



Asia-Pacific
Economic Cooperation

Report

APEC Seminar

on

Globally Harmonized System (GHS)
Implementation and Technical Assistance

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APEC Secretariat
35 Heng Mui Keng Terrace Singapore 119616
Tel: (65) 67756012 Fax: (65) 67756013
Email: info@apcc.org Website: www.apcc.org

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Executive Summary

The APEC Seminar on “*Globally Harmonized System (GHS) Implementation and Technical Assistance*” took place in Bangkok, Thailand, on 20-22 September 2006 with 147 participants from international and national organizations, institutions, agencies and companies, totaling 9 APEC economies. Aimed at exchanging information and sharing ideas on the implementation of GHS, the three-day seminar consisted of seven sessions. The first two days focused on GHS updates, economic reports, planning, and challenges among the APEC economies, whereas the third day was dedicated to an excursion to a multinational company located in Bangpoo Industrial Estate. It was conducted with synergistic cooperation and sponsorship of agencies involving both international organizations and public and private sectors.

Declared opened by Mr. Kosol Jairungsee, Deputy Director-General of the Department of Industrial Works (DIW), Ministry of Industry of the Royal Thai Government, it featured a welcome and reporting speech by Mrs. Srichant Uthayopas, Project Overseer and Director of Hazardous Substance Control Bureau, DIW. During the first two days, participants were briefed on the GHS Review and Future Plan of UNSCEGHS. In updating GHS, three main parts, namely Introduction, GHS Elements, and Future Work Programme of the UNSCEGHS, were presented. The issue of confidential business information (CBI) was actively discussed, resulting in a recommendation on related activities. The implementation and technical assistance of GHS in particular to ASEAN countries, as well as synergies between UNITAR and APEC under UNITAR/ILO Global GHS Capacity Building Programme, was presented by UNITAR representatives. The participants also learned the status of GHS implementation, regulatory issues, deficiencies, and planning in eight economies: Chile, Japan, Malaysia, Mexico, the Philippines, Singapore, Chinese Taipei and Vietnam. Thailand’s presentation was made in Session VI. Based on their presentations, conclusions were reached and recommendations made on the acceleration process and follow-up for GHS implementation during 2007-2008, step-by-step implementation, training, preparation of manuals, potential barriers to trade, incentives for earlier implementation, and harmonization of the building block approach (BBA) and the transitional periods.

Presenting the views of the agricultural chemical industry on the applicability of GHS, a speaker from Crop Life Asia pointed out the importance of GHS implementation, the need for GHS, cooperation among the economies to ensure consistency so as not to impede trade, and the significance of communication and education of both risks and hazards to users. Representatives of American Chemistry Council (ACC) and 3M Company (USA) discussed the status of the GHS implementation in selected economies, steps to GHS implementation, regulatory analysis of some economic regions, including ASEAN OSHNET Guidelines for Classification and Labeling Proposal, the importance of training for stakeholders involved in GHS pre- and post-implementation, transitional periods for GHS implementation and establishment for information sharing. APEC member economies were advised to establish a website on GHS implementation in their respective economies and to handle CBI through suitable mechanisms. The appointment of an APEC working group to look into labeling for very small packages was also recommended.

International views and experiences among APEC economies concerning both public and private sectors were presented and discussed by two panels. The first panel on the public sector featured speakers from Canada, Japan and Thailand. Canada started preparation on GHS implementation in 2003 with possible harmonization extended to NAFTA countries. Meanwhile, technical consultations were being conducted. For future steps, Canada was planning consultations on implementation phase-in options, consultations with trading partners, economic analysis, development of final recommendations, decision-making, drafting regulations and the regulatory process. The speaker from Japan shared the experiences, steps and status of GHS implementation in Japan focusing on training and

educational activities to be undertaken by all parties/sectors involved with GHS. In addition, GHS guidelines and tools for implementation were presented. A Thai speaker touched on the situations and gap analysis as well as the comprehensibility testing under technical assistance from UNITAR. The BBA to be used by Thailand was to proceed in two phases. Harmonization among the APEC economies of BBA and a transitional period for GHS implementation were proposed. Finally, the essential points of education, training and public relations of GHS among all stakeholders were stressed. Conclusions were reached on the best practices in Japan and on factors contributing to the success of GHS implementation.

The second panel on private-sector perspective featured three eminent speakers representing the Responsible Care Management Committee of the Federation of Thai Industries' Chemical Industry Club, American Chemical Council (ACC) and 3M Company (USA), and Japan Chemical Industry Association (JCIA). The Thai panelist touched on the needs of industries to know a clear target date for GHS implementation by the public sector for the private sector to move forward. Those economies with early implementation of GHS should get appropriate incentives for product export, such as rapid customs clearance at the ports of entry. It was recommended that GHS implementation should be gradually enforced. Viewpoints of Thai chemical industries focusing on BBA, the transitional period and education of persons involved in the chemical life-cycles were presented. Mentioning factors influencing GHS implementation from industry's point of view, the ACC representative proposed steps for GHS implementation by companies. As regards CBI, it was recommended that clear guidelines from governments should be made available. Concerns on the resources available for altering the system to GHS in the next few years were shared. Providing information on the JETRO/AOTS Workshop on GHS provided to ASEAN countries and the training curriculum on GHS, the speaker from Japan said the syllabus consisted of four levels, namely basic, intermediate, advanced and specially-designed-for-instructors courses. In implementing GHS, more advanced economies were willing to share information and knowledge with others. A transitional period by a number of economies for GHS implementation was agreed. All parties also agreed that GHS should be implemented as soon as possible. A dual system (GHS and Non-GHS) was seen as acceptable during this transitional period. A proposal to provide incentives for an early implementation of GHS among member economies was discussed, and a conclusion was reached to forward the same proposal to the next meeting of APEC CD. Finally, it was recommended that the issue of incentives for earlier implementation should be ruled by APEC CDSG.

The final day was devoted to an excursion to plants operated by Clariant Chemicals (Thailand) Co., Ltd., at Bangpoo Industrial Estate, some 35 kilometers southeast of Bangkok. With a head office in Switzerland, the company had for some years been providing tangible cooperation with the Thai government synergistically with the German Agency for Technical Cooperation (GTZ). Providing an overview of the company and its preparedness for GHS implementation in Thailand, the company's ESHA country manager demonstrated a tailor-made program for the preparation of SDS. Clariant Chemicals was one of the pioneering companies in Thailand to have implemented GHS. Participants were amazed at witnessing a warehouse constructed in full compliance with international safety requirements. This trip ended with a visit to the renowned Ancient City, located nearby.

In addition to identified opportunities and priorities to support implementation of GHS in APEC economies by 2008, two proposals are recommended to be taken to the APEC Chemical Dialogue Steering Group for discussion and possible action.

- To facilitate trade in chemicals, it was recommended that all APEC member economies contribute to a multilingual website with translation of GHS words and phrases. The website, bilingual between English and the national language, would not only facilitate an exchange of information with other members but benefit local suppliers and all stakeholders as well.

- A proposal to provide incentives (including acceptance by importing economies where GHS had not yet been implemented, at least to the warehouse of importers for additional labeling or re-labeling under existing regulations) for early implementation of GHS among member economies was discussed. This idea will be taken to the APEC CDSG.

1. Introduction

1.1 Background

Under the 12th APEC Economic Leaders' Meeting under the 2004 theme of "One Community, Our Future", the Globally Harmonized System (GHS) responds directly to the vision statement, particularly in its implementation within APEC by 2006. Classification and hazard communication needs to be harmonized to develop a single system in APEC. To this end, GHS is a critical tool for necessary protection for their citizens while enabling them to participate in international trade.

In addition, under the guidance of the GHS Purple Book, technical assistance tools will likely be made available to assist in and promote implementation. Unfortunately, parts of the book – especially on health and environmental hazards – are difficult to comply with because of the complexity of local situations. The seminars in Taipei in September 2003 and in Kuala Lumpur in September 2004 aimed at enhancing awareness, capacity building, and cost-benefit consideration and potential impacts of GHS in facilitating international trade.

This seminar dealt with enhancing GHS technical tools, following up implementation, and establishment of a sustainable development framework and information network on GHS.

The seminar spanned three days, the first and second of which covering topics on GHS implementation, including the methodology and best practices in situation analysis on GHS implementation at the national level by experts and APEC participants. For the third day, a visit to a factory where GHS was being implemented for the workplace was planned.

1.2 Workshop Objectives

As a contribution to the UNITAR/ILO/OECD World Summit on Sustainable Development Global Partnership for Capacity Building to Implement the GHS, the seminar had the following key objectives:

- To evaluate the effectiveness of hazard communication currently implemented in member economies
- To share the methodology or processes of and document the best practices in situation analysis for GHS implementation at the national level
- To accelerate GHS implementation within APEC with a view to facilitating trade on chemicals, and
- To formulate guidelines on how to effectively implement GHS and identify key success factors within the region by 2006.

Within these economies, GHS implementation will benefit businesses as it will simplify and standardize labeling requirements for hazardous chemicals. There will also be health and safety benefits for workers in transportation and processing industries; emergency response personnel; health workers; and the general public. GHS will also protect the environment by improving the local ability to handle such chemicals.

1.3 Opening Statements

Mrs. Srichant Uthayopas, Project Overseer and Director of Hazardous Substance Control Bureau, Department of Industrial Works (DIW), Thai Ministry of Industry, presented a report on the organization and the objectives of the seminar. The participants numbered around 140 from 12 economies. Stressing the importance of the 21 economies covered by APEC, she introduced key speakers and representatives from both public and private sectors from APEC economies and finally invited Mr. Kosol Jairungsee to deliver his opening remarks.

In his remarks, Mr. Jairungsee, Deputy Director-General, DIW, welcomed the participants and expressed appreciation to the APEC Secretariat, which made the seminar possible, before touching on the background of GHS and stressed its significance on the chemical trade and the economy. Because of its complexity, one country cannot implement it alone without collaboration from trading partners. For GHS implementation in Thailand, many agencies were involved. Close cooperation was required from both public and private sectors. By and large, the regulations would be issued under the Hazardous Substance Act, coordinated by DIW. Thailand would issue relevant regulations concerning GHS by the end of 2006. The private sector, including the Federation of Thai Industries (FTI) and Crop Protection Association, has provided full support to GHS implementation. He expressed his appreciation to UNITAR for providing training and workshops on GHS in Thailand and other ASEAN countries. The additional knowledge and experience gained at this seminar would contribute to the successful implementation in APEC economies possibly by 2008.

2. Session I: GHS Review and Future Plan of UNSCE-GHS by Dr. Kim Headrick

Dr. Kim Headrick, Chairperson of UNSCEGHS, presented an overview of GHS in three main parts. First, *The Introduction* touched on what GHS was, its necessity, benefits of harmonization, international mandate, principle of harmonization, and the scope of GHS. Second, *The GHS Elements* contained two main parts, namely classification criteria and hazard communications (for labels and SDS). Examples for each hazard were given. There were a total of seven elements of GHS labels, three of which were standardized, namely hazard pictograms, signal words and hazard statements, and the roles of SDS in GHS and its 16 headings format. And third, *Programme of Work for the UNSEGHS on updating the GHS*.

Highlighted issues were raised on Confidential Business Information (CBI), specifically that national authorities should establish appropriate mechanisms for CBI protection; CBI mechanisms would not be harmonized under GHS; provisions for CBI protection should not compromise the health and safety of users; and CBI claims should be limited to chemicals and their concentrations in mixtures. Mechanisms should be established for disclosure in both emergencies and non-emergencies. Future programmes of work at UNSCEGHS in the future included an update of new classes for health and environmental hazards. *Health Hazards* included substances which would, in contact with water, release toxic/corrosive gases; toxic gas mixtures; sensitization (induction/elicitation and strong versus weak sensitizers); carcinogenicity (potency estimation and guidance on the criteria) and toxic to reproduction (guidance on appropriate parameters on relative potency of a chemical). *Environmental Hazards* covered chronic aquatic toxicity hazards; environmental terrestrial hazards; ozone-depleting substances in cooperation with the Conference of Parties to the Montreal Protocol; and validation of the transformation/dissolution protocol for metals.

3. Session II: GHS Implementation by UNITAR

Mr. Van der Kolk and Ms. Cheryl Chang gave a presentation about the context, global scope, regional strategies, national activities and resources of UNITAR/ILO Global GHS and capacity building program, apart from updating the status of UNITAR projects worldwide – with a highlight on the regional GHS Capacity Building Project for countries of ASEAN. Stressing synergies between UNITAR and APEC and making recommendations on ways in which the two groups could improve cooperation, the speakers provided an overview of the National Capacity Building Project, as well as details on resources available for GHS capacity building. For further information, see www.unitar.org/cwg/ghs/index.html.

4. **Session III: GHS Implementation of APEC Regional Countries by APEC Regional Countries**

In an alphabetical order, nine economies described the status of their GHS implementation.

Chile (Ms. Daniela Montanola)

Chile set the target for GHS implementation by 2008. As regards regulatory issues, she reported that a public-private committee had been set up to handle GHS implementation, and that Chile planned to implement GHS via technical norm and existing laws with some amendments. Chile was deciding which sectors to implement it first. Because of inadequate information, in particular that concerning labels, the agricultural sector might be initially set aside. Relevant organizations included the Ministry of Health, CONAMA (National Corporation of Natural Environment), Ministry of Economy, SAG (Cattle and Agricultural Service), Ministry of Transport and Ministry of Labour. Chile had difficulties with GHS implementation, particularly on the understanding of GHS and the limited access to information, especially on training and introduction of GHS.

Japan (Ms. Tsugiko Kato)

Japan set the target for GHS implementation by 2008 with a four-year transitional period for SDS. About 1,500 substances had already been classified under GHS criteria. Existing laws relevant to GHS in Japan included industrial safety and health laws; laws concerning reporting, etc., of the release to the environment of specific chemical substances and promotion; poisonous and deleterious substances control laws; laws concerning the evaluation of chemical substances and regulation of their manufacture, etc.; and agricultural chemicals regulation laws. Relevant organizations included the Ministry of Health, Labour and Welfare (MHLW), Ministry of Economy, Trade and Industry (METI), Ministry of the Environment (MOE), Ministry of Internal Affairs and Communications (MIC), Ministry of Agriculture, Forestry and Fisheries (MAFF), Ministries of Land Infrastructure and Transport (MLIT) and Ministry of Foreign Affairs (MOFA). As for its GHS implementation plan, Japan was conducting several research and development projects at the national level, for instance, a survey on public awareness of GHS; development of the GHS training software; initiating the development of a simplified guideline, for example, the Japan voluntary initiative industries (an example was the Soap and Detergent Association, which developed a “guidance for the implementation of GHS of consumer products”); and a plan to publish a guidance document for the future implementation of GHS in collaboration with ASEAN countries. Discussions after the presentation included the possibility of sharing of GHS classified substances with other APEC economies in another language, to which Japan responded that the information was being updated and linked to an English version. GHS implementation should not become barriers to trade, and so there should be some flexibility during the transitional period.

Malaysia (Mr. Joseph Doraisamy and Mrs. Shaliza Tay Abdullah)

Malaysia planned to implement GHS by the end of 2008 but industry was looking forward to implementation by 2007, whereas the transitional period had not been discussed yet. In Malaysia, occupational safety related to machinery safety and the control of specific chemical substances in factories was the focus of Malaysian regulations in the 20th century. The Bhopal chemical disaster of 1984 in India and the Bright Sparkler's incident in Selangor, Malaysia, in May 1991 had increased the awareness for chemical safety. In 1994 the Occupational Safety and Health Act widened the scope of activities and jurisdiction of the Department of Safety and Health (DOSH). It was further enhanced in 1997 to include the classification, packaging and labeling of hazardous chemicals.

Malaysia was committed to the adoption of GHS classification and labeling of chemical products. The chemical industry fully supported the implementation and wanted it implemented sooner. The National Coordinating Committee on the implementation of GHS was established in January 2006, with the Chair and Coordinator coming from the Ministry of International Trade and Industry (MITI). Its members included relevant ministries, government departments and agencies, and representatives of the chemical industry. The Committee would oversee and monitor the progress of GHS implementation and streamline various acts and regulations on chemical substance control management. These acts and regulations were being enforced by different ministries and agencies.

Concerning capacity building, seminars and training in Malaysia, a GHS workshop for government agencies was organized in March 2006 in Kuala Lumpur by DOSH in conjunction with the United Nations Institute for Training and Research (UNITAR). Two workshops were recently held, namely the ASEAN-OSHNET on GHS to discuss the ASEAN guidelines on GHS and the workshop for Government agencies related to the control of chemicals in Malaysia. Other events related to GHS included ChemCon Asia 2005, an international conference on chemical control legislation and trade aspects, which included papers on GHS implementation, hosted by the Chemical Industries Council of Malaysia (CICM).

As regards future plans for GHS, the coordinating committee would establish four working groups to operationalize GHS implementation based on the four main sectors involving chemicals. These working groups consisted of Industrial Workplace, Agriculture, Transportation, and Consumer Products, each headed by a lead agency. The tasks of these lead agencies were to review current laws and legislations having to do with the control of chemical substances in related sectors; ensure that existing laws and legislations dealing with the control of chemical substances in related sectors were in line with the GHS implementation introduced in the Purple Book; and identify and address cross-sectoral issues (gap analysis). DOSH is planning to conduct training for local chemical suppliers on the implementation of GHS in 2007. The new regulations issued by DOSH on GHS classification, technical guidance on labeling and SDS would probably be gazetted in 2007/08. A reach-out programme involving briefings and dialogue sessions for target groups was scheduled for 2007/2008. Full enforcement of the regulations on classification, labeling and SDS was expected in 2008.

To achieve the 'developed nation' status by 2020, Malaysia was striving to make available easily accessible chemical hazard information to all affected parties. This information would enable them to minimize their exposure to hazardous chemicals and ensure proper assessment and management of the chemicals so that occupational poisoning and diseases might be limited. The private sector, through CICM, was working closely with the government to ensure that the legislations put forward would achieve the aims at minimal costs and ensure that Malaysia was a

preferred location for investors in the chemical industry. Malaysia was a signatory to the Responsible Care Programme (RCP) that believed in good health and safety management. RCP would enhance investors' confidence worldwide in the chemical industry in Malaysia. Both the Malaysian government and the chemical industry were confident that hazardous chemical harmonization would not only improve safety, health, the environment, but would also enhance international trade.

Mexico (Ms. Virginia Guerrero)

Mexico set the target for GHS implementation by 2008. Relevant existing laws included Technical Regulations, Federal Laws, Rules of Federal Laws, TBT Agreement and Free Trade Agreements, while relevant federal ministries consisted of the Ministry of Health, Ministry of Agriculture, Ministry of Transportation, Ministry of Labour and Social Welfare and Ministry for Environment and Natural Resources. Mexico would be able to implement GHS guidelines through the modification and elaboration of specific technical regulations in the areas covered by the system. A special group under the coordination of the Economy Ministry had been created to coordinate GHS implementation. Some complications were foreseen, for instance, the elaboration process of technical regulations could be complicated by the lack of consensus or regulatory improvement principles.

The Philippines (Ms. Angellita Arcellana)

With reference to the 2002 World Summit on Sustainable Development, the Philippines pledged to implement GHS by 2008. It concluded the GAP Analyses were related to agriculture, consumers, transportation, and industrial sectors under UNITAR recommendations. The Comprehensibility Testing (CT) was being finalized, and in process were awareness training courses on GHS at local and national levels. Consultations with relevant sectors on legal implementation of GHS were ongoing, leading to the drafting of appropriate legislation. A draft policy guideline would be presented to the GHS TWG for comments and recommendations. Industry and civil society directed activities in the form of public awareness campaigns, such as seminars and workshops, and press releases were being undertaken by SPIK (Chemical industry Association), Trade Union Congress of the Philippines, Pesticide Action Network (Phils.) and Nationwide Association of Consumers, Inc., from March to October 2006. The Board of Investments (BOI) as the coordinating agency on GHS and the Environmental Management Bureau (EMB) was preparing the draft GHS legislation, with February to November 2006 planned as the timeline for development, as its format was still under discussion. With the conclusion of the GHS National Workshop and the National Consultation and Workshop for the Legal Implementation of GHS in May 2006, the GHS Committee was inclined to merely amend existing laws. Pending the enactment of the GHS Bill, there was a plan to develop a Joint Administrative Order for the national implementation of GHS and a national GHS standard. Three pilot factories were implementing GHS. Problems facing GHS implementation in the Philippines included the overlapping mandates across the four sectors affected by GHS; in the road transport sector, a lack of regulation issued by road agencies regarding the proper handling of dangerous goods; a lack of knowledge and resources of SMEs to comply with GHS; insufficient funds and knowledge of government staff on technical aspects of GHS implementation; and a lack of information and educational campaign materials.

Singapore (Ms. Lui Dan)

While not mentioning her transitional period, Singapore expressed her confidence and capability to implement GHS by 2007. The status of GHS implementation in Singapore included a review of Singapore Standard SS 286 on Specifications for Caution Labelling of Hazardous Substances and Dangerous Goods and the appointment of a task force from multi-agency government-industry collaboration. Relevant laws consisted of the Environmental Pollution Control Act and the Environmental Pollution (Hazardous Substances) Regulations, Workplace Safety and Health Bill, Control of Plants (Registration of Pesticides) Rules and MPA (Dangerous Goods, Petroleum and Explosives) Regulations, 1997. Relevant organizations consisted of the Ministry of Trade and Industry (MTI), National Environment Agency (NEA), Singapore Civil Defence Force (SCDF), Ministry of Manpower (MOM), Singapore Chemical Industry Council (SCIC) and SPRING.

Singapore is also conducting training and awareness seminars to help companies adapt to GHS standards, and was developing software for verifying the compliance of GHS safety data sheets. She is prepared to share this with other economies. Only few problems have arisen so far on GHS implementation, including a general lack of resources (especially among SMEs) and awareness of how to implement GHS.

Chinese Taipei (Dr. Jowitt Zheng Xian Li)

Chinese Taipei set up its target of GHS implementation by 2008. Relevant existing laws included Regulations of Hazard Communication on Dangerous and Harmful Materials (Hazard Communication Rule), Traffic Safety Rule Article 84, Environmental Agent Control Act, Toxic Chemical Substances Management Act, Fire Prevention Act, and Agro-pesticide Act and Commodity Labeling Law. Relevant government agencies include (for workplace) CLA (Council of Labor Affairs, Executive Yuan); (transportation) MOTC (Ministry of Transportation and Communication); (emergency response) EPA (Environmental Protection Administration) and NFA (National Fire Agency); (consumer products) MOEA (Ministry of Economic Affairs) and COA (Council of Agriculture, Executive Yuan); and (environmental agents/pesticides) EPA and COA. Forming a GHS inter-governmental working group, the government is conducting a three-year implementation plan for 2006-2008. New GHS National Standards (CNS) and the amended Hazard Communication Rule (workplace) based on GHS would come into effect by the end of 2006, with two years of transitional period. Obstacles included:

- The domestic regulatory reform and amendment procedures
- Hazard vs. risk applications of GHS in consumer products
- International harmonization in pesticide standards, that is, FAO, WHO, etc.
- International harmonization in toxic substances, including the Basel Convention and PIC
- International implementation schedules and transitional periods
- Testing capacity and classification database development
- Industry/public awareness
- Support and training resources.

Questions raised at the seminar had to do with the sharing of information through APEC CD on the progress of each economy and other countries on GHS implementation schedules, sharing of classification/labeling databases, GHS information portals, international transitional periods, and international joint efforts vs. reasonable burdens.

Thailand (Mr. Soodsakorn Putho)

Thailand planned for GHS implementation by 2008. The outcome of her situation and gap analysis and the steps necessary to become GHS-compliant were presented. The situation analysis covered hazard classification, hazard category, labeling and SDS. The speaker provided a summary list of Thai regulations to be issued or revised, including targeted actions for their amendment by the end of 2006, as well as GHS activities in Thailand during 2002 – 2004. To implement GHS, Thailand planned to use the building block approach (BBA) with phase-in strategies. In Phase One, the country planned to implement single substances with all physical hazards and some health and environmental hazards considered urgent and necessary (including acute toxicity, skin corrosion / irritation, serious eye damage / eye irritation, and carcinogenicity). In Phase Two, the country would implement the remaining health and environmental standards and introduce the implementation of hazards for mixtures. Thailand had already translated the Purple Book into Thai and begun trainers' training for various agencies. Public awareness activities on GHS were carried out. Translation into Thai of GHS signal words and all hazard statements with a view to including the labels used in the Kingdom had been completed. Several government agencies, as well as public and private organizations, were involved in the GHS implementation process.

Vietnam (Mrs. Pham Huong Giang)

Vietnam set the target for GHS implementation by the end of 2008, but no transitional period was given. Since 2003, Vietnam had been in close cooperation concerning GHS with Japan, with the Ministry of Industry serving as the national focal point in that country. Many organizations were involved in GHS implementation, including the Ministry of Industry (regulation in the Draft of Chemical Law), Ministry of Natural Resource and Environment, Ministry of Trade, Ministry of Transportation, Ministry of Science and Technology, Ministry of Health, Ministry of Agriculture and Rural Development, enterprises, institutes and universities. For GHS implementation, Vietnam was establishing a national committee and formulating action plans along with legislations & technical guidelines; translating the purple book into Vietnamese; undergoing capacity building in relevant agencies; providing training courses / seminars, awareness raising for enterprises, communities on hazard and toxic properties of chemicals for human health and environment through public communications / workshops. Some obstacles remained, including governmental agencies' limited capacity; lack of financial resources, experience, and human resources; insufficient and overlapping legislative framework; low public awareness and participation; and a need for technical assistance from UNITAR and APEC members for GHS implementation.

5. Session IV: Perspective of Agricultural Chemical Industry on Applicability of GHS

Ms. Christine Kelly, speaking on behalf of Crop Life Asia, provided a background to the use of agricultural chemicals by millions of farmers in APEC countries, saying that agricultural chemicals played a key role in sustainable agriculture through increased productivity, allowing more food production on less land. To illustrate, the world population was about 2 billion in 1960, about 6 billion in 2000 and estimated at about 7.5 billion in 2020. The food demand for feeding a hungry world had been increasing rapidly, resulting in the figure of population fed per hectare increasing from two persons in 1960, to four in 2000, and roughly to five in 2020. To improve the productivity and prevent, loss of yield from pests and diseases, there was still a need for chemicals. The safe use of chemicals was therefore crucial. Therefore, all the parties involved, namely industry (producers), users and regulators, were aware of this fact and ensured their safe and appropriate use, for which product labels were a primary means of communication. However, before achieving this, extensive research had been done to identify the hazards of the products, namely efficacy, safety to human beings (users, by-standers, food) and safety to the environment (soil, water, air). She elaborated on the steps in building a product label and SDS, namely data generation, data assessment, hazard classification, risk assessment and direction for use of SDS and label statements. Providing the definitions of hazards and risks from the point of view of the resulting toxicity, she pointed out that most countries had regulatory labeling guidelines but one key common denominator was that the label wording had to be consistent, clear and applicable to local use. To illustrate why there was a need for GHS, the speaker produced examples on existing labels with conflicting statements.

Also mentioned was the implication on the time and resources to classify and review items under GHS, potential for conflicting information, potential for confusion of the public/users, substantial costs to industry to reprint labels and safety data sheets. Finally, the recommendations focusing on agricultural products were given:

- Implementing only those aspects of GHS appropriate to agricultural chemicals
- Working with national pesticide authorities to ensure consistent messages
- Putting into context hazard-based classification based on risks from actual use
- Using sensible label instructions and non-conflicting statements
- Aligning with guidelines such as the FAO International Code of Conduct on the Distribution and Use of Pesticides (for instance, the use of pictograms)
- Using FAO specifications to determine the similarity of products before extrapolating classification criteria from one product to another
- Considering self-classification schemes
- Basing classification on sound science and rigorous evaluation of data
- Translating classification into clear label statements via specific guidelines
- Using test data in preference to extrapolation from other sources
- Respecting intellectual property rights of data submitters
- Allowing suitable time for implementation and smooth transition to minimize excessive costs
- Cooperating among countries to ensure consistency and facilitate trade

- Conducting suitable and timely communication and training needed for users and the public.

She concluded that GHS could be a positive step forward in the globalization of regulations but it must not undermine the extensive risk assessment process by which agricultural chemicals were already regulated. In addition, both hazards and risks needed to be evaluated and communicated clearly and appropriately to the user, without contradictions. Finally, governments were encouraged to work together to foster international harmonization.

After the presentation, extensive discussions were held among the participants and the speakers. The following examples were given.

- The update of the “*FAO Guidelines*” aligning with GHS was being made
- In case of faulty labels / classifications / information / SDS, suppliers were responsible for making the corrections, but this had rarely happened
- As regards the installation of control mechanisms to ensure correct classification of the chemicals, implementing countries needed to check before the products were distributed for sale
- BBA should be concluded by relevant international organizations, including WHO and FAO, before publicity was launched, so as not to confuse users
- Retailers were the key to giving suitable information to users; therefore, retailer training was critical.
- A recommendation was made for APEC CD “Friends of the Chair” to coordinate with specialized agencies, including FAO, WHO, and ILO in particular, for updated information on the amendments of their legal international instruments giving effect to GHS.

6. Session V: Framework and Information Network on GHS

Ms. Karon E. Armstrong, representative of American Chemistry Council (ACC) and 3M Company (USA), provided an orientation and outlook on GHS and compared the classification and labeling systems of different countries. With reference to APEC Chemical Dialogue (CD) 2006, APEC Economies agreed to:

- Accelerate the implementation of the agreed GHS guidelines on classification and labeling
- Recognize GHS as a vehicle to standardize the format and content of the ISO-based safety data sheet and APEC-wide education training for public and private sectors.

On the APEC CD resolution on the promotion of GHS, she, however, thought the APEC ministers at the beginning had set over-aggressive targets to implement GHS by 2006. However, one good point was that many capacity building - APEC workshops in Chinese Taipei, Kuala Lumpur, and Bangkok were conducted with excellent cooperation from UNITAR, Japan, and other agencies and countries as well as contributions from industry. She also pointed out that GHS was not going to solve all chemical management problems, for instance, GHS would not prevent false labeling or mislabeling; or prevent sale of counterfeit chemicals; or address conflicting CAS numbers; or enforce compliance; or attract people to carefully read labels; and was not intended to generate EHS data on chemicals.

She recommended steps to GHS implementation point by point, including creating awareness; obtaining commitments of relevant ministries and agencies; review of chemical laws; introducing and promoting GHS laws and guidelines; and enforcing new, amended laws. She showed analyses of existing regulations in particular countries, namely Chinese Taipei, Thailand, USA, Singapore, China, the Philippines, Korea and Malaysia. She also raised an issue for BBA with some questions and comments, for instance, ASEAN Guidelines for Classification and Labeling Proposal, harmonized BBA within APEC. Saying the regulations, laws and standards must be published before GHS implementation, she also mentioned government options on how to implement GHS. A comprehensive analysis of some APEC relevant economies, including New Zealand, Japan, Thailand, Malaysia, ASEAN, Korea, Mexico, USA and Australia was provided.

She confirmed that GHS would eventually benefit the private sector by saving labeling costs, in particular for multinational companies. She recommended steps of implementation for companies by gathering information; assigning responsibilities; conducting analysis; identifying tools and resources; finding data and filling gaps; classifying and labeling products; writing or updating SDS and monitoring GHS revisions. Besides GHS labeling, product packaging must be reviewed if the classification had changed. New packaging might be needed if hazard classification became more severe and would therefore affect the cost of packaging. Review of warehousing, insurance and other factors needed to be conducted. As regards the transportation issue, an APEC CD survey found that economies used versions 9-12 of the Orange Book whereas the latest version was number 14, which was in line with the new criteria of GHS and should be used. She stressed the need for training by way of US Department of Transportation regulations that had been implemented for over 50 years, and that active outreach contacts to explain to stakeholders on how to comply were still needed.

Raising an issue on what constituted implementation, the speaker suggested that economies with less detailed classification and labeling regulations should accept GHS labels and safety data sheets as meeting local requirements and develop future regulations as needed. She provided example transitional periods in the cases of EU

Dangerous Preparations Directive, US Department of Transportation, Malaysia and Japan, most of which were between 1.5 and five years. She also raised questions on sharing and cooperation, specifically:

- Which data should be used for classification?
- What if classifications are different for the same substances?
- What constitutes GHS implementation?
- Which building blocks should be adopted?
- What about non-GHS elements?
- Who is in charge?
- What works: internal harmonization, regional harmonization, transition?
- How should we treat inconsistencies, CBI, training?
- How can we prevent trade barriers?

An option was to use the APEC website as a clearing house among the economies and beyond. An opportunity is to establish the APEC Information Management Portal (AIMP). For GHS calendar tool and GHS Helpline, she recommended the UNITAR website. The American Chemistry Council (ACC) was preparing the GHS Awareness document for industry, with outlines similar to the Toxic Substances Control Act (TSCA) Awareness Manual. The speaker proposed ideas on several other issues, such as problems with classification in APEC, GHS translation tools, and special GHS cases relating to labeling for very small packages. Extensive discussions arose after the presentation, specifically that the sharing of information among APEC economies should be established with strong support from the members, and that the transitional period issue should be discussed and agreed in APEC CD.

Recommendations were made on establishing national websites on GHS implementation, mechanisms for CBI protection that did not compromise the safety of users, setting up a working group on labeling for very small packages, and harmonizing transitional periods.

7. Session VI: International Challenge: Experience among APEC (Government Sector)

Dr. Kim Headrick from Health Canada started her presentation on the Canadian GHS experience by touching on the objectives of the Canadian implementation, including maximum possible harmonization between the sectors as well as between the NAFTA countries. Canadian had conducted her situation analysis back in 2003, followed by a multi-stakeholder workshop in 2003. Harmonization between the sectors was ongoing. Technical consultations were almost complete and interim recommendations were being developed. Canada was planning to hold consultations on implementation phase-in options, consultations with trading partners, economic analyses, development of final recommendations, decision-making, drafting regulations and regulatory processes. More information was available at www.healthcanada.ca/ghs and www.santecanada.ca/sgh. For decision-making, Canada cooperated with the USA and Mexico on the NAFTA approach. Implementation decisions required amendments to regulations via normal regulatory processes (CPR, CCCR, Pest Control Products Regulations).

Dr. Hiroshi Jonai, Expert of UNSCGHS & Professor, Department of Medical Care and Welfare Engineering, Graduate School of Science and Technology, Nihon University, provided the GHS implementation experience in Japan by describing existing legislations for chemical control, hazard communication, and hazard classification. He provided several updates about the status of GHS implementation as follows:

- The GHS Committee with all concerned ministries was established in 2001
- Translation of GHS (first revision) from English into Japanese had been undertaken
- Seminars, workshops and PR activities on GHS had been conducted
- Relevant regulations were amended to align with GHS
- The guidelines for classification of chemicals were drafted, with 1,500 regulated substances classified by GHS criteria (about 938 substances done so far) and the results were available on the web of NITE (National Institute of Technology and Evaluation)
- New JIS (Japanese Industrial Standards) concerning GHS's SDS and labeling had been issued.

The speaker also provided information on the network for GHS implementation in Japan and recommended that training and education activities should be undertaken by all parties/sectors involved, including manufacturers, employers, workers, consumers, government, and other institutions or agencies. He discussed the workshop module for SDS by JISHA on GHS, including introduction, physical and health hazard classification. Guidelines to facilitate GHS implementation had been issued, such as (for classifiers) how to classify the regulated 1,500 substances and (for suppliers) how to make SDS for mixtures. Finally, he mentioned other tools for easing GHS implementation, for instance, software classification by METI, GHS implementation guidelines by UNITAR and GHS guidelines by ASEAN OSHNET.

Mr. Soodsakorn Putho, Specialist on the Treaties and International Cooperation, DIW, Ministry of Industry of Thailand, provided the ministry's view on the status of GHS and asked whether it was possible within the APEC economies to harmonize the BBA. Since many countries in the world would make a full implementation of GHS at the beginning of 2009 at the latest, he proposed that the transitional period should be between 2007 and 2008. He also said that differences in building blocks used and different paces of implementation in different economies should not pose barriers to trade during the transitional period, and that hazard communication tools for any

chemicals either under GHS or otherwise should be acceptable during the transitional period. As long as CBI was limited to mixtures or preparations, hazard communication of substances provided by manufacturers or suppliers should be public information. In principle, all countries should have one SDS and one label *n* language (standardized label element) for a single substance. He also touched on the situation and gap analysis conducted in Thailand under the assistance of UNITAR as well as the comprehensibility test of GHS symbols/pictograms, saying that if those symbols were not changeable, there would be no choice but to educate the target audiences by various means, including awareness-raising, training, seminars, meetings and PR publications. Discussions arose thereafter that one SDS for a given substance might not be appropriate for different producers, as a single substance might have different raw materials. Discussions were also made at the end of the session about the issuance of Thai regulations on GHS implementation which were still open for comments from relevant Thai companies. BBA, as explained by Dr. Kim Headrick, covered hazard classes and hazard categories, but the seminar might interpret it differently. However, it was agreed by a number of economies to implement GHS as soon as possible. The harmonization among APEC member economies of BBA and a transitional period during 2007-2008 were recommended.

8. Session VII: International Challenge: Experience among APEC (Private Sector)

Alluding to the APEC Chemical Dialogue Steering Group in Danang, on 9 September 2006, Mr. Chaveng Chao, Responsible Care Management Committee, Chemical Industry Club, Federation of Thai Industries (FTI), said industries wanted to see the government set up a target date of implementation so that the private sector could move forward. Those economies with early GHS implementation should take advantage of exporting to other economies by accelerating clearance at ports of entry. He, however, opposed full GHS implementation outright. Going by the European experience, much of the impact of GHS in connection with REACH would be on exporting countries. The public and private sectors affected by GHS should share responsibilities. Providing the viewpoint of the Thai chemical industry focusing on BBA, a transitional period and education of persons involved in the chemical life cycle, he hoped those economies that had agreed with the concept of earlier GHS implementation should start their implementation now.

Ms. Karon E. Armstrong supported early GHS implementation, but disagreed with the statement of 'one single substance, one SDS' because a given substance obtained from different producers could have different ingredients and impurities. She elaborated many factors influencing the industry on GHS implementation, including clear definitions and scopes of GHS, human expertise, CBI, compliance period and transition of existing products. She suggested the following steps for companies in implementing the GHS, namely:

- Gather Information
- Assign responsibilities
- Analyze
- Identify tools and resources
- Find data and fill gaps
- Classify and label products
- Write or update SDS
- Monitor GHS revisions.

In declaring the ingredients of chemicals, some flexibility should be exercised. For CBI, she said clear guidelines from the government should be made available. She also discussed special cases, including the labeling of small packaging, and voiced her concern on the resources available for changing the system to GHS in the next few years. Some differences on the labels among trading economies were likely to remain. She concluded by giving out copies of questionnaires from OSHA to the industry, which would prove useful for participants.

Presenting the JETRO/ AOTS Workshop on GHS between 2003 and 2007 provided to ASEAN countries (Thailand, the Philippines, Indonesia, Malaysia and Vietnam). Dr. Kozo Arai, Japan Chemical Industry Association (JCIA), explained the syllabus to participants of those countries. GHS training courses were outlined to four levels: GHS Basic/Intermediate training program for CLM (by AOTS), GHS Intermediate course (by JETRO/AOTS), GHS Advanced course (by JETRO/AOTS), and GHS Advanced training program for CLM (by AOTS). A provisional roadmap of GHS-related programs for ASEAN was presented, as well as examples on the exercise sheets on single substances and mixtures. Referring to activities carried out by the industrial sector in Japan, he illustrated four steps in the determination of risk-based labeling:

- Step 1: Exposure assessment
- Step 2: Determination of TDI (ADI)
- Step 3: Determination of the likelihood of injury
- Step 4: Determination of label information.

Further discussions arose at the seminar on an agreement to further forward the proposal on to the next meeting of APEC CD, particularly whether the early implementation of GHS Economies should get an incentive on import clearance at the ports of entry.

9. Seminar Conclusions and Recommendations

- 9.1 The participants gained overview knowledge and the work plan of future GHS chemical classification and its implementation, together with information about UNITAR's project on implementation and technical assistance on GHS. UNITAR also encouraged further cooperation with APEC in GHS capacity building and implementation. An exchange of information was made among APEC economies, particularly the status of GHS implementation to enhance implementation in their respective economies. It appeared that more advanced economies were willing to share the information and knowledge with others. This information included the already GHS-classified substances of Japan, the software for verifying compliance with GHS-SDS from Singapore, ASEAN-OSHNET Guidelines for Classification and Labeling in workplaces, the updated FAO Guidelines with GHS compliance and further conclusion on BBA to be made by international organizations like WHO and FAO to avoid users' confusion.
- 9.2 By the time the seminar was organized in September 2006, it was obvious to all participants that most APEC economies would miss the target of GHS implementation by 2006. It seemed that many would also miss the global target of having GHS fully operational by 2008, as set by WSSD and ECOSOC, unless additional efforts were made to accelerate the process in APEC. It was therefore recommended that APEC CD should consider ways, including capacity building, to accelerate GHS implementation extensively during 2007-2008. To this end, it was recommended that APEC CD "Friends of the Chair" follow up the GHS implementation in all APEC member economies during 2007-2008 and regularly report to APEC CD together with recommendations, keeping in mind that by 2008 the GHS would be fully operational worldwide.
- 9.3 While relevant specialized agencies were promoting GHS implementation, their legal international instruments addressing transportation safety, work safety, consumer protection or the protection of the environment were being amended to give effect to GHS. It was recommended that APEC CD "Friends of the Chair" should coordinate with those agencies, in particular ILO, FAO and WHO, to update APEC members on those amendments.
- 9.4 For effective implementation of GHS in APEC member economies, it was recommended that the implementation should be gradually carried out with full cooperation between public and private sectors. Special training for different target audiences and all stakeholders in both sectors, as well as the preparation of manuals for GHS implementation, was essential for the success of GHS implementation.
- 9.5 To facilitate a smooth transition to the new GHS system and to have it fully operational by 2008, it was recommended that earlier GHS implementation should not face any barrier to trade. Instead, a dual system (GHS and Non-GHS) should be acceptable during the transitional period. This issue, together with the issue of incentives for earlier implementation, should be ruled by APEC CD SG.
- 9.6 As for the transitional period by certain economies, this should be implemented as soon as possible. A range of 1.5 to five years was found in certain economies and countries. The authorities should select the issues to be implemented, and a recommendation for the harmonization of BBA and the transitional periods was made for APEC CD's consideration. It was also recommended that the transitional period during which a dual system (GHS and Non-GHS) was acceptable in APEC economies should be between 2007 and 2008. From industry's point of view, they would like to implement GHS as soon as possible because it would facilitate international trade and cost saving on re-labeling.
- 9.7 In support of the APEC Collaboration System, and to facilitate trade on chemicals and chemical products, it was recommended that all APEC member economies

establish a website on GHS implementation in their respective economies. The website, bilingual between English and the national language, would not only facilitate an exchange of information with other members but benefit local suppliers and all stakeholders as well. The website content should include, inter alia, data or information used for classification under GHS, translation of GHS elements into their national languages and national regulations related to GHS implementation.

- 9.8 While labeling and statements for very small packages were regarded as GHS special cases, and while some APEC member economies already had provisions for special situations in their regulations, it was agreed that there was an opportunity for standardization under GHS. It was also recommended that APEC CD should set up a working group to look into this issue from APEC's perspective.
- 9.9 In designing hazard communication tools, it was agreed that the protection of CBI was needed, providing that such protection did not compromise the health and safety of workers or consumers or the protection of the environment. It was also agreed that, on the issue of CBI, clear guidelines from the government should be made available. In addressing the CBI issue, which would apply to both locally manufactured products and imported products, it was recommended that each APEC member economy should establish appropriate mechanisms through national laws and regulations, taking into account the suggestions and general principles outlined in the Purple Book.
- 9.10 As regards GHS implementation, the progress made so far in Japan was commendable. Besides, the methods used and steps taken by Japan were considered the best practice available from which other APEC economies could learn and apply. Japan and other major exporters of chemicals should therefore play a leading role should there be a consideration of the GHS implementation acceleration process by APEC CD.
- 9.11 Based on the case of Japan, the success factors for GHS implementation were as follows: (1) the determination of the government, (2) full cooperation between public and private sectors, (3) effective laws and regulations, including related standards and codes of practice, (4) definite plan of implementation, (5) training-the-trainers and special training for target audiences, both pre-GHS and post-GHS, (6) cooperative networks for GHS implementation at national, sub-regional, and regional levels, (7) translation of GHS into the national language, (8) preparation of manuals for GHS implementation in the national language, and (9) information and databases available for classification under GHS.

As mandated by the Chemical Dialogue Steering Group–Industry (CDSG–Industry) meeting, a proposal to provide incentives for early implementation of GHS among member economies was discussed in Session VII (private-sector panel discussion). Participants had no objections to the proposal that GHS–compliant labeling and SDS would be accepted by importing economies where GHS had not yet been implemented, at least to the warehouse of importers for additional labeling or re-labeling under existing regulations. However, comments were made on the assessment of potential implications, and Canadian delegates needed to confirm agreement with its government. Others agreed to persuade their national authorities to support this proposal when it was recommended to the next meetings of Chemical Dialogue (CD) and Ministers Related to Trade (MRT). This issue should be first ruled by APEC CD SG.

ANNEX

Annex 1: Seminar Program

Day 1 (20th September 06)

08:30-09:30	Registration
09.30-09.45	Opening Ceremony (By Ministry of Industry)
09.45-10.45	SESSION I : GHS Review and Future Plan of UNSCE- GHS by Dr. Kim Headrick Open Discussion
10.45-11.15	Coffee / Tea Break
11.15-12.30	SESSION II : GHS Implementation by UNITAR Open Discussion
12.30-14.00	Lunch Break
14.00-15.30	SESSION III : GHS Implementation of APEC regional countries By APEC regional countries Open Discussion
15.30-16.00	Coffee / Tea Break
16.00-17.30	SESSION III : GHS Implementation of APEC regional countries (cont) By APEC regional countries Open Discussion
	Closing Seminar of Day 1

Day 2 (21st September 06)

08:30-09:30	Registration
09.30-11.00	SESSION IV : Perspectives of Agricultural Chemical Industry on Applicability of GHS By Ms. Christine Kelly Open Discussion
11.00-11.30	Coffee / Tea Break
11.30-12.30	SESSION V : Framework and Information Network on GHS By Dr. Karon Amstrong Open Discussion
12.30-14.00	Lunch Break
14.00-15.30	SESSION VI : International Challenge Experience among APEC Panel Discussion By Mr. Hiroshi JONAI, Dr. Kim Headrick and Mr. Soodsakorn Putho

- 15.30-16.00 Coffee / Tea Break
- 16.00-17.30 SESSION VI : International Challenge Experience among APEC (cont.)
Panel Discussion By Mr. Kozo ARAI , Ms. Karon E. Armstrong and Mr. Chaveng Chao
- Closing Seminar of Day 2

Day 3 (22nd September 06)

Study Tour

- 07:00-07:15 Depart from Hotel
- 10.00-11.15 Arrive at Clariant Chemical Ltd., (Bangpoo Factory) / Overview and presentation of chemical safety management of Clariant Plant (Break-in)
- 11.15-12.30 Plant tour
- 12.30-12.45 Arrive at Bangpoo golf club and restaurant
- 12.45-13.30 Lunch time
- 13.30-14.00 Arrive at Bangpoo Ancient City
- 14.00-17.00 Visit Bangpoo Ancient City
- 17.00-18.30 Arrive at the hotel

Annex 2: List of Participants

1. APEC Economy Representatives

Ms. Daniela Montanola

Advisor
Foreign Trade Department
Ministry of Economy
Address: Teatinos 120, 11th Floor of 20
Santiago- Chile
Tel. (56-2) 4733446
Fax (56-2) 4733427
E-mail: dmontanola@economia.cl

Mrs. Ingrid Soto

Assistant Manager
Department Work Condition
Ministry of Labour
Address: Agustinas 1253, 5th Floor of
501 Santiago- Chile
Tel. (56-2) 6749340
Fax (56-2) 6749311
E-mail: isotoa@dt.gob.cl

Mr. Tsai, Tzung-Husn

Associate Specialist
Department of Labor Safety and Health
Council of Labor Affairs
Address: 7F, NO.83, SEC.2, Yanping
N.RD., Dataong District, Taipei City
Taiwan ROC
Tel. 886-2-8590 2777
Fax 886-2-8590-2779
E-mail: tzshstai@mail.cla.gov.tw

Dr. Jowitt Li

Researcher
Industrial Technology Research Institute
(ITRI)
Address: No. 8 Gongyan Rd.
LiuJia, Tainan County
Taiwan
Tel. +886-6-6939050
Fax +886-6-6939060
E-mail: joli@itri.org.tw

Mr. Leung Hung-fei

Senior Occupational Safety Officer
Labour Department
Government of the Hong Kong Special
Administrative Region
Address: City Landmark I, 13/F, 68
Chung On Street, Tsuen Wan,
Hong Kong
Tel. (852) 2940 7053
Fax (852) 2940 6251
E-mail: ssd-oshtc@labour.gov.hk

Mr. Au-Yeung Chi Yuen

Senior Chemist
Labour Department
Government of the Hong Kong Special
Administrative Region
Address: City Landmark I, 13/F, 68
Chung On Street, Tsuen Wan,
Hong Kong
Tel. (852) 2940 7053
Fax (852) 2940 6251
E-mail: ssd-oshtc@labour.gov.hk

Mr. Wong Ka-wing

Senior Station Officer
Hong Kong Fire Services Department
Address: 5/F, Fire Services Headquarters
Building, 1 Hong Chong Road Road, Tsim
Sha Tsui East, Kowloon,
Hong Kong
Tel. 2733 7590
Fax 2723 2197
E-mail: kw_wong@hkfsd.gov.hk

Mr. Leung Kwun-hong

Divisional Officer
Hong Kong Fire Services Department
Address: 5/F, Fire Services Headquarters
Building, 1 Hong Chong Road Road, Tsim
Sha Tsui East, Kowloon,
Hong Kong
Tel. 2733 7596
Fax 2723 2197
E-mail: leungkn@hkfsd.gov.hk

Ms. Tsugiko Kato
Chief
Ministry of Economy, Trade and Industry
Address: 1-3-1, Kasumigaseki
Chiyoda-ku Tokyo 100-8901
Tel. +81-3-3501-0080
Fax +81-3-3580-6347
E-mail: kato-niko@meti.go.jp

Mr. Joseph Doraisamy
CICM Regulatory Affairs and Trade
Advisor
Chemical Industries Council of Malaysia
Address: Wisma FMM, No. 3, Persiaran
Dagang, PJU 9,
Bandar Sri Damansara, 52200 Kuala
Lumpur, Malaysia
Tel. 603-6276 1211
Fax 603-6277 6714
E-mail: pek_wan@fmm.org.my

Ms. Angelita F. Arcellana
Chief Investments Specialist
Board of Investments
Address: 385 Gil Puyat Ave.
Makati City 1200,
Philippines
Tel. +632-896-8453
Fax +632-899-8893
E-mail: AFArcellana@boi.gov.ph

Mrs. Shaliza Tay Abdullah
Principal Assistant Director
Ministry of International Trade and Industry
Address: Block 10, Government Office
Complex Jalan Duta 50622 Kuala Lumpur
Malaysia
Tel. 03-62034745
Fax 03-62012573
E-mail: shaliza@miti.gov.my

Ms. Virginia Guerrero
Deputy Director for WTO and FTAs
General Bureau on Standards
Ministry of Economy
Address: Puente de Tecamachalco #6,
Col Lomas de Tecamachalco, Sección
Fuentes, Naucalpan, Estado de México
Mexico CP 53950
Tel. 52 (55) 57299300
Fax 52 (55) 55209715
E-mail: normasomc@economia.gob.mx

Mrs. Teresita Pamela Liao
Senior Environmental Management
Specialist
Environmental Management Bureau
Address: EMB Bldg., DENR Compound,
Visayas Ave., Quezon City 1116,
Philippines
Tel. 0632.920.2263
Fax 0632.928.1212 /0632.920.2263
E-mail: tpliao@asean-mail.com

Ms. Mary Elizabeth Chelliah
Deputy Director
Ministry of Trade and Industry
Address: 100 High Street
The Treasury #09-01
Singapore 179434
Tel. 65 6332 5748
Fax 65 6 334 5848
E-mail: mary_elizabeth@mti.gov.sg

Mrs. Pham Hoal Linh
Official
Ministry of Industry
Address: 54, Hai Ba Trung Str, Hoan
Kiem Dis, Ha Noi, Viet Nam
Tel. + 84. 4. 8 246762
Fax + 84. 4. 8 246762
E-mail: linhphh@moi.gov.vn

Ms. Dan Liu
Product Stewardship & Regulatory Affairs
Advisor
ExxonMobil Chemical Asia Pacific
Address: 1 HarbourFront Place
#06-00 HarbourFront Tower One
Singapore 098633
Tel. 65 - 6885 8400
Fax 65 - 6885 8383
E-mail: dan.liu@exxonmobil.com

Mrs. Pham Huong Giang
Chemical expert
Ministry of Industry
Address: 54 Hai Ba Trung street –
Hanoi - Vietnam
Tel. 84.04.8253386
Fax 84.04.9349300
E-mail: giangph@moi.gov.vn

2. Participants from Thailand

Dr. George Fuller

Executive Director

CropLife Asia

Address: 25 th floor, Rasa Tower, 555 Pahonyothin Road, Jatuchak, Bangkok 10900 Thailand

Tel. 662 937 0487

Fax 662 937 0491

E-mail: fuller@croplifeasia.org

Dr. Felix Meier-Manz

Section Leader Regulatory Support

Syngenta Crop Protection AG

Address: WRO – 1093.3.17

Schwarzwaldallee 215 4058 Basel Switzerland

Tel. +41 61 323 2721

Fax +41 61 323 4966

E-mail: felix.meier-manz@syngenta.com

Mr. Michael Battalora

Toxicologist

DuPont Crop Protection

Address: Stine-Haskell Research Center 1090 Elkton Road Newarh, Delaware 19711 USA

Tel. +1 302 366 5929

Fax +1 302 355 2834

E-mail: michael.battalora@usa.dupont.com

Mr. Nik Abdul Razak

Asean Regulatory Specialist

Dow AgroSciences Asis Sdn Bhd

Address: Level 6, CP Tower, Jalan 16/11, Pusat Dagang Section 16 46350 Petaling Jaya, Selangor DE, Malaysia

Tel. 603 79694309

Fax 603 79556292

E-mail: nyarazak@dow.com

Dr. Bernhard Johnen

Manager

International Regulatory Policy

CropLife International

Address: 143 AV. Louise 1050 Brussels Belgium

Tel. +32 2 542 0410

Fax +32 2 542 0419

E-mail: bernhard@croplife.org

Mr. Phill Todd

HSE Classification Adviser

Syngenta

Address: Schwarzwaldallee 215 Postfach Basel CH-4002 Swtzerland

Tel. +41 61 323 5102

Fax +41 61 323 2212

E-mail: Phil.todd@syngenta.com

Dr. Jack Richardson

Executive Director

Agcarm Inc

Address: PO Box 5069 Wellington New Zealand

Tel. 644 499 4225

Fax 644 499 4223

E-mail: jack@agcarm.co.nz

Mr. Vinod Kumar

Asia Pacific Technology Manager

E.I.DuPont India Pvl.Ltd.

Address: 7 th Floor, Tower C. DLF Cyber Greens, Sector – 25A, DLG City, Phase-III, Gurgaon – 122 002 India

Tel. +91 124 4095061/9810096560

Fax +91 124 2540890

E-mail: Vinod.2.kumar@nid.dupont.com

Mr. Edward Medalla

Regulatory Affairs Manager, Asia Pacific BASF

Address: BASF South East Asia Pte Ltd

7 Temasek Boulevard #35-01 Suntec Tower One Singapore

Tel. +65 6432 3401

Fax +65 6432 3574

E-mail: Edward.medalla@basf.com

Ms. Lichelle Carlos

Communications Manager

CropLife Asia

Address: 2 th Floor, Rasa Tower, 555 pahonyothin Road, Jatuchak, Bangkok 10900 Thailand

Tel. 66 2 937 0487

Fax 66 2 937 0491

E-mail: lichelle@croplifeasia.org

Mr. Jirachai Moonthongroy
Investigation Officer
Office of the Consumer Protection Board
Address: Office of the Consumer
Protection Board, 20 Building,
Government House, Dusit Bangkok 10300
Thailand
Tel. 66 2 629 7048
Fax 66 2 629 7051
E-mail: -

Mrs. Supanon Sirichuaychoo
Department of Agriculture
Pesticide Regulatory Subdivision, Officer
of Agricultural Regulation
Tel. 66 2 579 7986
Fax 66 2 579 7988
E-mail:-

Mr. Niwaat Pandhunuratana
Department of Energy Business
Address: 222 Thanserthakit Building, 10
th Floor, Vipavadee Rangsit Road, Jatujak,
Bangkok 10900 Thailand
Tel. 66 2 590 7289
Fax 66 2 590 7287
E-mail: niwaat@doeb.go.th

Mr. Ricky Ho Ki Leung
Regulatory Affairs Manager
Region Asia Pacific
Bayer CropScience OHQ (Malaysia) Sdn.Bhd.
Address: 12 th Floor, Wisma Damansara,
Jalan Semantan 50490 Kuala Lumpur
Malaysia
Tel. 6 03 2723 0876
Fax 6 03 2094 4062
E-mail: ricky.ho@bayercropscience.com

Mr. Somsak Triamjangarun
Counsellor
Department of International Organization
Ministry of Foreign Affairs
Address: 443 Sri Ayudhya Road,
Bangkok 10400 Thailand
Tel. 66 2 643 5078
Fax 66 2 643 5080
E-mail: somsaktr@mfa.go.th

Cononel Srisupachai
Attached to Defence Industrial
Department
Defence Industry and Energy Center
Tel. 66 2 241 4049
Fax 66 2 242 4398
E-mail: -

Ms. Jirapan Thongyord
Department of Agriculture
Officer of Agricultural Regulation
Address: 50 Phahonyothin Road Jatujak
Bangkok 10900 Thailand
Tel. 66 2 579 3577 Ext. 1201
Fax 66 2 561 4695
E-mail: jirapan@doa.go.th

Ms. Suwapee Patarawimol
Department of Agriculture
Officer of Agricultural Regulation
Address: 50 Phahonyothin Road Jatujak
Bangkok 10900 Thailand
Tel. 66 2 579 7986
Fax 66 2 579 7988
E-mail: -

Mrs. Mukda Uttarapong
Senior Fisheries Biologist
Department of Fisheries
Address: Kasetklang, Chatuchak,
Bangkok 10900 Thailand
Tel. 66 2 562 0600
Fax 66 2 940 6203
E-mail: mukda@fisheries.go.th

Mr. Narin Boonprom
Department of Labour Protection and
Welfare
Tel. 66 2 448 9128 Ext. 513
Fax 66 2 448 9153
E-mail: -

Mr. Somchai Preechathaveekit

Food and Drug Administration, Ministry of
Public Health

Address: Tivanont Road, Nontaburi
11000 Thailand

Tel. 66 2 590 7300

Fax 66 2 2591 8483

E-mail: psomchai@health.moph.go.th

Ms. Aurus Kongphanich

Food and Drug Administration, Ministry of
Public Health

Address: Tivanont Road, Nontaburi
11000 Thailand

Tel. 66 2 590 7289

Fax 66 2 590 7287

E-mail: aurus@fda.moph.go.th

Mr. Teerasak Pongpanakrai

HASLA

Address: 189/6 Industry Development
Bureau, Soi Saremitr, Rama 4 Road,
Klongteuy, Bangkok 10110 Thailand

Tel. 66 2 712 4226

Fax 66 2 712 4227

E-mail: teerasak_st@hotmail.com

Mrs. Kanokkarn Suksuntichai

National Institute for the Improvement of
Working Conditions and Environment

Tel. 66 2 448 8338 ext. 505

Fax 66 2 448 9171

E-mail: ksuksuntichai@gmail.com

Mrs. Sumalee Chanacharmongkol

National Institute for the Improvement of
Working Conditions and Environment

Tel. 66 2 448 8338 ext. 204

Fax 66 2 448 9171

E-mail: sumaleechana@gmail.com

Dr. Songsak Srianujana

Address: 15 th Floor, Mahanakornyipsum
Building, Sriyuthaya, Rachathevee,
Bangkok 10400 Thailand

Tel. 66 88 1343 3580

Fax 66 2 640 0465

E-mail: rassn@mahidol.ac.th

Mr. Sarisak Soontornchai

Sukothai Thammathirat University

Tel. 66 81 810 5394

Fax -

E-mail: hsd.sosar@yahoo.com

Mr. Banyong Matcum

Advance Service (Thailand) Ltd.

Tel. 66 87 022 2593

Fax 66 2 769 8287

E-mail: -

Mr. John Ralph

Sherwood Chemicals Public Co., LTD.

Address: 1061-9 Srinakarin rd.,
Suanluang, Bangkok 10250, Thailand

Tel. 66 2 320 2288

Fax 66 2 320 2670

E-mail: jralph@sherwood.co.th

Ms. Sujitra Jarumaneeroj

Ecolab LTD., 15th Floor, President Tower.

Address: 971,973 Ploenchit Rd., Lumpini,
Pathumwan, Bangkok 10330, Thailand

Tel. 66 2 656 0022

Fax 66 2 656 0033

E-mail: sujitra.jarumaneeroj@ecolab.com

Mr. Wipob Un-Ok

Bayer Thai co., LTD.

Address: 130/1 North Sathon Rd., Silom,
Bangrak Bangkok 10500 Thailand

Tel. 66 2 232 7123-9

Fax 66 2 235 4169

E-mail: wipob.un-ok@bayerhealthcare.com

Ms. Vanida Angsuphan

Ladda Co., Ltd.

Address: 99/220 Tessabansongksoh
Road, Ladyao, Jatujak, Bangkok 10900
Thailand

Tel. 66 2 954 3120-6

Fax 66 2 954 3128

E-mail: vanida@ladda.com

Mr. Sujin Chantarasa-ard

Ladda Co.,Ltd.

Address: 99/220 Tessabansongksorh Road, Ladyao, Jatujak, Bangkok 10900 Thailand

Tel. 66 2 954 3120-6

Fax 66 2 954 3128

E-mail: sujin@ladda.com

Mrs. Pinrat Jongkol

Ladda Co.,Ltd.

Address: 99/220 Tessabansongksorh Road, Ladyao, Jatujak, Bangkok 10900 Thailand

Tel. 66 2 954 3120-6

Fax 66 2 954 3128

E-mail: pinrat@ladda.com

Ms. Sudsawart Chiruppapa

AG-GRO (THAILAND) Co.,Ltd.

Address: 2922/2680 22 Fl. Chan-Itsara Tower2 Bldg., New Petchaburi Rd., Bangkapi, Huaykwang, Bangkok Thailand

Tel. 66 2 308 2102

Fax 66 2 308 2487

E-mail: sudsawart@aggrogroups.com

Mr. Ariyant Limmanee

Zagro (Thailand) Co.,Ltd.

Address: 12 Fl. Pleonchit center bldg., 2 Sukumvit rd., Klongtoei, Bangkok Thailand

Tel. 66 2 656 8710

Fax 66 2 656 8758-9

E-mail: ariyant@zagro.com

Mr. Prasert Chaengkittichai

Rothai Co.,Ltd.

Address: 537/246 Sathupradit 37 rd., Chongnonsee, Yannawa, Bangkok

Tel. 66 2 294 9078-81

Fax 66 2 294 9082

E-mail: rothai@loxinfo.co.th

Ms. Piyatida Suwankaewmanee

Rothai Co.,Ltd.

Address: 537/246 Sathupradit 37 rd., Chongnonsee, Yannawa, Bangkok Thailand

Tel. 66 2 294 9078-81

Fax 66 2 294 9082

E-mail: rothai@loxinfo.co.th

Thai Crop Protection Association

Mr. Wanchai Toviriyavate

Mr. Lertwit Sasipreyajun

Mr. Athisak Kliangpradit

Mr. Prapoj Wuttigornwipark

Ms. Nongnuch Yokyongsakul

Mr. Phibun Maneepakorn

Mr. Sayan Sawangduan

Tel. 66 2 937 0487

Fax 66 2 937 1318

E-mail: tcpa@trueclick.net

Department of Industrial Works**Ministry of Industry**

Mr. Kosol Jairungsee

Mr. Soodsakorn Putho

Ms. Srichant Uthayapas

Ms. Suporn Sakornarun

Ms. Rattana Ruktrakul

Ms. Aitsaraphorn Vijitjunyakool

Mr. Panya Srisuphan

Ms. Payouw Kummook

Ms. Tippawan Arunrungsivech

Ms. Jittima Laohapojanat

Ms. Thanatorn Yoadsomsuay

Ms. Nongkran Sudjaritkittikul

Ms. Piyanan Sunguanphao

Mr. Bhanarin Kuncheay

Ms. Piyaporn Thencharoen

Ms. Krittiya Meanjai

Mr. Rintawat Sombutsiri

Ms. Pattamawan Khunprasert

Ms. Panthong Srikattanaprom

Address: 75/6 Rama VI Road, Rajathevee, Bangkok 10400 Thailand

Tel. 66 2 202 4248

66 2 202 4202

Fax. 66 2 354 3223

3. Industries Name list

Mr. Prakit Hanidhikul

Clariant Chemical (Thailand) Ltd.

Tel. 66 2 661 5360

Fax -

E-mail: -

Ms. Supak Phupoommirat

Clariant Chemical (Thailand) Ltd.

Tel. 66 2 709 3131

Fax -

E-mail: -

Ms. Petcharat Eksangkul

Chemical Club

The Federation of Thai Industries

Tel. 0 2579 0501

Fax 0 2941 6930

E-mail: petcharat@easonpaint.co.th

**Mr. Phoomphron Isarankura Na
Ayuthaya**

Chemical Club

The Federation of Thai Industries

Tel. -

Fax -

E-mail: -

Mr. Pongnarin Petchu

Deutsche Gesellschaft fuer Technische
Zusammenarbeit-GTZ

Tel.

Fax -

E-mail: -

Mr. Mahabir Koder

The Federation of Thai Industries

Tel. 0 2345 1177

Fax 0 2345 1281

E-mail: -

Mrs. Yuwadee Chompitak

Eastern Industrial Health Center

Address: 18 Muang Mai Map Ta Phut 6
Road, Houypong, Muang, Rayong 21150

Tel. 0 3868 4955

Fax 0 3868 4201

E-mail: yuwadeechom@yahoo.com

Ms. Chanpen Kanjanaprapan

BASF (Thai) Ltd.

Tel. -

Fax -

Ms. Jarurat Chaiyosburana

Beger Co.,LTD,

Address: 169 Soi Sor Thaisaree 2,
Suksawad Rd., Phasamutjadee,
Samutphakarn 10290, Thailand

Tel. 0 2425 0421-5

Fax 0 2425 8483

E-mail: [E-mail: jarurat@beger.co.th](mailto:jarurat@beger.co.th)

Mr. Yuttana Ruangsantiyodhin

DKSH (Thailand) Co.,Ltd.

Tel. -

Fax -

E-mail: -

Mr. Prateep Pavavongsak

HASLA

Tel. -

Fax -

E-mail: -

Mr. Chalernsak Karnchanawarin

Hazchem Logistics Management Co.,Ltd.

Address: 7 th Floor, Hung Senghuad
Building, 191/1 Rama 3 Road,
Bangkorlaem, Bangkok 10120

Tel. 0 2689 0777

Fax 0 2689 0128

E-mail: toon@hazchemlogistics.com

Ms. Narumol Charasrak

I.C.I Paint (Thailand) Co.,Ltd.

Tel. -

Fax

E-mail: -

Ms. Wilaiwan Mitrpanon

Eason Paint Product Co., Ltd.

Tel. 0 2579 0501

Fax 0 2941 6930

E-mail: wilaiwan@easonpaint.co.th

Mr. Suchart Teinpothong
Krado International Co.,Ltd.
Tel. -
Fax -
E-mail: -

Mr. Prasert Tham
Sutee Tankers
Tel. 0 2751 0900
Fax 0 2751 0909
E-mail: prasert@suteegroup.com

Mr. Somboon Roongrittikrai
Microtone (Thailand) Co.,Ltd.
Tel. 0 2754 4451-4
Fax 0 2754 4450
E-mail: somboon@mirotone.co.th

Mr. Somchai Torpol
Cryeng (Thailand) Co.,Ltd.
Address: 76/26 soi lauagsoun Plernchit
Rd. Lumpini Patumwan Bangkok
Tel. -
Fax -
E-mail: -

Mr. Sayan Mandee
Thai Kansaipaint Co.,Ltd.
Address: 180 Moo3, Theparak Road,
Muang, Samutprakarn 10270
Tel. 0 2753 2377
Fax -
E-mail: -

Ms. Tharika Yamsiri
Sutee Tankers
Tel. 0 2751 0900
Fax 0 2751 0909
E-mail: tharika@suteegroup.com

Ms. Isaiya Damrongkiatsakul
The Shell Company of Thailand Limited
Tel. -
Fax -
E-mail: -

Mr. Sukhumal Chavanathit
Sutee Tankers
Tel. 0 2751 0900
Fax 0 2751 0909
E-mail: sukhumal@suteegroup.com

Mr. Bancha Techasakul
Chemical Business Association
Tel. 0 2743 3898
Fax 0 2743 3899
E-mail: bancha@cba.or.th

Mr. Sakol Chaokasen
Sutee Tankers and Special trucks
Tel. 0 2751 0900
Fax 0 2751 0909
E-mail: sakol_sh@suteegroup.com

Mr. Sumon Traisanapong
Modern Drystuffs and Pigment Co.,th.
Tel. 0 2559 0072-4 # 206
Fax 0 2559 0072-4 # 302
E-mail: sumon@maxdevelop.com

Ms. Onuma Wongsuwan
Sutee Tankers
Tel. 0 2751 0900
Fax 0 2751 0909
E-mail: -

Mr. Malcolom de Silva
Cryeng (Thailand) Co.,Ltd.
Address: 76/26 soi lauagsoun Plernchit
Rd. Lumpini Patumwan Bangkok
Tel. 0 2750 5200
Fax 0 2750 5201
E-mail: malcolm@cryengthailand.co.th

Mr. Krittapat Chuitai
HASLA, Thailand
Tel. 0 6320 6942
Fax 0 3442 5373
E-mail: krit_thathaiaid@yahoo.com

Annex 3: Opening Speeches

Report
By
Mrs. Srichant Utthayopas
Director of Hazardous Substance Control Bureau

At the APEC Seminar
on
Globally Harmonized System (GHS) Implementation and Technical Assistance

20-22 September 2006,
At Novotel Hotel, Bangkok, Thailand

Deputy Director General, Mr. Kosol Jairungsri

On behalf of the organizer, I would like to express our sincere thanks to Your Excellency to preside over the opening ceremony of the APEC Seminar on Globally Harmonized System (GHS) Implementation and Technical Assistance this morning.

This seminar is a part of APEC activities to assist and cooperate with its members for the success of GHS Implementation in APEC economies. The seminar is held during 20-22 September 2006 and will focus on the following key objectives :

1. To evaluate the effective programs on hazard communication currently implemented in the APEC member economies,
2. To share the methodology or process of and document the best practices in situation analysis for GHS implementation at national level, and
3. To accelerate the process of GHS implementation within APEC region with a view to facilitating trade on chemicals.

There are 140 participants from 12 APEC member economies attending the GHS Seminar to share their experience and set up the network of cooperation for the effective GHS implementation in APEC region, which is accounting for 60% of world GDP and about 47% of world trade.

The organizer has received very kind contributions from the outstanding speakers who are very keen on the subject of GHS, for example

- Ms. Kim Headrick from Health Canada who is now chairing the United Nations Sub-Committee of Experts on GHS-the custodian of GHS,
- Ms. Karon E. Armstrong from 3M Company USA who is also representing the American Chemical Council,
- Professor Hiroshi Jonai from Nihon University who is a member of the GHS inter-ministerial committee of Japan,
- Mr. Kozo Arai from Japan Chemical Industry Association,
- Ms. Christine Kelly from CropLife Asia who is dealing with agricultural chemicals,

and

- Mr. Van der Kolk and Ms. Cheryl Chang from the United Nations Institute for Training and Research (UNITAR) which has contributed a great deal on capacity building in the field of GHS in many countries of this region. At this special occasion, May I invite the Deputy Director General, Department of Industrial Works, Ministry of Industry, Mr. Kosol Jairungsee deliver the opening address to the seminar.

Opening Address by Mr. Kosol Jairungsee
Deputy Director-General, Department of Industrial Works

At the APEC Seminar
on
Globally Harmonized System (GHS) Implementation and Technical Assistance

20-22 September 2006,
At Novotel Hotel, Siam Square, Bangkok, Thailand

Distinguished Speakers and Participants from APEC Member Economies,
Distinguished Guests,
Ladies and Gentlemen,

First of all, let me extend on behalf of the Royal Thai Government and the people of Thailand our warmest welcome to all speakers and participants to the APEC Seminar on Globally Harmonized System (GHS) Implementation and Technical Assistance in Bangkok.

Meanwhile, I would like to express my appreciation to the APEC Chemical Dialogue and APEC Secretariat for their excellent guidance and supports regarding the project preparation until this seminar project has been approved by the Budget Management Committee, and endorsed accordingly by the APEC Ministerial Meeting in November last year.

Chemicals have provided enormous benefits to the world community and are an essential part of our daily life, but there has been growing international concerns about their adverse effects on health and the environment. This necessitates the development of chemical management and safety program by a number of international organizations and governments. Today we have the Chapter 19 of Agenda 21 , Environmentally Sound Management of Toxic Chemicals as the world chemicals master plan.

Within this global master plan, the Globally Harmonized System of Classification and Labeling of Chemicals or "GHS" has been developed since 1992. Its technical work was completed in the year 2001 and the United Nations Economic and Social Council has endorsed it as a purple book in the year 2003. Experts from ILO, OECD, UNCETDG and IOMC spent more than a decade to complete the difficult task in bringing out the GHS. It is now the time to make the GHS fully operational by the year 2008 in accordance with the time-bound target as set by the World Summit on Sustainable Development.

I know that GHS implementation is not an easy task, taking account its complexity. No one country can implement it without close collaboration with its trading partners, the major exporters of chemicals in particulars. As far as APEC is concerned, the implementation process is now being accelerated at different paces in a certain number of economies. It may be faster in one economy than in the other economies during an interim period between now and the year 2008. Economies with faster implementation of GHS should not be at a disadvantage when exporting chemicals to trading partners or vice versa. So, I would like to reiterate the statement of the APEC Ministers Responsible for Trade (MRT) held in Ho Chi Minh City in May this year that, economies are urged to ensure that the implementation process does not result in barriers to trade.

Thailand has attached high priority to the chemical safety and committed to implement GHS. The Department of Industrial Works under the Ministry of Industry has worked very closely with all stakeholders both in the private sector and the government

sector covering workplace sector, agricultural sector, consumer sector and transport sector. The Committee on Hazardous Substances under the Hazardous Substances Act comprises the Director-Generals of 12 relevant Departments and 7 experts in chemical-related fields has appointed its Sub-Committee on GHS to act as the competent authority on GHS, and to carry out the GHS implementation in the country.

After 3 years of hard works including the organization of national training seminars and workshops on GHS, we are going to issue the law and regulations regarding the GHS implementation by the end of this year. They are the Notification of the Hazardous Substances Committee on Classification and Labeling according to the GHS, and the Notification of the Ministry of Industry on the same subject, the latter of which will set the timeframe for implementation. Both regulations are to be issued under the Hazardous Substances Act. Based on these two regulations, other relevant Ministries namely Ministry of Agriculture, Ministry of Public Health, and Ministry of Labour and Social Welfare will issue their Notifications under the same Act to cover chemicals in their respective sectors. All of these efforts by all relevant government agencies have received full supports from the private sector, through the national Sub-Committee on GHS, namely the Chemical Industry Club of the Federation of Thai Industries and the Thai Crop Protection Association.

Ladies and Gentlemen,

Thailand deems it as an honor to host this Seminar, the program of which is contributing to the UNITAR/ILO/OECD World Summit on Sustainable Development Global Partnership for Capacity Building to Implement the GHS.

At this juncture, I should like to express our thanks to UNITAR for their efforts in carrying out the capacity building training workshops on GHS in Thailand as well as in other ASEAN countries. I do hope that with additional knowledge and experiences that you gained from this seminar, we will witness a smooth transition to the full implementation of GHS within APEC region by the year 2008.

In conclusion, I wish all of you a very successful, enjoyable and enriching seminar, and do hope that the GHS Bangkok Seminar will be a fruitful and memorable one.

Thank you

Annex 4: Economy Report

Economy: Chile

List of Participants:

1. Ms. Daniela Montanola, Adviser Foreign Trade Department, Ministry of Economy
2. Mrs. Ingrid Soto, Assistant Manager Department Work Condition, Ministry of Labour

List of existing laws related to GHS:

-

List organizations related to GHS implementation:

1. Ministry of Health
2. CONAMA (National Corporation of Natural Environment)
3. Ministry of Economy
4. SAG (Cattle and Agricultural Service)
5. Ministry of Transport
6. Ministry of Labour

GHS implementation plan:

- Review the actual legislation and how to adapt it by an inter-ministerial committee
- Reunion and coordination with all the institution (public and private) with interest in GHS.

Problems in implementing GHS:

- Inappropriate understanding of the GHS
- Poor access to information, especially for training or introduction of the GHS

Economy: Chinese Taipei

List of Participants:

1. Mr. Tsai Tzung-Husn, Associate Specialist, Department of Labor Safety and Health, Council of Labor Affairs
2. Dr. Jowitt Li, Researcher, Industrial Technology Research Institute (ITRI)

List of existing laws related to GHS:

1. Regulations of Hazard Communication on Dangerous and Harmful Materials (Hazard Communication Rule)
2. Traffic Safety Rule Article 84
3. Environmental Agent Control Act
4. Toxic Chemical Substances Management Act
5. Fire Prevention Act
6. Agro-pesticide Act
7. Commodity Labelling Law

List organizations related to GHS implementation:

1. Council of Labor Affairs, Executive Yuan (CLA), Labor
2. Ministry of Transportation and Communication (MOTC), Transport
3. Environmental Protection Administration (EPA), Toxic substance, Enviro. agent
4. National Fire Agency (NFA), Emergency response, Public hazard substance
5. Ministry of Economic Affairs (MOEA), Consumer Product
6. Council of Agriculture, Executive Yuan (COA), Pesticide

GHS implementation plan:

Chinese Taipei government forms GHS inter-governmental working group and is conducting a 3-year implementation plan (2006~2008). New GHS National Standards (CNS) and amendment of Hazard Communication Rule (workplace) based on GHS will come into effect by the end of 2006 with 2 years of transitional period.

Problems in implementing GHS:

1. Domestic regulatory reform and amendment procedures
2. Hazard v.s. risk application of GHS in consumer product
3. International harmonization in pesticide ,i.e. FAO and WHO etc.
4. International harmonization in toxic substance, e.g. Basel Convention and PIC etc.
5. International implementation schedule and transition period
6. Testing capacity and classification database development
7. Industry / Public awareness, support and training resources

Economy: Hong Kong, China

List of Participants:

1. Mr. Leung Hung-fei, Senior Occupational Safety Officer, Labour Department, Government of the Hong Kong Special Administrative Region
2. Mr. Au-Yeung Chi Yuen, Senior Chemist, Labour Department, Government of the Hong Kong Special Administrative Region
3. Mr. Wong Ka-wing, Senior Station Officer, Hong Kong Fire Services Department
4. Mr. Leung Kwun-hong, Divisional Officer, Hong Kong Fire Services Department

List of existing laws related to GHS:

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List organizations related to GHS implementation:

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GHS implementation plan:

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Problems in implementing GHS:

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Economy: Japan

List of Participants:

1. Ms. Tsugiko Kato, Chief, Ministry of Economy, Trade and Industry

List of existing laws related to GHS:

1. Industrial Safety and Health Law
2. Law Concerning Reporting, etc. of Release to the Environment of Specific Chemical Substances and Promoting
3. Poisonous and Deleterious Substances Control Law
4. Law Concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc
5. Agricultural Chemicals Regulation Law

List organizations related to GHS implementation:

1. Ministry of Health, Labour and Welfare (MHLW)
2. Ministry of Economy, Trade and Industry (METI)
3. Ministry of the Environment (MOE)
4. Ministry of Internal Affairs and Communications (MIC)
5. Ministry of Agriculture, Forestry and Fisheries (MAFF)
6. Ministries of Land Infrastructure and Transport (MLIT)
7. Ministry of Foreign Affairs (MOFA)

GHS implementation plan:

Please find the details from UNECE website which is updated very recently.

http://www.unece.org/trans/danger/publi/ghs/implementation_e.html#Japan

- Several research and development projects are ongoing at national level (i.e.: survey on the public awareness of the GHS)
- Development of GHS training software
- Initiated the development of a that they can follow and share the international activities regarding the GHS; for example, The Japan voluntary initiative industries so Soap and Detergent Association developed “Guidance for the implementation of the GHS of consumer products”, and aim to publish a guidance document for the future implementation of the GHS in collaboration with Asian countries.

Problems in implementing GHS:

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Economy: Malaysia

List of Participants:

1. Mrs. Shaliza Tay Abdullah, Principal Assistant Director, Ministry of International Trade and Industry
2. Mr. Joseph Doraisamy, CICM Regulatory Affairs and Trade Advisor, Chemical Industries Council of Malaysia

List of existing laws related to GHS:

1. Occupational Safety and Health Act 1994 and Occupational Safety and Health (Classification, Packaging and Labelling of Hazardous Chemicals) Regulations 1997
2. Pesticides Act 1974
3. Poisons Act 1952
4. Environmental Quality Act 1974
5. Road Transport Act 1987
6. Petroleum (Safety Measures) Act 1984

List organizations related to GHS implementation:

1. Ministry of International Trade and Industry – National Coordinator for the Implementation of GHS in Malaysia
2. Ministry of Foreign Affairs
3. Ministry of Domestic Trade and Consumer Affairs
4. Ministry of Transport
5. Ministry of Science, Technology and Innovation
6. Malaysian Institute of Nuclear Technology Research (MINT)
7. Department of Occupational Safety and Health (DOSH), Ministry of Human Resources
8. Pharmacy and Services Division, Ministry of Health
9. Pesticides Board, Ministry of Agriculture and Agro-Based Industry Royal Customs
10. Department of Environment(DOE), Ministry of Natural Resources and Environment
11. Chemical Industries Council of Malaysia (CICM)
12. Institute for Environment and Development (LESTARI)

GHS implementation plan:

- Currently, a National Co-ordination Committee has been established to co-ordinate the implementation of GHS among the relevant government ministries and its agencies in Malaysia
- The GHS would be adopted as a Malaysian Standard and will be a reference point for local regulations adopting the GHS
- Gaps between existing laws with the GHS would be identified by working group which comprise representative from the private and public sectors

- Amendment or modification of regulations to be undertaken to address the discrepancies

Problems in implementing GHS:

- Need for co-ordination and consensus among the government agencies to implement GHS. Important to have a “top-down” direction from the government to ensure that various agencies work together on the implementation.
- Lack of awareness on GHS among government agencies and the target groups
- Lack of commitments from the relevant Ministries and agencies to review existing legislation
- Lack of technical expertise and technical translators on the classification, labeling and formulation of safety data sheets
- Development of new laws or amending existing laws to comply with GHS will affect industries
- Need to educate (i.e. consumers on new product labels for consumer products), training and awareness programs on GHS
- Lack of resources and capacity
- Increase coordination among the various agencies needed

Economy: Mexico

List of Participants:

1. Ms. Virginia Guerrero, Deputy Director for WTO and FTAs, Ministry of Economy - General Bureau on Standards

List of existing laws related to GHS:

1. Technical Regulations
2. Federal Laws
3. Rules of Federal Laws
4. TBT Agreement
5. Free Trade Agreements

List organizations related to GHS implementation:

1. Economy Ministry
2. Communications and Transport Ministry
3. Health Ministry
4. Labour and Social Prevision Ministry
5. Environmental and Natural Resources Ministry
6. Agriculture, Stockbreeding, Fishery, Alimentation and Rural Development

GHS implementation plan:

Mexico will be able to implement GHS guidelines through the modification and elaboration of the specific technical regulations in the areas covered by the system. A special group has been created in order to coordinate the implementation work. This group is coordinated by the Economy Ministry

Problems in implementing GHS:

The elaboration process of technical regulations can be complicated due to the lack of consensus or regulatory improvement principles.

Economy: Philippines

List of Participants:

1. Ms. Angelita F. Arcellana , Chief Investments Specialist, Board of Investments
2. Mrs. Teresita Pamela Liao , Senior Environmental Management Specialist,
Environmental Management Bureau

List of existing laws related to GHS:

1. RA 6969-Toxic Substances and Hazardous and Nuclear Waste Control Act
2. PD 1144 – Creation of Fertilizer and Pesticide Authority
3. PD 881-Empowering the DOH to regulate the labelling, sales and distribution of hazardous substance.
4. RA 3720- Foods, Drugs, Devices and Cosmetics Act.
5. RA 7394- Consumers Act of the Philippines
6. RA 9165- Dangerous Drugs Act
7. RA 5921- Pharmacy Act
8. RA 1185- Fire Code of the Philippines

List organizations related to GHS implementation:

1. Board of Investments (BOI)- Department of Trade and Industry (GHS National Coordinator)
2. Environmental Management Bureau (EMB)
3. Fertilizer and Pesticide Authority (FPA) - Department of Agriculture
4. Bureau of Product Standards (BPS) - Department of Trade and Industry
5. Department of Transportation and Communication
6. Occupational Safety and Health Center - Department of Labor and Employment
7. Department of Interior and Local Government
8. Bureau of Customs
9. Philippine National Police
10. Department of Health
11. SPIK (Chemical Industry Association of the Philippines)
12. CropLife Phils. Inc.
13. Trade Union Congress of the Philippines
14. Pesticide Action Network (Phils).
15. Nationwide Association of Consumers, Inc.

GHS implementation plan:

The Philippines concluded the GAP Analyses related to agriculture, consumers, transportation, and industry sectors. The comprehensibility testing (CT) is in its finalization report. On-going is the training awareness on GHS at the local and national levels. Consultation with the concerned sectors on the legal implementation of GHS is being

undertaken prior to the drafting of appropriate legislation. A draft policy guideline will be presented to the GHS TWG for comments and recommendations.

Industry and civil society directed activities in the form of public awareness campaigns such as awareness raising seminars and workshops and press releases are currently being undertaken by SPIK (Chemical industry Association), Trade Union Congress of the Philippines, Pesticide Action Network (Phils.) and Nationwide Association of Consumers, Inc. from March to October 2006.

Furthermore, the Board of Investments (BOI) and the Environmental Management Bureau (EMB) are preparing the draft GHS legislation. The timeline for development is February to November 2006. The format of the GHS legislation is still under discussion. However, after the GHS National workshop and the National Consultation and Workshop for the Legal Implementation of GHS held in May 2006, the GHS Committee is inclined to just amend existing laws. Pending the enactment of the GHS Bill, there is a plan to develop a Joint Administrative Order for the national implementation of the GHS. There is also a plan to develop a national GHS standard.

Problems in implementing GHS:

- No clear mandates provided for consumer products
- Overlapping of mandates across the four (4) sectors affected by GHS
- Insufficient funds and knowledge of government staff related to legal and technical aspects of GHS implementation
- Fragmented enforcement and regulatory mechanism on hazardous communication based on GHS
- In the road transport sector, there is no existing regulations issued by the road transport agencies regarding the proper handling of dangerous goods
- Lack of knowledge and resources of SMEs to comply with GHS
- Lack of information and education campaign and materials on GHS

Economy: Singapore

List of Participants:

1. Ms. Mary Elizabeth Chelliah, Deputy Director, Ministry of Trade and Industry
2. Ms. Liu Dan, Product Stewardship & Regulatory Affairs Advisor, ExxonMobil Chemical Asia Pacific

List of existing laws related to GHS:

1. Environmental Pollution Control Act and the Environmental Pollution (Hazardous Substances) Regulations
2. Workplace Safety and Health Bill
3. Control of Plants (Registration of Pesticides) Rules
4. MPA (Dangerous Goods, Petroleum and Explosives) Regulations, 1997

List organizations related to GHS implementation:

1. Ministry of Trade and Industry (MTI)
2. National Environment Agency (NEA)
3. Singapore Civil Defence Force (SCDF)
4. Ministry of Manpower (MOM)
5. Singapore Chemical Industry Council (SCIC)
6. SPRING

GHS implementation plan:

We have conducted a review of our legislation to ensure compliance, and are revising our national standards (SS286) to be aligned with GHS.

We are also conducting training and aware-raising seminars to help companies adapt to GHS standards.

Problems in implementing GHS:

There is a general lack of resources (especially among SMEs), and awareness on how to implement GHS.

Economy: Vietnam

List of Participants:

1. Mrs. Pham Huong Giang, Chemical expert, Ministry of Industry
2. Mrs. Pham Hoai Linh, Official, Ministry of Industry

List of existing laws related to GHS:

1. Chemical Law which is compiling and expecting to be approved at the end of 2007
2. Decree No 68/2005/ND-CP of the Government dated 23 August, 2004 on chemical safety management

List organizations related to GHS implementation:

1. Ministry of Industry with the function to become the focal point to implementation GHS in Vietnam (regulation in the Draft of Chemical Law)
2. Ministry of Natural Resource and Environment
3. Ministry of Trade
4. Ministry of Transportation
5. Ministry of Agriculture and Rural Development
6. Ministry of Science, Technology
7. Ministry of Health
8. Enterprises
9. Institutes, Universities

GHS implementation plan:

- Disseminate to enterprises and communities on activities related to GHS implementation
- Capacity building for supplying GHS services

Problems in implementing GHS:

- GHS is only mentioned and put in to the Chemical Law the first time so we don't have any experience in the field of implementation
- GHS service supplying

Annex 5: Summary of Evaluation Forms

PART A	For Speaker and Panelist
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1. What were your roles before, during, and after the activity?

(Varied, according to the speakers' background)

2. Do you think the project achieved its objectives? What were the project's results/achievements?

2.1 Yes. Some concrete recommendation will be submitted to the CDSG and MTR for consideration and for appropriate actions in APEC region with a view to achieving effective implementation of GHS in APEC region.

2.2 Yes. The project has been an important event for sharing experiences and discussing GHS implementation, challenges, timelines and futures steps.

2.3 Yes. Sharing of information on GHS implementation status of countries and update of GHS frameworks.

3. Were the attendees the most appropriate target group?

3.1 Yes. But more The participation of relevant public interest groups such as labours or consumers would have been useful.

3.2 Yes. They are dealing directly with the GHS implementation in their respective economies.

4. What is your assessment of the overall effectiveness of the project?

4.1 Having gained a lot of profitable and latest information through the meeting.

4.2 This seminar was important for government and industry to share experiences for national and regional implementation of GHS. However, the focus was more on exchanging experiences than achieving common conclusion. Perhaps next steps will be further discussed at the close of the seminar.

4.3 The overall effectiveness have been achieved fairly taking into account the WSSD target date of GHS implementation by the year 2008, And the project has received full cooperation from Japan which is at the forefront on the implementation of GHS.

5. Was there any room for improving the project? If so, how?

5.1 Duration of the seminar is too short, more time should be allocated for discussing next steps and to discuss APEC-wide cooperation and common learning.

5.2 Session VI was too long and too detailed-did not achieve anything.

5.3 The leading economies in APEC should have particular attention with full participation in the activities on GHS implementation.

5.4 Discussion of how APEC could move forward as a region for GHS implementation would have provided concrete actions/objectives.

6. Any other suggestions:

- 6.1 APEC can play a major role in reaching out to economies that are not as advanced in GHS implementation and in-depth dialogue with other stakeholders.
 - 6.2 CDSG should take up the issue of GHS implementation very seriously if APEC wish to play a leading role on this global issue.
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PART B	For Participants and Trainees
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1. How have you or your economy benefited from the projects?

Topics	Please Mark (✓)					Comments
	5 (Good)	4	3	2	1 (Poor)	
Compatibility of your needs	30%	70%				-more information on GHS implementation -more case study or sample on GHS implementation
Beneficial for implementing in your economy	20%	70%	10%			

2. What new skill, knowledge, or value have you gained?

Topics	Please Mark (✓)					Comments
	5 (Good)	4	3	2	1 (Poor)	
Subject technology has been transfer	30%	70%				
Topics	Please Mark (✓)					Comments
	5 (Good)	4	3	2	1 (Poor)	
Your knowledge before event		70%	20%		10%	
Your knowledge after event	60%	30%	10%			
Others:	10%	10%				
Overall Effectiveness	35%	65%				
Subject matter	25%	60%	15%			

Time allocation	30%	60%	10%			
Time schedule	50%	50%				
Speaker	55%	45%				
Format	60%	30%	10%			
Question and answer	50%	40%	10%			
Workshop	55%	45%				
Lecture	55%	45%				
PowerPoint	55%	45%				
Transparencies	45%	25%	30%			

3. What, if any, changes do you plan to pursue in your home economy as a result of the project?

Topics	Please Mark (✓)					Comments
	5 (Good)	4	3	2	1 (Poor)	
Disseminate GHS technology	20%	60%	20%			
Implementation GHS	30%	40%	30%			
Adjustment law for compromising with GHS	33.33%	33.33%	33.33%			

4. What needs to be done next? How should the project be built upon?

Topics	Please Mark (✓)					Comments
	5 (Good)	4	3	2	1 (Poor)	
Continue GHS in other APEC fora	45%	55%				
Monitor implementation of the Framework by working group	80%	10%	10%			

5. Is there any plan to link the project's outcomes to subsequent collective actions by fora or individual actions by economies?

- 5.1 Update and continue the sharing information about GHS.
- 5.2 Database of chemicals for labeling, classification and SDS.
- 5.3 Capacity building for GHS Implementation.
- 5.4 Accelerate training plans, improve GHS for the country web-page, create stronger links among involved actors and promote further dialogue among trade partners.
- 5.5 Construct a database on web-site with many language labels, purple book translation version to offer APEC member to understand the update GHS status.

6. What is your assessment of the overall effectiveness of the project?

- 6.1 Very informative and enhanced as good people are networking in the GHS field.
- 6.2 Good to know that other APEC economies have achieved a certain degree of progress on the implementation of GHS.
- 6.3 The participants had the opportunity to know experiences on GHS implementation and details of like initiating the process.
- 6.4 Aware of the steps still need to be done in each country and the common problems economies are facing.

7. Was the project content: (Check One)

Just Right...100%..... Too Detailed..... Not Detailed Enough.....

8. Please provide any additional comments. How to improve the project, if any?

- 8.1 Assure all specific recommendation from the fora to the next level of more details.
- 8.2 Provide case study on the process of GHS implementation which could be concrete examples on how to proceed further.
- 8.3 Need attendance technique and direct participation of UNITAR to give beginning to the construction of a national plan of implementation.
- 8.4 Provide all materials in time if possible or via e-mail address of participants including the summary report.
- 8.5 On communication, should have a better information and communication network and technical assistance.



Annex 6: List of Acronyms

ACC	American Chemistry Council
ACIC	ASEAN Chemical Industry Council
ADI	Acceptable Daily Intake
AIMP	APEC Information Management Portal
AOTS	The Association for Overseas Technical Scholarship
APEC	Asia Pacific Economic Cooperation
APEC CD	Asia Pacific Economic Cooperation Chemical Dialogue
ASEAN	Association of South East Asian Nations
BBA	Building Block Approach
BOI	Board of Investment
CAS	Chemical Abstracts Service
CBI	Confidential Business Information
CCCR	Consumer Chemicals and Containers Regulations
CDSG	Chemical Dialogue Steering Group
CICM	Chemical Industries Council of Malaysia
CLA	Council of Labour Affair
CLM	Chemical Lifecycle Management
CONAMA	National Corporation of Natural Environment
CPR	Controlled Products Regulations
DIW	Department of Industrial Works
DOSH	Department of Safety and Health
DOT	Department of Transportation
ECOSOC	United Nations Economic and Social Council
EHS	Environmental Health and Safety
EMB	Environmental Management Bureau
EPA	Environmental Protection Agency
ESHA	Environmental Safety and Health Affairs
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FTI	Federation of Thai Industries
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
GNS	GHS National Standards
GTZ	German Agency for Technical Cooperation
ICSC	international chemical safety card
IFCS	Intergovernmental Forum on Chemical Safety
ILO	International Labour Organization
IOMC	Inter-Organization Programme for the Sound Management of Chemicals
IPCS	International Programme on Chemical Safety
ISO	International Organization for Standardization
JCIA	Japan Chemical Industry Association
JETRO	The Japan External Trade Organization
JIS	Japanese Industrial Standards
JISHA	Japan Industrial Safety and Health Association
MAFF	Ministry of Agriculture, Forestry and Fisheries
METI	Ministry of Economy, Trade and Industry
MHLW	Ministry of Health, Labour and Welfare
MITI	Minister for Economy, Trade and Industry of Japan

MLIT	Ministry of Land Infrastructure and Transport
MOE	Ministry of Environment
MOFA	Ministry of Foreign Affairs
MOM	Ministry of Manpower
MOTC	Ministry of Transport and Communications
MRT	Ministers Related to Trade
MTI	Ministry of Trade and Industry
NAFTA	North American Free Trade Agreement
NEA	National Environmental Agency
NGO	Non-governmental organization
NITE	National Institute of Technology and Evaluation
OECD	Organization for Economic Cooperation and Development
OSHA	Occupational Safety and Health Administration
OSHNET	Occupational Safety and Health Network
PIC	Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
POPs	Persistent Organic Pollutants
RCP	Responsible Care Program
SAG	Cattle and Agricultural Service
SAICM	Strategic Approach to International Chemicals Management
SCIC	Singapore Chemical Industry Council
SDCF	Singapore Civil Defence Force
SDS	safety data sheet
SME	Small and Medium-sized Enterprise
SPIK	Chemical Industry Association of the Philippines
TDI	Tolerable Daily Intake
TWG	Technical Working Group
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNITAR	United Nations Institute for Training and Research
UNRTDG	United Nations Recommendations on the Transport of Dangerous Goods
UNSCEGHS	United Nations Sub-committee of Experts on the GHS
UNSCETDG	United Nations Sub-committee of Experts on the Transport of Dangerous Goods
USAID	United States Agency for International Development
WHO	World Health Organization
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization