant was another good example. Besides, some groups also suggested that there was a lot of work still needed to be done by countries in this region.

(6) Please log in and submit one typical question you may need assistance with related to chemical safety and/or chemicals management to the Chem HelpDesk.

The participants logged in and submitted the following questions:

- Could we know the contact details of experts within this region (or outside) to support SEAR countries in developing country specific safety guidelines for use of common hazardous chemicals?
- What is the current position on endosulfan use in various countries?
- How can we solve the problem of cadmium, mercury and lead poisoning in human?
- Where can we obtain the best community awareness materials on pesticides?

- What are the credible sources of information on chemical management useful to the SEARO countries?
- Please give the guidance on
 - Preparedness
 - Assessment of events and on
 - How to manage
 - Monitoring

(7) *Do you have any other comments or suggestions?*

The following comments and suggestions were received:

- IHR (2005) weblink and as international agreements should be added on the website.
- Chem HelpDesk should have automated confirmation to question/suggestion.
- Environmental impact assessment: synchronization
- Promote “chemhelpdesk” among the stakeholders in chemical management in the SEARO countries.
- Exchange of technological knowhow among experts in the SEARO countries and exchange of same with experts in other countries.
- CRI & WHO should continue to have varied Capacity Building ventures on a regular basis for the SEAR countries.
- Follow up action on this project and monitoring the progress at country level on the use of Helpdesk and other activities related to chemicals.
- Provide opportunities to share experience on good practices.

Section 2: Using the Chem HelpDesk

(1) *What are your expectations of the Chem HelpDesk, i.e. how could the Chem HelpDesk best assist chemical safety professionals in the South-East Asia Region?*

The participants’ opinions were as follow:

- Since there is a big gap in country’s info and knowledge about chemicals we could easily access this from the helpdesk.
- Facilitate knowledge and technology transfer if required
- Assistance in developing the chemical profile of industries in our countries
- Information during chemical emergencies and incidents
- Enhance transparency, collaboration and coordination between countries during chemical incidents
- Chem HelpDesk should not only give information on various chemicals but also different scenarios / situations where chemical incidents can occur and necessary action that is required to be taken.
- Helpdesk to emerge as authenticated and credible website for consultation on all aspects of chemicals related issues.
- The website can assist chemical safety professionals by providing accurate credible and timely information and also to fill knowledge gaps of in different countries by sharing the information
- Credible & universally accessed Website
- We expect to get back to us on time especially during crisis giving real time advice.
- To get accurate and up-to-date scientific information on chemicals and related issues on time.

(2) Please provide us with electronic resources (e.g. web links) of news / activities that are related to chemicals / chemical safety/ chemicals management.

Many websites from the international agencies, governmental and private sectors have been identified. The following websites have been added to the Chem HelpDesk webpage:

Website	Detail
International agencies	
www.inchem.org/pages/cicads.html	Concise International Chemical Assessment Documents (CICAD)
www.who.int/ipcs/publications/ehc/en/	Environmental Health Criteria (EHC) documents provide international, critical reviews on the effects of chemicals or combinations of chemicals and physical and biological agents on human health and the environment.
www.iupac.org	The International Union of Pure and Applied Chemistry (IUPAC) serve to advance the worldwide aspects of the chemical sciences and to contribute to the application of chemistry in the service of Mankind. As a scientific, international, non-governmental and objective body, IUPAC can address many global issues involving the chemical sciences.
www.acs.org	American Chemical Society - The world's largest scientific society
www.cwc.gov	CWC: The Chemical Weapons Convention (CWC)
Bhutan	
www.moea.gov.bt	MO Economic affairs
India	
www.dahd.nic.in	Department of Animal Husbandry Dairying & Fisheries, Ministry of Agriculture
www.india.gov.in	National Portal of India is a single window access to information and services being provided by the various Indian Government entities.
www.nioh.org	NIOH: National Institute of Occupational Health. The major objectives of the Institute and its centers are to identify and mitigate the occupational and environmental health problems in the country. Located in the Eastern part of Ahmedabad, India
www.cseindia.org	Centre for Science & Environment India (NGO)
www.dmibhopal.nic.in	Disaster Management Institute, Bhopal (India)
www.neeri.res.in	National Environmental Engineering Research Institute, Nagpur
Indonesia	
www.menlh.go.id	Ministry of Environment
Nepal	
www.mohp.gov.np/english/home/index.php	Ministry of Health and Population
Sri Lanka	
www.cea.lk	Central Environmental Authority

(3) What are the most reliable (unbiased) news sources related to chemical safety and chemicals management in your countries?

Website	Detail
International agencies	
www.who.int/en	WHO
https://extranet.who.int/ihreventsite/	Event Information Site (EIS) of WHO accessed by National Focal Point (Need log in)
www.saicm.org	SAICM
www.un.org	UN
Government agencies	
-	Ministry of Health (Public Health Laboratory / Pollution Control Board)
-	Ministry of Environment / Commission
-	Ministry of Agriculture
-	Ministry of Labour
-	Government accredited media
-	Nepal: Ministry of Information
-	Nepal: Nepal Television
www.gorkhapatra.org.np [Nepali language] www.gorkhapatra.org.np/risingnepal.php	Nepal: Gorkhapatra
www.menlh.go.id	Indonesia: Ministry of Environment
-	Myanmar: Poison information center, Ministry of Health
www.mimrd.gov.lk	Sri Lanka: Ministry of Agriculture
www.cea.lk	Sri Lanka: Central Environmental Authority
Others	
www.cseindia.org	India: Centre for Science & Environment
www.thaitox.org/home.php	Thailand: Toxicology Society
www.promedmail.org	Promedmail: ProMED-mail, the Program for Monitoring Emerging Diseases, is a program of the International Society for Infectious Diseases.
http://www.cdc.gov/	CDC: Centers for Disease Control and Prevention, a United States government public health agency

(4) Please provide us with your suggestions/comments regarding the use of the Chem HelpDesk's weblog.

There were the suggestions/comments of the participants.

- Keep a reasonable critical level of registered users so that questions and suggestions are received frequently (Include Occupational health experts from Industries?). Include reputed NGOs)
- Could also include a discussion forum later?
- Identify more regional experts in this field
- Need for coloring of hyperlinks
- Need for providing access to focal points in WHO and UNEP

- Provision of honorarium to experts
- Alternatives / Substitutes to chemicals
- The website should prepare encyclopedia of all chemicals of public health importance and related issues & made it available to professionals and general public.
- Training materials should be made available.
- Its good and simple initiative but it should meet the regions aspirations in a more pro-active manner.
- Individual Registrations should be encouraged.
- Organizational link-ups should be on a formal basis.
- Initiate registration government agencies in SEAR countries with the Helpdesk
- Funding to develop capacity development

Summary of Questionnaires on the International Workshop

The Chem HelpDesk received 19 copies of completed questionnaires regarding the workshop. Results are as follows:

Part 1: General Information

Twenty-one percent of participants who completed the questionnaires had a Doctoral degree, 58% had a Master's degree and 21% had a Bachelor's degree. The majority of the participants (82%) had an educational background related to health, 29% had backgrounds related to environment, and 12%, 12%, 6% and 6% had an educational background related to industry, pollution, pharmacy and toxic chemicals, respectively. Sixty-three percent of the participants had current fields of work related to health, 32% related to environment and 21% related to policy, with the rest in the fields of pollution, pharmacy and toxic chemicals. Sixty-eight percent of the participants had not participated in a workshop related to chemical safety and chemicals management in the past 2-3 years, while 32% had participated in workshops on POPs management, SAICM, risk assessments, etc.

Part 2: Satisfaction and comments on the workshop

The questionnaire classified satisfaction into 5 levels, from strongly agree to strongly disagree.

1. Workshop content

- *Session 1: International Frameworks and Chemical Safety*

Sixty-three percent of the participants agreed that the content harmonized with the objectives and 37% strongly agreed. More than half (58%) agreed that this session met their expectations, while 32% strongly agreed and 11% were neutral. Sixty-eight percent of the participants agreed that the knowledge received could be applied to their work, while 26% strongly agreed and 5% were neutral.

- *Session 2: Country Presentations on Public Health and Chemicals*

Sixty-three percent of the participants agreed that the content harmonized with the objectives, while 11% strongly agreed and 16% were neutral. Sixty-three percent of the participants agreed that this session met their expectations, while 11% strongly agreed and 21% were neutral. Sixty-eight

percent of the participants agreed that the knowledge received could be applied to their work, while 5% strongly agreed and 21% were neutral.

- *Session 3: Core Public Health Functions*

Over half of the participants (58%) agreed that the lecture was clear and relevant, while 32% strongly agreed and 11% were neutral. Fewer than half (42%) strongly agreed that the lecturers were knowledgeable in the topics of the lectures, while the same percent agreed and 16% were neutral. Forty-two percent of the participants agreed that the method of delivery was appropriate, while 37% strongly agreed and 21% were neutral. Fifty-three percent agreed that the lengths of the lectures were appropriate, while 21% strongly agreed and 26% were neutral. More than half (53%) of the participants agreed that the lecture content was of interest to them, while 32% strongly agreed and 16% were neutral. Fewer than half (47%) agreed that the knowledge received could be applied to their work, while 37% strongly agreed and 11% were neutral. Sixty-three percent of the participants agreed that the lecturers answered the questions satisfactorily, while 26% strongly agreed and 11% were neutral.

- *Session 4: Public Health and Chemical Incident*

Fewer than half of the participants (47%) strongly agreed that the lectures were clear and relevant, while 32% agreed and 16% were neutral. Forty-seven percent strongly agreed that the lecturers were knowledgeable in the topics of the lectures, while 42% agreed and 5% were neutral. Over half of the participants (58%) agreed that the method of delivery was appropriate, while 26% strongly agreed and 11% were neutral. Fifty-three percent agreed that the lengths of lectures were appropriate, while 16% strongly agreed and 26% were neutral. Forty-two percent strongly agreed and 42% agreed that the lecture content was of interest to them, while 11% were neutral. Thirty-seven percent strongly agreed that the knowledge received could be applied to their work and the same percent agreed, while 16% were neutral. Fifty-eight percent of the participants agreed that lecturers answered the questions satisfactorily, while 21% strongly agreed and 11% were neutral.

- *Session 5: Chem HelpDesk*

Fifty-three percent of the participants strongly agreed that the content harmonized with the objectives, while 42% agreed and 5% were neutral. More than half (63%) agreed that this session met their expectations, while 32% strongly agreed and 5% were neutral. Fifty-eight percent of the participants agreed that the knowledge received is useful for their work, while 32% strongly agreed and 11% were neutral.

2. Workshop organization

Fewer than half of the participants (42%) strongly agreed that the length of the workshop was appropriate and the same percent agreed, while 5% were neutral and 11% disagreed. Forty-seven percent strongly agreed that workshop venue was convenient, while 42% agreed and 11% were neutral. Sixty-three percent of the participants strongly agreed that workshop room environments (e.g., lighting, temperature) were comfortable, while 32% agreed and 5% were neutral. More than half (53%) strongly agreed that the audio/visual quality was satisfactory, while 42% agreed and 5% were neutral. Forty-seven percent of the participants agreed that the quality of meeting documents was satisfactory, while 42% strongly agreed and 11% disagreed.

3. Facilities and services

Over half of the participants (53%) agreed that accommodation was satisfactory, while 37% strongly agreed and 5% were neutral. Fifty-three percent strongly agreed that transportation was available and satisfactory, while 37% agreed and 5% were neutral. More than half (58%) of participants strongly agreed that food / drink / coffee breaks were satisfactory, while 37% agreed and 5% were neutral. Sixty-three percent strongly agreed that Internet access was available and satisfactory, while 32% agreed and 5% were neutral.

4. The overall quality of the workshop was satisfactory

Fifty-three percent of the participants agreed that the content harmonized with the objectives, while 32% strongly agreed and 5% were neutral.

Part 3: Additional comments

The following additional comments were received:

- **Chemical safety and chemicals management:** workshops and practical approaches about chemical safety and chemical management need to be continued because they are important for public health, especially in the South-East Asia region. Some of the participants thought that an international body/structure might be useful to make rules/regulations in each country (e.g. WHO), and should give guidance/monitor future directions yearly. In that context, country/industry would get a chance to improve and at the same time they also learn, and related stakeholders/local NGOs/media should get involved and oriented. In addition, this workshop should be done alternatively in other SEARO countries, which are concerned about chemical incidents. Moreover, the case studies should not be limited to developed countries, but interconnect with SEAR country scenarios. If there was no such incident in SEAR, then make the situation based on other countries situations. However, regularity on current sound chemical managements is needed.
- **Chem HelpDesk:** the concept and approach is a good beginning for chemical safety and management and it is believed that this will be an effective tool in knowledge sharing and dissemination for sound management of chemicals. Moreover, sustainability of Chem HelpDesk blog could be in use in future. Furthermore, some kind of honorarium for the expert panel may encourage commitment and effectiveness.
- **The overall quality of the workshop:** Most participants are satisfied with the overall quality of the workshop. Many comments and suggestions indicated that they enjoyed the personal attention given by administrative and professional staff, group work sessions, timing and overall workshop contents and presentations. They also felt positive about the theme of the workshop and planned to reflect this theme in their action plan for chemicals management, taking into considering their limitations as well. Suggestions to improve the workshop in the future included the following: (1) field trip visits relevant to topics of discussion should be added to understand the role of toxicology for policy of management, so that industry would also get a chance to improve; and (2) more time was needed to explore the city. On the other hand, some participants felt that the workshop's main objective was confusing, and that there was too much repetition and overlapping amongst presenters in some sessions.

In summary, the international workshop objectives were successfully achieved. This workshop has raised awareness about International Health Regulation (IHR), other international agreements and the role of public health; promoted and strengthened the role of public health for the sound management of chemicals, including chemical incidents; promoted the use of the recently developed WHO Human Health Risk Assessment Toolkit; evaluated some sample modules of the draft WHO Training and Teaching Material for the Public Health Management of Chemical Incidents; and promoted the use of the Chem HelpDesk to the participants. Furthermore, the workshop provided a place for the participants to interact and exchange their knowledge and experience regarding chemical safety and chemicals management. The Chem HelpDesk has gathered all answers, comments and suggestions from the participants in order to identify issues of concerns, as well as to make plans to address those issues in the future. Websites for additional resources and organizations related to chemicals and chemical safety that were suggested by the participants have been added to the Chem HelpDesk weblog and the websites that were suggested as the most reliable news sources related to chemical safety and chemicals management will be considered for use for updating news on the Chem HelpDesk weblog in the future.