Developing a National GHS Implementation Strategy

A Guidance Document to support implementation of the

Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Pilot Edition

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UNITAR

IOMC

INTER-ORGANIZATION PROGRAMME FOR THE SOUND MANAGEMENT OF CHEMICALS

A cooperative agreement among UNEP, ILO, FAO, WHO, UNIDO, UNITAR and OECD

About this Guidance Document*

This document is intended to provide guidance for countries that choose to develop a National GHS Implementation Strategy through a systematic, country-driven process. The document has two parts. Part A provides a background and context for the GHS. It first introduces the concept of chemical hazard communication and provides an overview of key GHS provisions. It then discusses the key sectors affected by GHS implementation (*i.e.* industrial workplace, agriculture, transport and consumer products), as well as key actors involved in GHS implementation at the national level (*i.e.* government, business and trade, and civil society). Part B provides guidance on developing a National GHS Implementation Strategy. Suggestions are provided to assist in conducting a situation and gap analysis, developing sector-specific implementation plans and completing a *National GHS Implementation Strategy* (NIS) document. Part B also addresses supporting activities such as comprehensibility testing and organization of GHS workshops.

The guidance is flexible in nature – it is not meant to be prescriptive in any sense. Each country can consider and make decisions regarding the issues raised in accordance with its own preferences and priorities. It is hoped that users will find that the guidance plays a constructive and practical role in this process.

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Foreword

Chemicals directly or indirectly affect every aspect of our lives and they can be both helpful and harmful. In order to safely use chemicals and mitigate the negative consequences of unintended exposure, chemical hazards must be effectively communicated to workers and the public. To facilitate sound chemical hazard communication, the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) was adopted in 2002 by ECOSOC as an international standard for chemical classification and hazard communication.

At the World Summit for Sustainable Development, which took place in Johannesburg, South Africa in 2002, governments agreed on a 2008 implementation target for the GHS. WSSD also initiated the *WSSD Global Partnership for Capacity Building to Implement the GHS*. The Partnership is co-ordinated by UNITAR, ILO and OECD. Over the past years, it has implemented a number of GHS pilot projects at the national and regional level, with resources provided by the Governments of Switzerland, the Netherlands, the European Union and the US State Department.

This document is intended to provide framework guidance for countries that choose to develop a National GHS Implementation Strategy using a systematic, country-driven approach. It recognises that countries have different starting points from which their respective chemical hazard communication systems can be strengthened. During the course of 2005 this document is being tested through pilot projects in The Gambia, Indonesia, Nigeria, the Philippines, Senegal, Slovenia, and Thailand. It is expected that these pilot projects will result in further refinements of the document. Lessons learned will be incorporated into the final version which is scheduled for publication in early 2006.

UNITAR and ILO look forward to working with pilot countries and international GHS experts in further developing this document and strengthening national and regional capacities for GHS implementation.

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PART A BACKGROUND AND CONTEXT OF THE GHS

Part A of this document introduces the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) and sound chemical hazard communication. Further, information is provided on the relationship of the GHS to sustainable development and for relevant international chemical management agreements. Finally, it introduces the key sectors affected by GHS implementation at the national level (*i.e.* industrial workplace, agriculture, transport, and consumer products) as well as important groups involved in, and responsible for, GHS implementation, *i.e.* government, business and trade, and civil society.

1. Introduction to Chemical Hazard Communication

The production and use of chemicals are fundamental components of economic activity and the development of all countries, whether industrialised or developing. Directly or indirectly, chemicals affect the lives of all humans and are essential to our food supply (fertilizers, pesticides, food additives, packaging), our health (pharmaceuticals, cleaning materials), and our daily existence (appliances, fuels, etc). However, there are potential adverse affects to human health and the environment from use of and exposure to these chemicals.

The first step in safe chemical use is to identify the hazards they may pose to health and the environment (*e.g.* can they cause cancer or be hazardous to aquatic environments) and to communicate appropriate precautions and measures to be taken to handle or use the chemical safely, or in the event of an accident (*i.e.* transferring information through hazard communication). This inherently complex knowledge must be organised so that essential information on the hazards and corresponding control measures can be identified and conveyed to the user in a format that is easy to understand. The hazard classification and labelling process, along with appropriate training and education, is a primary tool for establishing effective information transfer. Understanding the degree of hazard a chemical represents leads to the correct control action(s) and safe use. This knowledge should be available within reasonable effort and cost.

Chemical hazard information can be conveyed in a variety of ways, for example, in the form of a label on a container; in the form of safety data sheets (SDS) provided with the hazardous chemical; or through placards, posters or markings. This information generally includes an indication of the hazard(s) in text form and/or with symbols. In addition to the hazard information, information may also include statements regarding safe use or handling, or other types of precautionary measures.

In the workplace, for example, safety data sheets (SDSs) should be made available to the worker. In the transport sector, a guidance document for emergency response may supplement the information on placards or markings. In the context of most workplace and transport chemical hazard communication systems, user training to access the information and take proper steps to protect themselves, is also routinely provided. In consumer settings, however, the container label may be the only communication mechanism available to provide information to promote safe handling and use.

2. The GHS: An Overview

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is an international standard for chemical classification and hazard communication.[1] It is an important new tool that countries can use as a basis for establishing comprehensive national chemical safety programs. The GHS is a logical and comprehensive approach for:

- defining hazards of chemicals;
- applying hazard criteria, using an agreed methodology, to classify chemicals; and
- communicating hazard information on labels and Safety Data Sheets (SDS).

The GHS was developed as a result of Agenda 21, agreed in 1992 at the Rio Summit. It was adopted in 2002 by the UN Economic and Social Council (ECOSOC) Subcommittee of Experts on the GHS (SCEGHS) and endorsed by ECOSOC in 2003. Both the Intergovernmental Forum on Chemical Safety (IFCS) and the World Summit on Sustainable Development (WSSD), have endorsed a global GHS implementation target of 2008. UNITAR and the ILO were nominated as focal points for assisting countries in building their capacity to implement the GHS.

Responsibility for the maintenance, updating and promotion of the GHS at the international level rests with the SCEGHS, and the Subcommittee of Experts on the Transport of Dangerous Goods (SCETDG) continues to manage the UN RTDG. The two groups together are managed by an ECOSOC "parent" committee: the Committee of Experts on the Transport of Dangerous Goods and the GHS. This group is responsible for strategic issues and provides administrative and oversight functions. The UN Economic Commission for Europe (UNECE) provides the Secretariat functions for both instruments. Countries may also participate in the work of the SCEGHS and SCETDG as observers or apply to become full members of those subcommittees.[2] At the national level, countries will need to identify a "competent authority" responsible for implementing the GHS and determining how the various elements of the GHS will be applied.

An important driving factor for creation of the GHS was that while many existing national and regional chemical hazard communication systems are similar in intent (*i.e.* they are designed to protect people from experiencing adverse effects), there are significant differences in their specific provisions with regard to the criteria used to classify the chemicals, the warning phrases and symbols, or other hazard communication components used to convey the information. The result is a patchwork of sometimes conflicting and diverse national and international requirements.

Because of the variations in classification criteria, the same chemical may be classified as having different degrees of hazard, and thus require different warning statements, depending on the classification system being applied in a given situation. Symbols and terminology vary

[1] The GHS document – sometimes referred to as the "Purple Book" – in all six UN languages, as well as meeting documents and other information for the SCEGHS, can be found at the GHS Secretariat website at: <www.unece.org/trans/danger/publi/ghs/ghs.html>.

[2] Interested countries should contact the UNECE for further information at: <www.unece.org/trans/danger/who.htm>.

from system to system. For example, a chemical in one country may be classified as being flammable for purposes of transport, but not for workplace use. Or it may be considered carcinogenic in one country, but not in another. The result is increased costs to industry (needing to comply and re-label products for different markets) and government (needing to regulate), as well as potential increased risk to workers and consumers regarding the various hazards.

2.1 Objectives of the GHS

The GHS has the ultimate goal of ensuring that information on chemical hazards is made available to workers and consumers in a harmonized and comprehensible format (on labels and in SDS) in countries around the world. It represents an important effort to harmonize national systems worldwide, in order to improve chemical safety across all relevant sectors and enhance the protection of human health and the environment. Countries have been encouraged to use GHS as a key resource for activities on chemical hazard communication, in accordance with their own needs and capabilities.

2.2 Benefits of the GHS

Implementation of effective chemical hazard communication based on the GHS provides benefits for governments, companies, workers, and members of the public. The GHS has maximum value if accepted in all major regulatory systems for chemical hazard communication. If the GHS is implemented globally, consistent information will be communicated on labels and SDSs with a number of benefits for human health and the environment, as well as for business and trade.

Global Benefits

Possible global benefits of GHS implementation include:

- improved consistency and comprehensibility of hazard information to reduce harmful exposure to chemicals and chemical related accidents;
- decreased global inconsistencies in the information provided to users;
- greater confidence in the quality and content of chemical information received from other countries;
- improved transparency for international trade in chemicals whose hazards have been identified on an international basis;
- more effective use of scarce resources (*e.g.* reduced animal testing, avoiding the need for testing and evaluation against multiple classification systems, regulatory authorities not having to repeat the work of other authorities, etc.);
- assurance of consumers and workers' 'right to know' about the hazards and identities of chemicals; and
- improved global environmental management and protection.

Benefits to Governments

The tangible benefits to governments include:

- lower health care costs;
- improved protection of workers and the public from chemical hazards;
- avoiding duplication of efforts in creating national systems;
- reduction in the costs of enforcement; and
- improved reputation on chemical issues both domestically and internationally.

Benefits to Industry

Benefits to industry for adopting the GHS include:

- safer work environments and improved communication with employees;
- increased efficiency and reduced costs in compliance with hazard communication regulations;
- maximization of expert resources with minimum labour and costs;
- fewer accidents and illnesses; and
- improved corporate image and credibility.

Benefits to Workers and Civil Society

Benefits of the GHS to workers and civil society include:

- improved safety for workers and others through consistent and simplified communications on chemical hazards and practices to follow for safe handling and use;
- greater awareness of hazards, resulting in safer use of chemicals in the workplace and in the home.

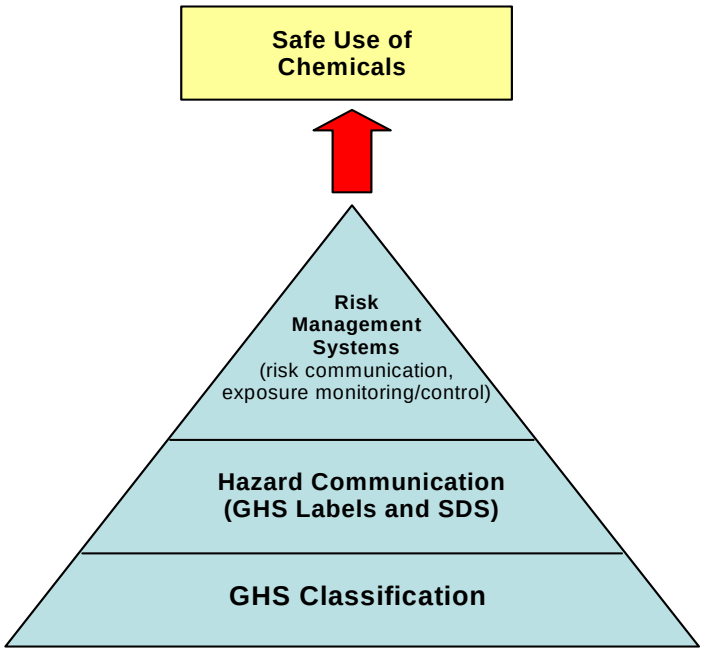
Box 1

GHS as a Basis for the Development of National Chemicals Management Systems

Chemical hazard identification and communication is the essential first step to effective chemical management. The GHS can therefore play a central role as it effectively transfers practical and reliable information about chemical hazards to users. It can assist with providing information for the entire chemical supply chain and can therefore provide all countries with a consistent means of classifying and labelling hazardous chemicals and help to ensure that coherent information is provided on all imported and exported chemicals worldwide. Moreover, the GHS can form the cornerstone of a national chemicals management system which may, for example, require mandatory controls on different categories of chemicals, involve the assessment and management of workplace risks, or ban the use of chemicals with certain hazards in consumer goods. These actions would not be possible without first of all having a system in place for the identification of hazards.

The GHS classification and hazard communication elements can be seen as the foundation of programmes to ensure the safe use of chemicals, as shown in Figure 1 below. The first two steps in any programme to ensure the safe use of chemicals are to identify intrinsic hazard(s) (*i.e.* classification) and then to communicate that information. The design of the GHS communication elements reflect the different needs of various target audiences, such as workers and consumers. To proceed further up the pyramid, some existing national programs also include risk management systems as part of an overall program for the sound management of chemicals. The general goal of these systems is to minimize exposure, resulting in reduced risk. With or without formal risk management systems, the GHS is designed to promote the safe use of chemicals.

Figure 1 GHS as the basis for National Chemicals Management Systems



2.3 Contributions of the GHS to Key Agreed Sustainable Development Measures

Implementation of the GHS may also have broader benefits related to national issues of sustainable development. Of the United Nations Millennium Development Goals, Number 7 is to "ensure environmental sustainability." It was recommended that this be done, *inter alia*, by reducing "exposure to toxic chemicals in vulnerable groups" and to "improve frameworks for chemical management." Further, harm from exposure to chemicals can disproportionately affect traditionally disempowered persons, including women, children and the poor. Agenda 21, and Chapter 19 in particular, recognize the vulnerability of these groups to toxic chemicals. The GHS would provide a framework for helping to improve chemical management and safety for such populations. Along with providing a tool for achieving international sustainability goals, GHS implementation can also help to protect water supplies, ensure safe transport of chemicals and facilitate trade. Further information on the contributions of GHS to sustainable development can be found in Annex 2.

2.4 Linking the GHS to International Chemicals Management Agreements

A number of international agreements exist that are relevant to sound chemicals management and GHS implementation and include the following:

- ILO Chemicals Convention 1990, No. 170;
- ILO Prevention of Major Industrial Accidents Convention 1993, No. 174;
- Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade;
- Stockholm Convention on Persistent Organic Pollutants (POPs);
- Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer; and
- United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances;
- Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemicals Weapons and on their Destruction (Chemical Weapons Convention, CWC);
- Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal;
- FAO International Code of Conduct on the Distribution and Use of Pesticides (Revised version);
- UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention).

For example, the ILO Chemical Convention 170 and Recommendation 177 aim to protect workers against the risks associated with the use of chemicals in the workplace and include requirements for classification and labelling. The Food and Agriculture Organization (FAO) International Code of Conduct on the Distribution and Use of Pesticides was developed to facilitate safe use of pesticides in developing countries. It includes specific provision on the labelling of pesticides as specified in more detail by the 1995 FAO, "Guidelines on Good Labelling Practice for Pesticides". Furthermore, the International Organization for Standardization (ISO) developed its own standards for safety data sheets. The WHO "Recommended Classification of Pesticides by Hazard" provides guidelines as to how to classify pesticides based on their hazard class. Finally, the GHS also supports the goals of the Strategic Approach to International Chemicals Management (SAICM) as well as a number of conventions, including the Rotterdam and the Stockholm conventions by providing a useful tool for information sharing, education and monitoring. Further information on relevant international agreements can be found in Annex 3.

3. Important Provisions of the GHS

The GHS document, known informally as "The Purple Book", outlines the provisions of the GHS in four parts and with a number of annexes. Part 1 is an introductory section outlining the scope, definitions and hazard communication elements of the GHS. Part 2 provides information on the classification criteria for physical hazards. Part 3 provides information on classification for health hazards. Finally, Part 4 outlines classification for environmental hazards. Further information and guidance (*e.g.* for allocation of label elements and on preparation of SDS) are found in a number of annexes. The full table of contents of the GHS (revised first edition) is included in Annex 4. The subsections below provide some further detail regarding key provisions of the GHS.

3.1 Scope

The GHS covers all hazardous chemicals (see section on classification below). According to Chapter 1.1.2, the mode of application of the hazard communication components of the GHS (*e.g.* labels, safety data sheets) may vary by product category or stage in the life cycle. Pharmaceuticals, food additives, cosmetics, and pesticide residues in food are not covered by the GHS in terms of labelling at the point of intentional intake. However, these types of chemicals are covered where workers may be exposed, and, in transport if potential exposure warrants.

3.2 Classification Requirements

The GHS document, in Chapter 1.3, describes hazard classification as generally involving three steps:

1. identification of relevant data regarding the hazards of a substance or mixture;
2. subsequent review of data to ascertain the hazards associated with the substance or mixture; and
3. a decision on whether the substance or mixture will be classified as a hazardous substance or mixture and the degree of hazard, where appropriate, by comparison of the data with agreed hazard classification criteria.

Classification of chemicals based on the GHS is done with currently available data. Since the harmonized classification criteria are developed on the basis of existing data, compliance with these criteria will not require retesting chemicals for which accepted test data already exists. Therefore, using currently available information, classification is the process of identifying the hazards of a chemical and assigning a category of hazard using set criteria.

The GHS harmonizes the classification criteria – from several existing systems – for evaluating health, environmental and physical hazards of substances and mixtures. These criteria are included in the Purple Book in Part 2 (Physical Hazards), Part 3 (Health Hazards) and Part 4 (Environmental Hazards). The information for classification may be obtained from tests, practical experience, literature, or the information found in other systems, such as that

provided directly by industry or found in the international rules on the transport of dangerous substances (*e.g.* the UN Recommendations on the Transport of Dangerous Goods, UNRTDG).

For example, if a substance has an initial boiling point lower than or equal to 35° C and a flashpoint lower than 23° C, then it may be classified as "highly flammable". Experts have determined – on the basis of these criteria – that this substance is highly capable of being ignited or burning in air. Under the GHS, acceptable methods for classifying hazards have been harmonised and guidance will be provided to countries implementing the GHS on how to classify chemicals under the GHS. The list of classification categories used in the GHS is outlined in Box 2.[3]

Box 2 Classification Categories in the GHS

Physical Hazards:

- Explosives,
- Flammable Gases,
- Flammable Aerosols,
- Oxidizing Gases,
- Gases Under Pressure,
- Flammable Liquids,
- Flammable Solids,
- Self-Reactive Substances,
- Pyrophoric Liquids,
- Pyrophoric Solids,
- Self-Heating Substances,
- Substances which in contact with water release flammable gases,
- Oxidizing Liquids,
- Oxidizing Solids,
- Organic Peroxides,
- Corrosive to Metals.

Health Hazards:

- Acute Toxicity,
- Skin Corrosion/Irritation,
- Serious Eye Damage/Eye Irritation,
- Respiratory or Skin Sensitization,
- Germ Cell Mutagenicity,
- Carcinogenicity,
- Reproductive Toxicity,
- Specific Target Organ Systemic Toxicity – Single Exposure,
- Specific Target Organ Systemic Toxicity – Repeated Exposure,
- Aspiration Hazard.

Environmental Hazards:

- Hazardous to the Aquatic Environment.

3.3 Chemical Hazard Communication Tools Included in the GHS

Once a substance has been classified (e.g. substance X is found to be toxic or flammable), this hazard needs to be communicated to target audiences. The main tools of chemical hazard communication are *labels* and *safety data sheets* (SDS) that contain the hazard information in the form of hazard pictograms, signal words and other communication elements. The aim of these tools is to provide hazard information in a comprehensible form for chemicals that may

[3] Please refer to the GHS Document for more precise definitions of these categories.

constitute a health, property or environmental risk during normal handling or use. Within the Purple Book a number of sections address label and safety data sheet elements. Specifically, chapter 1.4 deals with communicating hazards through labelling and chapter 1.5 addresses hazard communication through safety data sheets. A number of annexes provide further information on hazard communication. For example Annex 1 of the Purple Book provides guidelines for the allocation of label elements and Annex 3 describes precautionary statements and precautionary pictograms.

Labelling Requirements

A label, on a barrel or container containing the chemical, is designed to provide information on the inherent dangers of that chemical to persons handling or using the chemical. The label is the basic tool to keep the user informed of the hazards posed and basic safety precautions.

Countries with established hazard communication systems have developed their own standards for the provision of information on a label. While existing systems vary, the basic components of a label are often quite similar. Chapter 1.4 of the Purple Book discusses the provisions of a GHS-based label, for example, that it must include the following information:

- signal words;
- hazard statements (a set of standard phrases which appear on user labels for packaged goods);
- precautionary statements and pictograms
- product identifier (*e.g.* proper shipping name, chemical identify of the substance); and
- supplier information.

The label will only convey its intended message if the essential messages on the label are kept as simple and direct (*i.e.* comprehensible) as possible. If a label is too complex, too technical, or badly laid out, the information is unlikely to be understood with the result that the product may not be used correctly and the user may be exposed to unnecessary risks.

The labels on the barrels or containers should be in the official national language(s) (and if possible, local languages as well). Hazard pictograms established for the physical, health and environmental hazard categories listed above should be used on the label. The pictogram forms an integral part of the label and is intended to give an immediate idea of the types of hazards that the substance or the preparation may cause. GHS pictograms and hazard classes are shown in Box 3.

To specify the type of danger, pertinent standard hazard statements should also be included in the label (*e.g.* “toxic in contact with skin” or “irritating to respiratory system”). Advice on the precautions necessary in handling the chemical should also be given on the label (precautionary information).

The particular needs of the intended target audience may however influence which of the label components are used. In transport, for example, the label, placard and transport documents are all used to inform those in the transport chain about the hazardous properties of the goods being transported and to provide the core information required to manage the effects of an accident or unforeseen release of the chemical. The transport system considers

mainly physical and acute hazards. In workplace labelling, the label is also only one element of a multi-component system of chemical hazard communication, the other elements being the safety data sheets and training. The label can be regarded as a snapshot of the chemical hazard(s) to be used as a primary message or alert for the worker who is then directed to the SDS for more detailed information. This pattern should be reinforced through training in the hazard communication system. Finally, in communicating the potential hazard of consumer products, the label plays the major role in the provision of information. It is designed to provide the user with information about the potential health, environmental and physio-chemical hazards of the product and basic advice on using the chemical safely.

Safety Data Sheet (SDS) Requirements

The chemical supplier (*e.g.* a manufacturer, importer or formulator) should be able to provide detailed information about the chemical in a *safety data sheet (SDS)*. In certain countries, the supplier has the obligation to provide information in a SDS on chemicals' health and environmental hazards, labelling, safe use and handling, among other things. Safety data sheets have been prepared on many dangerous substances and preparations. SDS should go together with the product to the user in the workplace.

The SDS should provide comprehensive information about a chemical substance or mixture for use in a workplace setting. It can be used by both employers and workers as a source of information about hazards, including environmental hazards, to obtain advice on safety precautions, and most importantly to identify appropriate risk reduction messages for the use in question. Advice by the supplier on the safe use of the chemical by the user requires information on the workplace situation of the user and expected exposures. The information in a SDS acts therefore as a reference source for the effective management of hazardous chemicals in the workplace.

The SDS is product related and, sometimes, may not be able to provide specific information that is relevant for a specific use. In other cases the SDS may be specific and detailed for a particular use. The SDS is a resource that enables an employer to undertake worker and environmental protection activities, including training, that are specific to the individual workplace.

Box 3 GHS Pictograms and Hazard Classes

		
• Oxidizers • Organic Peroxides	• Flammables • Self reactives • Pyrophorics • Self-heating • Emits flammable gas	• Explosives • Self reactives • Organic peroxides
		
• Acute toxicity (severe)	• Corrosives	• Gases under pressure
		
• Carcinogen • Respiratory sensitizer • Reproductive toxicity • Target organ toxicity • Mutagenicity • Aspiration hazard	• Hazard to the aquatic environment	• Irritant • Dermal sensitizer • Acute toxicity (harmful) • Transient target organ effects (narcotic or respiratory)

In the context of the GHS, the SDS should be produced for all substances and mixtures which meet the criteria for physical, health or environmental hazards under the GHS. The national competent authority may choose also to require SDSs for mixtures not meeting the criteria for classification as hazardous but which contain hazardous substances above stated concentrations. Once it is clear that a SDS is required for a substance or a mixture, then the information to be included in the SDS should in all cases be provided in accordance with GHS requirements. The SDS should provide a clear description of the data used to identify the hazards and additional information may be required by competent authorities.

The information in a GHS-based SDS should be presented using a 16-ordered heading format. The headings for this can be found in Box 4. The 16 heading approach to SDS is common to many existing national and international systems. Extensive guidance has been produced explaining in further detail the information requirements under each heading for these systems. Guidance on the preparation of GHS SDS can be found in Annex 4 of the first revised edition of the GHS.

Box 4
Headings of SDS under GHS

1. Identification.
2. Hazard(s) identification.
3. Composition/information on ingredients.
4. First-aid measures.
5. Fire-fighting measures.
6. Accidental release measures.
7. Handling and storage.
8. Exposure controls/personal protection.
9. Physical and chemical properties.
10. Stability and reactivity.
11. Toxicological information.
12. Ecological information.
13. Disposal considerations.
14. Transport information.
15. Regulatory information.
16. Other information.

3.4 The Importance of Comprehensibility

The GHS Purple Book notes in chapter 1.4.4 that comprehensibility of the information provided has been an important issue in developing the system. The purpose of providing chemical hazard information is to encourage the user to follow appropriate precautionary measures and avoid the occurrence of an adverse effect from handling or using the chemical. Comprehensibility refers to the ability of the individual reading a label, warning, or safety data sheet to understand the information sufficiently to take necessary action. Comprehensibility is different from ‘readability’ because the latter is simply a measure of the

sophistication of the written material, while the former is a measure of how well the receiver of the information understood it. A warning about incompatible chemicals may be written at the correct reading level for a specific audience, for example, but may do such a poor job explaining the hazard that the warning is not understood by most of the intended audience. Additionally, the same warning may be highly comprehensible to a population of chemical workers but poorly understood by firefighters with the same educational level but different work experiences.

Finally, achieving comprehensibility does not ensure that the informed individual will take the actions prescribed in the warning or label. The reason is that behaviour is affected by a complex mix of attitudes, experiences, motivations and potential consequences that are specific to each individual in a particular situation. Moreover, users of chemicals in developing countries may have very different cultural backgrounds or socio-economic conditions from those countries where many hazard communication tools have been developed, and thus particular attention should be paid to the use of appropriate tools and training.

3.5 Additional Measures to Ensure Effective Hazard Communication

In addition to providing labels and SDSs, a number of supportive measures need to be considered and implemented to ensure the success of an effective chemical hazard communication system. For example, the GHS refers in chapter 1.4.9 to the importance of training all target audiences to recognize and interpret label and/or SDS information, and to take appropriate action in response to chemical hazards. Training requirements should be appropriate for and commensurate with the nature of the work or exposure. Key target audiences include workers, emergency responders, those involved in label and SDS preparation, and the transport and supply of hazardous chemicals. Consequently, training requirements for producers and users will differ.

Consumers should be subject to *educational programmes* regarding the interpretation of label information on products they use. Other tools, such as *awareness raising* campaigns, the use of posters, brochures and the media, can all assist in ensuring that the chemical hazard communication process is as successful as possible in improving chemical safety.

3.6 Monitoring and Enforcement

While the UN SCEGHS is responsible for implementation and maintenance of the GHS at the international level, as a voluntary standard available for adoption by countries the GHS is expected to be implemented via national regulations, legislation or administrative procedures at the national level. Thus, the monitoring and enforcement of national systems incorporating the GHS will be the responsibility of relevant government authorities, including worker, health and safety, and consumer inspectorates, customs agencies, etc. Development of a thorough National Implementation Strategy is the first step toward successful integration of GHS into national chemical hazard communication systems and provides a foundation for transparent and efficient monitoring and enforcement.

4. Key Sectors Affected by GHS Implementation

The provisions of the GHS affect chemical hazard communication in four key sectors at the national level involved in chemical hazard communication. They include (1) industrial workplace, (2) agriculture, (3) transport, and (4) consumer products. The following sections provide an overview of each of the four sectors from a GHS perspective. Each section introduces the targets groups and objectives of chemical hazard communication in the respective sector, summarizes the tools used to communicate the hazards, discusses government departments typically involved in regulatory activities and references international agreements relevant to GHS implementation, if applicable.

4.1 Industrial Workplace

Chemicals produced in factories and used in workplaces are a central component to many countries' economies. However, they may pose dangers to those at risk of exposure, whether directly in the factories or in surrounding communities, and may be a hazard to the environment if released. Workers in factories, storage facilities, construction sites, drilling sites and at small and medium sized enterprises (SMEs) can be at risk of exposure to chemical hazards, for example, through a leak from barrels in storage or through airborne contamination in a factory using a particular chemical to produce another product.

The objective of hazard communication in this sector is therefore to ensure that appropriate actions are taken to provide information about these hazards and train target groups in appropriate precautionary behaviour. Employers and workers need to know the hazards specific to the chemicals used and or handled in the workplace, as well as information about the specific protective measures required to avoid the adverse effects that might be caused by those hazards. The tool most commonly used for providing this information is the label. However, the label is not the sole source of this information. It is also available through the SDS and workplace hazard and risk management systems. Workplace hazard and risk management systems should also provide training in hazard identification, precautionary measures and the use of SDS. The nature of training provided and the accuracy, comprehensibility and completeness of the information in the SDS may vary. However, compared to consumers for example, workers can develop a more in-depth understanding of hazard symbols and other types of information when properly trained.

Governments usually have the role of passing legislation to facilitate chemical hazard communication, usually via labour laws or standards, although legislation may also exist through laws relating to industrial facilities. Some countries may have also developed systems based upon other international classification and hazard communication systems, for example, via ILO Convention 170 and Recommendation 177 concerning safety in the use of chemicals at work. Key ministries typically involved include Ministries of Labour and Trade and Industry. The private sector, such as the companies producing chemicals or managing factories that use them, are responsible for ensuring proper classification and use of labels and SDS, as appropriate, and training workers that may be exposed. Labour unions may have activities related to ensuring companies are providing appropriate training, or they may conduct awareness raising and training themselves for the workers.

4.2 Agriculture

Pesticides are in wide-spread use around the world and may pose hazards to those producing or using them, as well as to the environment in which they are used. Farmers and farm workers are at risk from exposure through the use of different agricultural chemicals, such as pesticides and fertilizers. The WHO places the total cases of pesticide poisoning in the agricultural sector at between 2 and 5 million each year, of which 40,000 are fatal.[4] Barrels containing pesticides, for example, may not be properly labelled (or repackaged without labelling) or the hazard information on the label may not be comprehensible due to linguistic reasons. Distributors or farmers spraying crops with a pesticide may not have access to, or understanding of, an SDS on that particular chemical.

The objective of hazard communication in the agriculture sector is therefore to provide appropriate information related to chemicals (pesticides, insecticides, etc.) used in this sector and to relevant target audiences (*e.g.* farmers). The key tool used to communicate hazard information in the agriculture sector is the label. As distributors may repackage pesticides, ensuring that labels are consistent at all stages is also important. As with all sectors, training on the proper understanding and use of the label information and the chemicals is important.

Governments usually have the role of regulating chemicals use in the agriculture sector via legislation or standards related to use of pesticides, insecticides, etc. or pest management programmes. Government agencies may also provide guidance on various issues such as safe practices (*e.g.* for pesticide storage and disposal on farms). In some federal systems, enforcement of relevant laws may be a state of provincial responsibility. Some countries may use existing international standards as the basis for their national codes and regulations, for example the FAO Code of Conduct on the Distribution and Use of Pesticides (and Guidelines on Good Labelling Practice for Pesticides) or the WHO Recommended Classification of Pesticides by Hazard. Industry, often pesticide industry associations and individual companies that produce pesticides and other chemicals used in the agriculture sector, is responsible for appropriate labelling following national laws and standards and may provide training on the proper use of these products. Agricultural workers unions, and in some cases NGOs (*e.g.* concerned about negative side-effects of pesticides on the environment) may undertake activities to train farmers and farm workers on the safe use of pesticides and NGOs may undertake awareness raising campaigns on the effects of pesticide use on the water supplies or plants, animals and humans that may be exposed unintentionally.

4.3 Transport

Chemicals and products containing chemicals are transported around the world via road, rail, water and air and may pose a hazard not only to those directly involved in their transport, but also to communities on the transit route and the environment in the case of an accident. The objective of hazard communication is therefore to ensure that those involved in the transport sector have information concerning general safe practices that are appropriate for transport

[4] Quoted in V. Forastieri, "Challenges in providing occupational safety and health services to workers in agriculture", *African Newsletter on Occupational Health and Safety*, vol. 11, no. 2 (August 2001): p. 34.

situations. For example, a driver will have to know what has to be done in case of an accident irrespective of the substance transported (e.g. report the accident to authorities, keep the shipping documents in a given place). Drivers require information concerning specific hazards in the event of an accident and additional information if they also load and unload packages or fill tanks. Workers who might come into direct contact with dangerous goods in transit, for example on board ships, require detailed information. In all cases, labels, placards, transport documents and SDS are key tools.

The transport sector has long been a focus of international efforts on hazard communication, primarily through the UN Sub-committee of Experts on the Transport of Dangerous Goods (UN SCETDG). This body elaborated the first internationally recognised classification and labelling system for the purpose of transporting dangerous goods, the UN Recommendations on the Transport of Dangerous Goods (UN RTDG). The UN RTDG cater to a wide range of target audiences, although workers involved in transporting chemicals and emergency responders are the principal ones. Classification and labelling for the transport of dangerous goods is now based on the GHS and it is expected that application of the GHS will be similar to application of current transport requirements. Containers of dangerous goods will be marked with pictograms that address acute toxicity, physical hazards, and environmental hazards. The elements of the GHS that address these, such as signal words and hazard statements, are not expected to be adopted in the transport sector.[5]

Governments typically regulate hazardous chemicals in the transport sector via specific regulations related to the transport of dangerous goods, and the key authority is usually Departments of Transport. Some countries also base national regulations on existing national standards such as the UN RTDG, International Maritime Dangerous Goods Code, European Agreements Concerning the International Carriage of Dangerous Goods by Road (ADR) or by Inland Waterways (ADN), IATA Dangerous Goods Regulations, or the International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods By Air.[6]

Industry associations for specific transport modes (*e.g.* trucking associations) may provide members with information about compliance with national regulations and training in the application of these regulations. Unions representing transport workers may monitor the training of workers regarding relevant hazard communication tools or community groups in transit areas may conduct awareness campaigns regarding precautions to be taken in the case of an accident or emergency.

[5] For more information, visit the RTDG website at:
<http://www.unece.org/trans/danger/publi/unrec/rev13/13nature_e.html>.

[6] The North American Emergency Response Guidebook (ERG 2004) was developed jointly by Canada, the US and Mexico for use by fire-fighters, police, and other emergency services personnel who may be the first to arrive at the scene of a transportation incident involving dangerous goods. It is primarily a guide to aid "first responders" in quickly identifying the specific or generic hazards of the material(s) involved in the incident, and protecting themselves and the general public during the initial response phase. For further information, please visit: <http://hazmat.dot.gov/pubs/erg/gydebook.htm>.

4.4 Consumer Products

Consumers are exposed to a wide variety of hazardous chemicals in their daily lives, such as certain bleaches, paints, dyes, garden pesticides and cleaning products. Children may also be exposed to chemical hazards via products used in the home. Ensuring the provision of comprehensible information on consumer products so that they are used appropriately is the objective of hazard communication in this sector. In the consumer sector the label in most cases is likely to be the sole source of information readily available to consumers. The label, therefore, needs to be sufficiently clear and relevant to the use of the product. Moreover, consumer education is more difficult and less efficient than education for other audiences. Providing sufficient information to consumers in the simplest and most easily understandable terms presents a considerable challenge. The problems of making readily comprehensible information available to consumers are also made more difficult by the wide range of chemicals and uses in the home. Some products contain many dozens of chemicals all with different properties. The issue of comprehensibility is therefore of particular importance for this sector, since consumers may rely mainly on label information and would benefit from education and awareness.

Government has the responsibility to regulate consumer products, sometimes through the use of general consumer product legislation or specific regulations for food, drugs and cosmetics. Specific regulatory agencies (*e.g.* consumer product safety commissions) or Ministries of Health may be empowered and responsible for this sector. Companies that produce consumer products that contain hazardous chemicals are required to label their products in line with national regulations; specific consumer product industry associations (*e.g.* representing soaps and detergent products or paints or printing substances) may provide information about compliance to member companies or develop consumer awareness materials regarding appropriate use of their products. Consumer protection associations, environmental NGOs, women's and children's advocacy groups and other civil society organizations may undertake awareness raising and education campaigns about the safe use of consumer chemical products or lobby governments and industry regarding the status of legislation or providing information about these products.

5. Key Actors Involved in GHS Implementation

Implementation of the GHS and sound chemical hazard communication requires initiatives, activities and capacities for three distinct actors: government, industry and civil society. Each of these groups has their distinct roles and responsibilities, as briefly outlined below. Through a partnership approach their activities can be made complimentary and thus facilitate the coherent implementation of the GHS in all four sectors.

5.1 Government

Government is typically responsible for establishing and maintaining an effective legal and institutional infrastructure for chemical hazard communication. This can include laws covering all aspects of the GHS, including classification, hazard communication (labels and safety data sheets) and training and enforcement, and the administrative and institutional infrastructure to implement and enforce these laws or regulations, including the role of customs and inspectorates (*e.g.* for worker health and safety, the environment, farms, transport, consumer safety, etc.). In particular, governmental authorities need to determine the obligations for classification and labelling throughout the supply chain and for the various sectors (which may have different requirements). This could include, for example, ensuring legislation specifies how to classify, who is responsible for classification and outlining responsibilities throughout the supply chain or providing labelling requirements for import or information databases on chemicals placed on the market. Governments also typically consult industry and civil society on their proposals for legislation, implementation and monitoring, such as via public hearings or "comment periods", or inform the public via education and outreach programmes.

A number of types of government bodies are typically involved in GHS implementation. While some ministries are particularly interested in a specific sector (*e.g.* the Ministry of Transport is usually responsible for chemical hazard communication in the Transport sector), other governmental partners may have an interest in more than one sector (*e.g.* Ministries of Industry, Health and Environment, Customs Authorities, etc.). Others, such as the Coast Guard (if it exists), Ministries of Fisheries or Natural Resources, and Research Institutes within government may also make a strong contribution.

In some countries, sub-national governments (*e.g.* local/regional/provincial) or regulatory agencies may also participate as partners. For example, if worker safety training is typically the responsibility of a provincial regulatory agency, then the national government may be unable to develop a successful GHS implementation strategy without the cooperation and participation of these entities.

5.2 Business and Trade

Business and trade groups, including the chemical industry, have the responsibility for applying the classification and labelling requirements for chemicals at the workplace and throughout the supply chain or life cycle. Companies that produce chemicals and/or place

them on the market therefore need to ensure that they have the necessary expertise available to identify and collect information on the chemicals they are responsible for, to apply the classification criteria and to develop labels and safety data sheets. Manufacturers and suppliers are responsible for providing this information. Distributors may repackage products and therefore need to ensure the appropriate continuity of labelling.

Employers and companies (both producer and user) also have a responsibility to train their staff in the correct interpretation and use of applicable hazard communication tools, such as labels and SDS. Companies will also need to have in place systems to collect information from the supply chain (*e.g.* on the effects of particular chemicals on workers) that may lead to revised hazard communication efforts and recommendations for risk management interventions.

Companies also often have a wider responsibility to ensure the safe use of the chemicals they produce or place on the market. This may be a result of "corporate social responsibility", product stewardship, liability for damage to human health and the environment, or the application of industry standards such as Responsible Care®. Such a responsibility may mean that information on the effects of, and exposure to, chemicals, in addition to that already available, may need to be generated. Any additional data should of course be applied to the various hazard communication tools covered by GHS.

Some groups in business and trade that may be involved with GHS implementation include:

- industrial chemicals associations;
- pesticides producers associations;
- transport industry associations;
- consumer product associations;
- major companies, including multi-national corporations; and
- user industries (*e.g.* paint, plastics, detergents, etc).

5.3 Civil Society

Civil society groups represent the interests of individuals joined together for a common purpose, such as environmental or human health protection. In the context of the GHS these groups represent individuals who are exposed to chemicals and affected by ineffective chemical hazard communication. Furthermore, these individuals may not be aware of or have sufficient resources to participate in GHS activities. Thus, civil society should play an important role in GHS capacity building and implementation. Certain civil society groups, however, may be more interested in GHS activities than others. This includes environmental NGOs, consumer or human health advocacy groups, and labour unions. Other groups, such as women and children's groups, or community organizations may also be interested in participating in GHS implementation activities as a means to achieve their objectives. This would not include organizations or associations representing manufacturers or industry groups, as sound chemical hazard communication is already an integral component of their business actions.

The role of civil society is threefold. First, civil society groups have a key role in gathering information on the current status of hazard communication among constituents and other members of civil society. Second, civil society can influence the development of a GHS implementation strategy by informing government and industry decision makers on the priorities of the people they represent. This can be through working with government to shape appropriate legislation for implementing the GHS or demanding more compliance from industry. Finally, through training and awareness raising activities, civil society can contribute to on-the-ground implementation of the GHS.

PART B DEVELOPING A NATIONAL GHS IMPLEMENTATION STRATEGY

Part B of the guidance document provides suggestions for countries towards developing a National GHS Implementation Strategy (NIS). Following an introduction to the proposed methodology, it provides suggestions for organizing the strategy development process at the national level, features questions considered relevant for preparing a situation and gap analysis, and suggests key elements of sectoral implementation plans and cross-sectoral issues which countries may want to consider in preparing the National Implementation Strategy.

6. Development of a National GHS Implementation Strategy: An Overview

6.1 Suggested Approach to Develop a NIS

The process of developing a National GHS Implementation Strategy comprises a number of considerations and steps (see Figures 2). Taking into consideration the discussions in Part A, a NIS features – for each of the four sectors concerned – actions that will be undertaken by government, business and trade, and civil society respectively to ensure effective GHS implementation. In order to achieve this goal, it is proposed that as a first step, government, business and trade, and civil society collect information about their existing GHS infrastructure and activities and prepare a situation analysis covering all four sectors. This baseline information allows the comparison of existing capacities against what should be in place - the gap analysis. A gap analysis, in turn, serves as the basis for identifying required action to be included in sectoral implementation plans. Finally, a NIS report is completed which summarizes all agreed actions in government, business and civil society, resource issues, etc. Sections 7-12 of this guidance document provide more detail about all of these steps.

6.2 Potential Challenges for Developing a National Implementation Strategy

Although the GHS is a tool that harmonizes chemical classification and hazard communication world-wide, implementing the GHS is likely to have different implications for different countries, depending on a number of factors, such as existing industrial infrastructure, legal frameworks and implementing capacities.

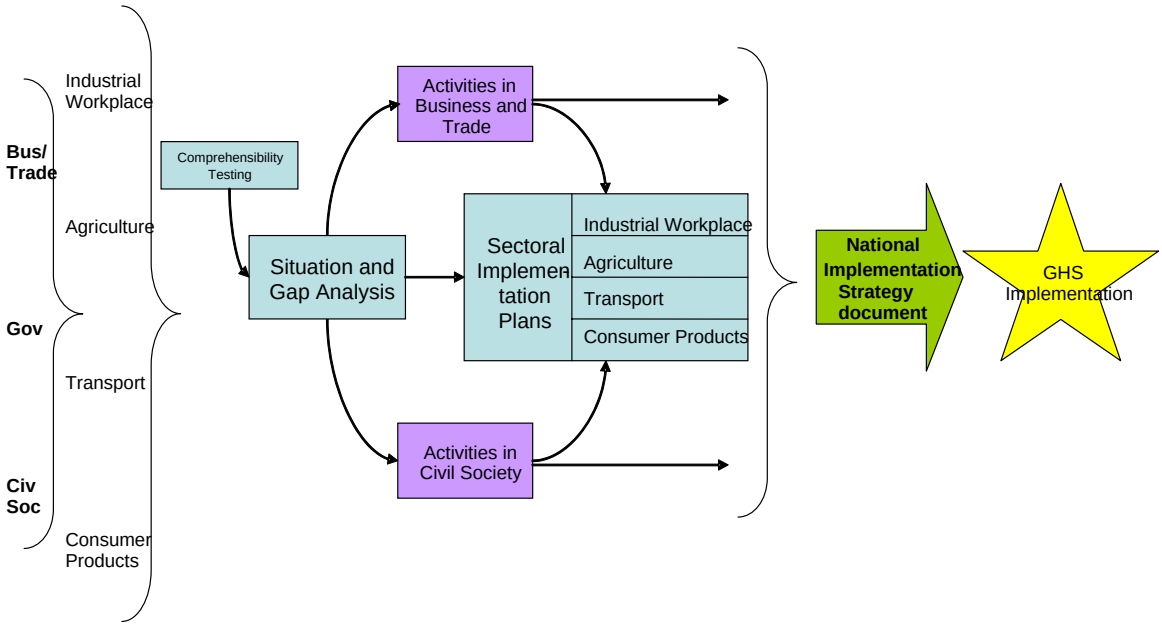
Differences in Industrial Development

A non-chemical producing country would not need to develop the depth of GHS implementing capacity in comparison to a highly industrialized country. For example, significant progress towards GHS implementation can already be made by introducing import control measures requiring GHS-based labelling and SDSs, as well as occupational GHS requirements. A country with major chemical production capacities, however, would need to develop a more comprehensive approach to GHS implementation, including development of capacity for hazard identification and hazard assessment. Review of a National Profile and preparing a situation analysis would assist in the process to understand the level of complexity which may be required.

Differences in Existing Capacity Across Countries

For a country which has no national chemical hazard communication system in place, implementation of the GHS provides an opportunity for (and may even require) development of a basic infrastructure for chemical hazard communication, including development of basic legislation for classification, labelling, SDS preparation, training, etc.[7] A country with a well-functioning existing regulatory scheme for classification and labeling would "merely" need to align legal criteria for classification with criteria provided by the GHS, and making sure that requirements for preparing SDS and labels are GHS-compatible.

Figure 2: Proposed Process of Developing a National GHS Implementation Strategy



[7] UNITAR is preparing as a separate reference document a compilation of a number of country experiences related to GHS implementation which addresses how existing sectoral systems are managed and what changes for GHS implementation are undertaken.

Differences in Capacity Across Sectors

Existing capacities for GHS implementation may, within the same country, be different in each of four sectors identified in the scope of the GHS. For example, a country may have a chemical hazard communication system in place for the transport sector, while relevant requirements for consumer product chemicals may be lacking. Thus, a differentiated approach is warranted where each of the four sectors affected by the GHS are addressed separately, while not ignoring important potential cross-sectoral issues (see section 11).

Different Institutions and Stakeholders Across Sectors

Each of the four sectors affected by GHS implementation often has different institutions involved as well as stakeholders. Thus addressing sector-specific considerations would involve identification of the appropriate actors in government, business and trade and civil society. For example, Ministries of Transport are typically taking the lead for the transport sector, while Ministries of Health often are concerned with the consumer product sector. Similarly, chemical industry associations are often divided into associations which deal with industrial chemicals and agricultural chemicals respectively. The same applies often to labour unions. Thus, careful attention should be given to identifying the appropriate actors for each of the sectors affected by the GHS.

7. Organizational Considerations

7.1 Ensuring National Coordination

Because of the number of people potentially involved in GHS implementation, establishing a coordinating infrastructure is a helpful way to frame the development of a GHS implementation strategy. This infrastructure serves to ensure that communication is ongoing between government, business and trade, and civil society; across the four sectors (including consideration of cross-sectoral issues); and between the stakeholder groups and the national coordinating committee.

Key to the success of the GHS implementation strategy is ensuring sound coordination of the many tasks and activities involved in strategy development. Therefore, it may be useful to form a national GHS coordination or implementation committee (or designate an existing committee). The committee can include representatives of stakeholder groups and government ministries representing the four sectors (industrial workplace, agriculture, transport and consumer products). The committee should meet early on in the development process and among its first orders of business can draft and reach agreement, as appropriate, on tools that can guide their work, including:

- Terms of Reference, including guidance on how decisions will be made; and the roles, commitment and expectations of the various participants;
- a workplan for the process, outlining project activities, milestones and dates; and
- a budget for the development of implementation strategy.

To aid in national coordination, countries might find it useful to identify a lead institution to act as the coordinating agency for GHS implementation activities. The lead institution usually comes from one of the government ministries representing the four key sectors, or may be a separate ministry or agency that can act as a coordinator.

The coordinating institution may perform the following types of functions:

- convene meetings of the GHS coordinating or implementation committee;
- provide secretariat support for activities and sectoral working groups; and
- coordinate participation of national representatives at GHS-relevant regional and international meetings, as appropriate.

Figure 3 depicts a sample organizational chart for GHS coordination. Countries may want to consider other organizational arrangements to suit national needs and circumstances.

7.2 Sectoral Working Groups

In order to facilitate the discussion of sectoral considerations, countries may want to consider establishing sectoral working groups. Sectoral groups would specifically focus on the implementation of the GHS in the four key sectors affected by GHS. They are usually comprised of representatives from government, business and trade, and civil society.

7.3 Coordinating Cross-Sectoral Issues

Some important issues in the implementation of GHS cut across the four sectors. These include, for example: comprehensibility testing, legislation, technical training and awareness raising. Countries may chose to address these within the National Coordinating Committee or form specific working groups or committees. The exact way of addressing these issues will depend on the individual needs and circumstances of a country. Further information on each of these potential cross-sectoral issues is found in section 11.

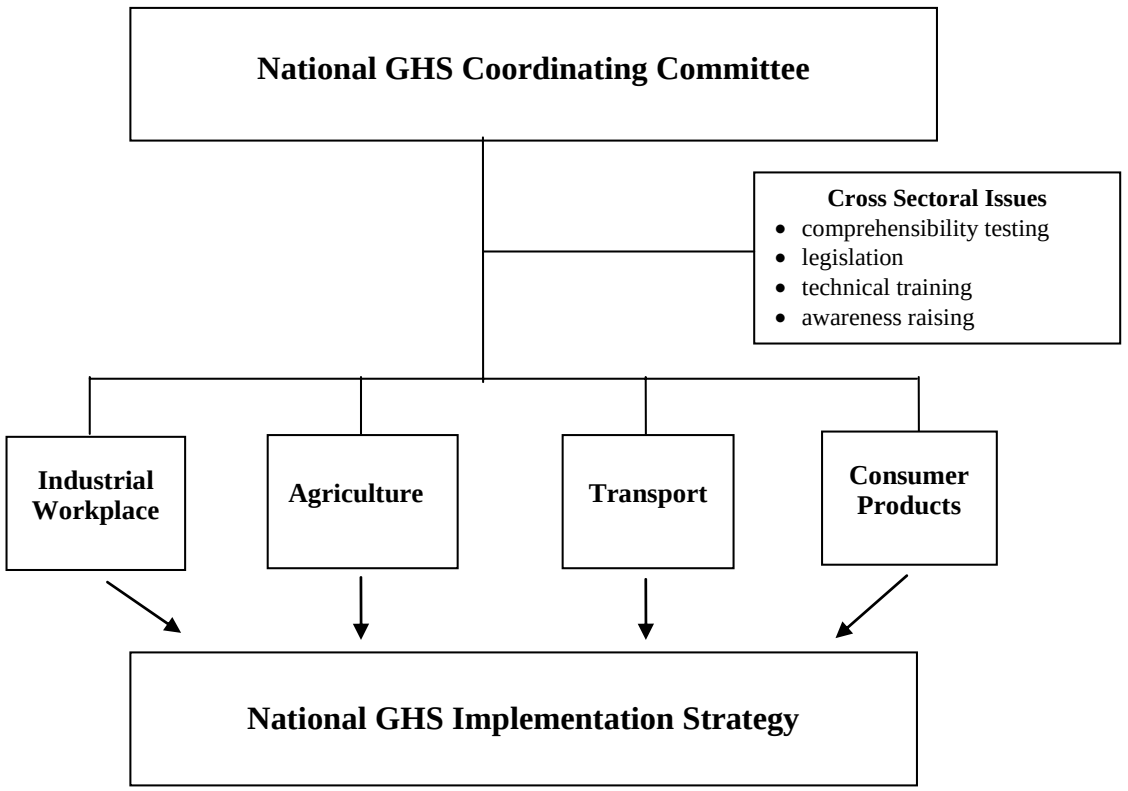
7.4 Ensuring Effective Stakeholder Participation

Involving key non-governmental stakeholders should be given special emphasis in GHS planning and implementation, and is of practical relevance, since their actions and commitment will be essential to the implementation and success of the action plan. The types of business and trade and civil society groups involved, as well as the type of involvement, will vary depending on a number of factors, including the nature and context of the issue, the time frame for developing the strategy, the legal mandate within which the lead organization(s) operates, and the availability of resources. It is advisable that countries think through, up front, how to best incorporate multi-stakeholder involvement.

The following are a few questions to consider when addressing the issue of stakeholder involvement:

- What types of groups are relevant for involvement?
- What is the nature of participation by business and trade, and civil society?
- What types of resources are available for supporting the involvement of these groups, in particular those which do not have sufficient resources?
- How will lead organizations/points of contact be identified?

Figure 3: Organizing Development of a National GHS Implementation Strategy



7.5 National GHS Workshop

During an initial phase of developing a national GHS implementation strategy, countries may consider organizing a National GHS Workshop, with participation of relevant government ministries, business and trade representatives, and civil society. The workshop could provide an opportunity to:

- learn about technical aspects of the GHS, as well as infrastructure which needs to be in place to ensure effective GHS implementation;
- review the situation/gap analysis and as well as results from comprehensibility testing (as appropriate) (see sections 8 and 9 for further information);
- initiate development of required legislative reform for GHS implementation;
- catalyse GHS capacity development activities for business and trade, and civil society/labour; and
- develop a timeline for GHS Implementation by 2008.

7.6 Parallel Activities in Industry and Civil Society

Although it is expected that business and trade, and civil society representatives will participate in various GHS planning and implementation activities, stakeholder groups may find it helpful to undertake separate activities. These could include:

- information gathering meetings;
- awareness raising campaigns;
- industry or civil society-specific workshops; or
- training sessions.

Through these activities the specific needs and required actions of industry or civil society groups can be further addressed and they can effectively contribute to the successful implementation of the GHS. UNITAR has developed an information note on the role of civil society in GHS capacity building. This document is available by request from UNITAR.

8. Developing a GHS Situation Analysis

An important initial step when preparing a National GHS Implementation Strategy involves undertaking a GHS situation analysis. The purpose of this activity is to collect baseline information to document the existing national infrastructure and capacities for chemical classification and hazard communication related to GHS implementation. Information should address existing activities and capacity in government, industry and civil society, as appropriate, and for all four sectors: industrial production, agriculture, transport and consumer chemicals.

The following sections highlight information to be included in the situation analysis. These sections are divided by actor group (government, business and trade, and civil society). Guidance questions are provided for each topic area to assist in gathering the necessary information and to ensure that the key issues are addressed. Some questions may not be relevant for all countries (*e.g.* for countries that do not produce chemicals). Countries should also feel free to determine and address other questions not listed here.

The starting point for obtaining the information should be the National Profile, if available (see Box 5). In some countries, sector-specific situation analyses may have been completed and therefore this information should be updated and used for the appropriate sector (rather than initiating a new process). Other sources (including documents, databases and interviews) may also need to be consulted.

Box 5

Using the National Chemical Management Profiles for Preparing a GHS Situation Analysis

A National Profile provides a comprehensive overview and assessment of a country's existing national legal, institutional, administrative and technical infrastructure related to the sound management of chemicals in the context of Chapter 19 of Agenda 21. Countries all over the world have prepared National Profiles with the involvement of a wide range of national stakeholders, following the recommendations issued by the Intergovernmental Forum on Chemical Safety (IFCS) and based on the IFCS-endorsed UNITAR/IOMC National Profile Guidance Document. Countries interested in participating in a UNITAR project to develop their own National Profile, or wishing to view examples from other countries, can find more information at the following address: http://www.unitar.org/cwm/a/np/index.htm

8.1 Background Information

An introductory section of the situation analysis provides some general background information related to issues of chemical use and hazard communication within the framework of a national infrastructure. It can be important to have an understanding of these issues when beginning development of a national GHS implementation strategy. This information should be obtainable in the National Profile, if one is available. Some useful baseline information may include:

- National production of chemical substances and/or mixtures (types);
- Information related to import or export chemical substances and/or mixtures (which products and with what trading partners);
- Current national levels of chemical production, import and export (as appropriate);
- National trends in chemicals use;
- Groups (*e.g.* factory workers, farmers, transporters, consumers) exposed to chemical hazards;
- Level of participation in the development of the GHS and/or in the work of the UN Subcommittee of Experts on the GHS (UN SCEHGS); and
- Sources of available information on chemical risk management, chemical hazard communication and the GHS (*e.g.* national and international approaches).

8.2 Situation Analysis - Government

This component of the situation analysis identifies and documents the existing national situation with regard to legislative infrastructures, institutional responsibilities and administrative capacities relevant to chemical hazard communication. It mainly addresses areas which fall within the responsibility of government, thus government institutions play an important role in collecting and documenting relevant information.[8] All relevant levels of government should be considered, if appropriate, if they have responsibility for related legislation, including national (federal), provincial and local, as well as any applicable regional standards upon which national legislation may be based.

[8] N.B. The suggested format of the final report of the situation and gap analysis is found in Box 7. This section reviews the information to be compiled *for each of the four sectors*.

The following questions are meant to guide such efforts:

Legal Information

- Which laws, regulations or standards exist (if any) include requirements relevant to chemical hazard communication (*e.g.* data collection, classification criteria, labelling and SDS preparation)?

- Are there import control laws (*e.g.* application of the Rotterdam Convention) relevant to controlling the entry of and information about chemicals?

- Is there any legislation or standard related to training for chemical hazard communication?

- Are there any requirements to report information on the effects and/or exposure (human and environmental) to chemicals?

- What resources are available to deliver the activities identified above?

- Please reference existing instruments and summarize relevant requirements for each of the four sectors concerned.

Institutional and Administrative Information

- What activities are conducted by government to implement, monitor and enforce existing legislation?

- Do customs authorities play a role in enforcement of the national system? If so, how and with what training?

- How is training on chemical classification and hazard communication undertaken, if at all?

- Are there poison information or control centres, toxicological or national CIS (occupational safety and health information) centres that can provide advice in the case of a poisoning accident or incident? Do they undertake any other related activities?

- Which government agencies are concerned with emergency preparedness and response and what are their relevant functions and activities?

- What resources are available to deliver the activities identified above?

8.3 Situation Analysis - Business and Trade

This section of the assessment documents the activities of the private sector that could potentially contribute to the development and implementation of an effective national GHS implementation strategy. The activities of the private sector can be an invaluable source of information and expertise for the development of the GHS implementation strategy.

The following types of questions may assist with the information to be collected:

- What is the structure and size of the chemical industry in the country (*e.g.* major multinationals, national industries, mostly SMEs, etc.)?

- What knowledge and capacities exist concerning how to classify chemicals and mixtures? Where are these capacities located and "who" is responsible?

- What criteria are used by companies undertaking classification (if any)?

- What knowledge and capacities exist concerning how to prepare SDSs and labels? Where are these capacities located and "who" is responsible?

- What label and SDS formats are in use?

- How are labels and SDS developed and by whom?

- What awareness raising and training activities or programmes are undertaken by companies who produce and market chemicals and those who use them?

- Which other initiatives, if any, have been taken through companies or industry associations related to chemical hazard communication (e.g. voluntary use of labels; worker training on SDSs; etc.)? Outline those initiatives.

- What resources are available to deliver the activities identified above?

8.4 Situation Analysis - Civil Society

This section will document the role and activities of civil society, including labour organizations, NGOs, consumer protection associations, etc., that contribute to effective chemical hazard communication at the national level.

The following types of questions may assist with the information to be collected:

- What labour unions, public interest groups, consumer protection associations or other NGOs (*e.g.* representing women's and children's health) have (or may have) an interest in chemical hazard communication?

- What activities do these groups undertake related to chemical safety and hazard communication?

- What incidents of misuse have been reported which occurred as a result of faulty or missing hazard communication?

- How are activities funded and what levels of resources are available for civil society activities?

- What relevant activities are undertaken in the academic sector (*e.g.* research and training) or by the media (*e.g.* awareness raising)?

- Are any community or school organizations active on issues related to chemical safety and hazard communication? If so, how?

- What resources are available to deliver the activities identified above?

Box 6

Comprehensibility Testing

One activity a country may consider undertaking, to complement the situation and gap analysis, is comprehensibility testing of GHS hazard communication elements. Comprehensibility testing is a survey based method for obtaining information on the understanding of GHS among the public. Comprehensibility refers to the ability of an individual reading a label, warning, or safety data sheet to understand the information sufficiently to take the appropriate precautionary measures. Comprehensibility testing is therefore a key tool for assessing the effectiveness of chemical hazard communication pictograms and/or key statements and provides important feedback for developing a chemical hazard communication system and targeted training. The results of comprehensibility testing can assist countries in identifying areas where capacity building interventions are needed in order to improve understanding of GHS-based hazard communication elements, thereby improving protection of human health and the environment. Further information is provided in section 11.1.

9. Preparing a GHS Gap Analysis

The purpose of the gap analysis is to compare the existing situation, collected in the situation analysis, against what should be in place for a sound national infrastructure to facilitate GHS implementation. This also involves a comparison of existing requirements (if applicable) in all sectors to the provisions of the GHS. Again, information should be collected and analysed by government, industry and civil society for each of the four sectors (industrial workplace, agriculture, transport and consumer product chemicals).

9.1 Gap Analysis - Government

Legal Issues

The legal gap analysis has the objective to reveal opportunities for legal or regulatory reform in order to ensure that the national legislative and regulatory framework for chemical hazard communication is compatible and consistent with the GHS. This involves a comparison of existing requirements (if applicable) in all sectors to the provisions of the GHS.

Two scenarios may be possible. First, countries may, for a given sector, find out that a legislative and regulatory framework addressing the above issues is already in place. In this case, the identified gaps would highlight the need to make existing legislation compatible with the GHS. The analysis should thus address classification criteria, as well as labelling and SDS requirements for all four sectors affected by the GHS, taking into consideration which elements are appropriate for each. Alternatively, the legalislative gap analysis may reveal that for a given sector a regulatory framework for chemical hazard communication is absent, thus pointing to the need for development of new legislation, regulations or standards.

The following questions are meant to facilitate a legal gap analysis:

- If regulatory requirements exist, to what extent are relevant provisions compatible with the requirements of the GHS?

- Which regulatory adjustments need to be made to ensure compatibility?

- Are there any duplicative existing regulations which should be addressed?

- Do they provide a clear mandate and framework to ensure support for relevant government agencies to implement chemical hazard communication programs and the GHS?

- If a legal framework for sound chemical hazard communication in a given sector is not in place, what specific reform measures need to be undertaken to ensure that national regulatory framework provides for comprehensive and effective implementation of the GHS?

Institutional and Administrative Issues

An institutional and administrative gap analysis has the objective to reveal to what extent existing ministerial responsibilities and programmes are sufficient to provide for sound chemical hazard communication in the four sectors affected by the GHS.

The following questions are meant to facilitate such an analysis.

- Does the existing legal framework assign clear ministerial responsibilities to cover all four sectors affected by the GHS?

- Is division or responsibilities across government ministries ensured or are mandates overlapping within and across the four sectors?

- Is there sufficient government staff knowledge about legal and technical aspects of GHS implementation in all four sectors?

- Do government agencies have sufficient funding to ensure appropriate government action in all four sectors concerned (e.g. facilitating regulatory reform)?

- Does government have sufficient capacity to facilitate enforcement of relevant national regulations on chemical hazard communication based on the GHS?

9.2 Gap Analysis - Business and Trade

In the long term, much of the work to implement the GHS will be undertaken by business and trade. The following questions are meant to serve as a starting point for a gap analysis in the business and trade sector concerning effective implementation of the GHS:

- Is there sufficient knowledge and capacity in industry concerning how to classify chemicals and mixtures in accordance with the GHS?

- Is sufficient capacity in place to prepare GHS-based labels and SDS?

- To what extent are chemical hazard communication tools used by business and trade already compatible with GHS provisions (e.g. SDS and label formats)?

- Does business and trade implement sufficient complementary activities to facilitate effective hazard communication (e.g. training of workers)?

- To what extent do affected business and trade entities effectively implement chemical hazard communication programmes? Are there any groups of business and trade entities where this is not the case and which require particular attention?

- What additional awareness raising and training activities will be required by business and trade to facilitated effective GHS implementation?

- Does sufficient capacity exist to make the required changes in order to effectively implement the GHS in business and trade? If not, how will capacity be developed?

- How can existing industry programmes, such as product stewardship, be used to facilitate GHS implementation?

9.3 Gap Analysis - Civil Society

Civil society organizations have important potential functions to assist the government and business and trade in effective GHS implementation, ranging from awareness raising activities to watch-dog functions in order to ensure enforcement of relevant regulations. The following questions are meant to serve as a starting point for a gap analysis in the for civil society organization concerning their role in effective implementation of the GHS.

- For each of the four sectors concerned, is there sufficient interest and capacity in labour groups and NGOs to contribute to GHS implementation?

- How can sustainable funding of NGO activities in support of GHS implementation be ensured?

- Is their sufficient interest and capacity in the academic sector to support GHS implementation via research and training?

- What additional programmes could be initiated implemented by civil society organizations (including the media) in order to promote effective GHS implementation?

- How can community or school organizations assist with awareness raising and education?

9. 4 Preparing a Situation and Gap Analysis Report

The output from the situation and gap analysis should be a concise report, complemented by summary tables of the sector-specific findings. A proposed table of contents for the report is shown in Box 7. However, there are a number of ways a country may chose to present its findings. While the table of contents below shows the situation and gap analysis as two separate sections, other options include two separate documents (a situation analysis report and a gap analysis report), dividing the report by section based on the four sectors, or dividing the report by actor group. Other options also exist and each country will decide what is best given its particular set of circumstances.

Countries should use the information gathered in the initial situation and gap analysis to provide a starting point for developing implementation plans. Further, it may be helpful for countries to discuss the results in the National GHS Workshop (described in section 7.5) to initiate the transition from analysis to planning for implementation.

Box 7

National GHS Situation and Gap Analysis:
Sample Table of Contents

1. Executive Summary
2. Introduction to the Document
3. Methodology
4. Summary of Situation Analysis
   - 4.1 Industrial Workplace
     - Government
     - Business and Trade
     - Civil Society
   - 4.2 Agriculture
     - (same as above)
   - 4.3 Transport
   - 4.4 Consumer Products

5. Summary of Gap Analysis
   - 5.1 Industrial Workplace
     - Government
     - Busines and Trade
     - Civil Society
   - 5.2 Agriculture
     - (same as above)
   - 5.3 Transport
   - 5.4 Consumer Products

6. Conclusions and Next Steps

Annexes (as needed)
- Addresses/Contact Points

10. Preparing Sector-specific GHS Implementation Plans

Countries can chose to prepare sector-specific implementation plans, taking into consideration different baseline situations and the results of the situation and gap analyses. A framework for guiding the transition from analysis to identifying concrete action in each sector is provided in Table 1. These sectoral plans would subsequently be reviewed and integrated into the national GHS implementation strategy report (see section 12).[9]

Each sector-specific implementation plan should reflect input from government, business and trade, and civil society. Some important considerations include:

- The target date for full GHS implementation, given international and national factors;
- Timeline for activities;
- Ministries and relevant organizations to be involved;
- Priority implementation issues;
- Means for implementation (*e.g.* phase in periods, starting with pilot projects, etc.)
- Activities needed to ensure GHS implementation by the target date;
- Necessity of and means for acquiring resources necessary to carry out activities;
- Possible synergies with other international agreements (*e.g.* Rotterdam and Stockholm Conventions, ILO Convention 170, etc); and
- Role civil society groups can play in raising awareness and training.

Table 1: Proposed Steps Towards Developing Sector-Specific Implementation Plans

	Situation Analysis	**Gap Analysis**	**Sectoral Implementation Plans**
	Which Capacities Already Exist? *(in Government, Business and Trade, and Civil Society)*	***What is Missing?***	***What Action is Required?***
Industrial Workplace			
Agriculture			
Transport			
Consumer Products			

[9] A guidance package on sound planning/Action Plan Development is available from UNITAR. This includes: Guidance on Action Plan Development for Sound Chemicals Management, Guidance Document and Action Plan Skills-Building Workshop and Training Modules.

11. Addressing Cross-Sectoral Issues

In addition to the sector-specific activities, countries may want to consider addressing a number of key cross-sectoral issues. Cross-sectoral issues are those that span across the four sectors or do not fall exclusively into one of the sectors. These issues may be considered at the national level by the Coordinating Committee or specific cross-sectoral task forces.

11.1 Comprehensibility testing

To inform the situation and gap analysis, countries may consider undertaking comprehensibility testing of GHS hazard communication elements in all four sectors. This survey based tool for testing GHS awareness and understanding among the public is based on the ILO comprehensibility testing methodology, developed by the University of Cape Town (UCT). It provides a foundation upon which sector-specific comprehensibility testing can be built, and a "rapid" comprehensibility testing package is available from UNITAR.

11.2 Legislation

While each sectoral working group will review sectoral legislation in their situation and gap analysis, and develop recommendations for regulatory changes or new legislation as part of their sectoral implementation plans, countries may consider establishing, multi-sector working group on legislation to ensure coordination and a coherent approach to regulatory changes.

11.3 Technical training

While training activities to assist GHS implementation will vary across sector and target audience, countries may also wish to consider developing an integrated approach to technical GHS training that addresses core needs in all four sectors.

11.4 Awareness raising

Countries may wish to consider if a single, national (multi-sector) approach to awareness raising regarding GHS implementation and its benefits to the country is required (*e.g.* via a national workshop or national awareness campaign) and how this could complement sectoral awareness raising activities.

11.5 Emergency response

Emergency responders are those involved in responding to chemical emergencies such as spills, leaks or explosions. Whether in a factory setting, storage facility or in a road accident, they need several types of hazard communication tools. In the case of an industrial accident, for example, workers and emergency responders need to know what mitigation and control measures are appropriate. In such a situation, they may require information that can be seen from afar. They may also then require expert assistance with regards to how to treat a

particular chemical emergency, such as a spill in a given environment (*e.g.* knowledge of factory design can be used to help contain a chemical spill in a particular facility).

Fire-fighters and those first at the scene of a transport accident also need information that can be distinguished and interpreted at a distance. Such personnel are highly trained in the use of graphical and coded information. Labels are required to provide immediate summary information regarding the chemical at hand, as well as detailed information found in an SDS regarding how a chemical should be handled. For agricultural or consumer poisoning incidents, the information needs of medical personnel responsible for treating victims may differ from those of fire fighters. In this case, the role of poison control centres and others with toxicological expertise is important. Countries may wish to consider how to involve these experts in the development of the national GHS implementation strategy.

12. Completing the National GHS Implementation Strategy

12.1 Proposed Content for a National GHS Implementation Strategy Document

In order to consolidate the results of the situation and gap analysis, sectoral implementation plans, consideration of cross-sectoral issues, as well as outline the goals, activities, and suggested implementation mechanisms for remaining actions, it is suggested to develop a National GHS Implementation Strategy document. This document would summarise progress to date, actions to be taken, and give consideration to resource issues. The report may be seen as a "road map" for GHS implementation by 2008. It should be prepared taking into account all necessary elements for implementation. Countries may consider review or endorsement of the report at a national workshop. A proposed structure for NIS report is outlined in Box 8.

Box 8

National GHS Implementation Strategy: Proposed Structure of Final Document

Executive Summary

1. Introduction to the National GHS Implementation Strategy

2. Methodology

3. Summary of National Situation and Gap Analysis

4. GHS Implementation in the Industrial Workplace Sector

5. GHS Implementation in the Agriculture Sector

6. GHS Implementation in the Transport Sector

7. GHS Implementation in the Consumer Products Sector

8. Resource Considerations

9. Conclusions and Next Steps to Ensure National GHS Implementation by 2008

Suggested Annexes

- Situation and Gap Analysis Report
- Comprehensibility Testing Report
- Report of National GHS Workshop

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12.2 National GHS Review Workshop

As countries near completion of developing their National GHS Implementation Strategies, they may find it useful and timely to convene a National GHS Review Workshop at which the NIS report can be made available for final discussion and endorsement by high-level government decision-makers and concerned stakeholders.

As a complement to the implementation report, countries may also wish to elaborate a resolution among all partners (government, industry and civil society) and sectors to confirm commitment of specific goals for GHS implementation and the remaining activities and to move forward with agreed actions as outlined in the NIS. This resolution could be endorsed at that National GHS Review Workshop.

13. Additional Information Sources

13.1 Information Sources for Preparing Labels and SDS

There are many sources of information for generating labels and SDS. Some national chemical hazard communication systems have classification/labelling lists which indicate which label elements should be assigned to a given category of hazard. The classification information required to generate a label can also be found in some on-line databases, which are often searchable by chemical name or CAS number.

One source for validated (i.e. peer-reviewed) information on pure substances – International Chemical Safety Cards (ICSCs) – are available from the International Programme on Chemical Safety (IPCS).[10] An ICSC summarizes essential health and safety information on chemicals for their use at the "shop floor" level by workers and employers in factories, agriculture, construction and other work places. ICSCs are not legally binding documents, but consist of a series of standard phrases, mainly summarizing health and safety information collected, verified and peer reviewed by internationally recognized experts, taking into account advice from manufacturers and Poison Control Centres. Over 1400 ICSC are available in 16 languages online at:
www.ilo.org/public/english/protection/safework/cis/products/icsc/.

The GHS itself does not include requirements for testing substances or mixtures. Therefore, there is no requirement under the GHS to generate test data for any hazard class. It is recognised that some parts of regulatory systems do require data to be generated (*e.g.* pesticides), but these requirements are not related specifically to the GHS. The criteria established for classifying a mixture will allow the use of available data for the mixture itself and /or similar mixtures and /or data for ingredients of the mixture.

Tests that determine hazardous properties, which are conducted according to internationally recognised scientific principles, can be used for purposes of a hazard determination for health and environmental hazards. The GHS criteria for determining health and environmental hazards are test method neutral, allowing different approaches as long as they are scientifically sound and validated according to international procedures and criteria already referred to in existing systems for the hazard of concern and produce mutually acceptable data. Test methods for determining physical hazards are generally more clear cut, and are specified in the GHS.

[10] While there are significant similarities between the headings in an ICSC and an SDS, they are nevertheless not the same. The SDS is the fundamental source of important health and safety information but, in many instances, can be technically complex. The ICSCs, on the other hand, set out peer-reviewed summaries of key data. The ICSC should not be a substitute for an SDS, as workers should be provided with information on the exact chemicals, the nature of those chemicals used on the shop floor and the risk posed in any given work place. However, the ICSC can be thought of as a useful information source for SDS development. The criteria and hazard information in the ICSCs are being aligned over time with the GHS.

13.2 The International Chemical Control Toolkit: a practical application of the GHS

Through the IPCS, an International Chemical Control Toolkit (Chemical Toolkit) has been developed based on an approach to risk assessment and management called "control banding". This approach groups workplace risks into "control bands" based on combinations of hazard and exposure information. It can also be applied to non-chemical workplace hazards. Recommended controls are provided based on these risks. As this banding technique is semi-quantitative or qualitative depending on the application, it is particularly relevant for use in small and medium-sized enterprises, developing nations, and, in the case of chemicals, where access to specialist advice is unavailable or where no occupational exposure standard has been set. It may also be useful for environmental risk assessment and management, as health and environment controls are complementary, and often inseparable, at the workplace level. Control banding employs the GHS hazard categories and statements, and a number of developing countries are involved in pilot testing this tool.

For more information about control banding, please visit:
<www.ilo.org/public/english/protection/safework/ctrl_banding/index.htm>.

13.3 UNITAR GHS CD ROM

In response to the growing interest of countries to access resource documents relevant to chemical hazard communication and implementation of GHS, UNITAR has developed a CD ROM of GHS-related materials. This resource was created in the context of the *UNITAR/ILO GHS Capacity Building Programme* as a contribution to the *WSSD Global Partnership for Capacity Building to Implement the GHS*. This first edition CD ROM includes publicly available guidance and training materials, summaries and full texts of international, regional and national legislation, policies and guidelines, information on capacity building projects, reports from related meetings and workshops, as well as related websites.[11] The CD ROM will be updated as a second edition in the near future. All CD ROM materials can be accessed on the web at: http://www.unitar.org/cwm/ghs_library/. For a copy of this CD ROM, please contact UNITAR.

[11] The original GHS document, published in 2003, is contained on this CD. A first revised edition of the Purple Book was released in 2005 and will be made available on the UNECE GHS Secretariat website by 2006.

ANNEX 1: LIST OF ACRONYMS

CSD	Commission on Sustainable Development
DESA	Department of Economic and Social Affairs (UN)
EC	European Commission
ECOSOC	Economic and Social Council (UN)
FAO	Food and Agriculture Organization
GHS	Globally Harmonized System for Chemical Classification and Labelling
IFCS	Intergovernmental Forum on Chemical Safety
ILO	International Labour Organization
IOMC	Inter-Organization Programme for the Sound Management of Chemicals
MDG	Millennium Development Goals
NGO	non-governmental organization
OECD	Organisation for Economic Cooperation and Development
SAICM	Strategic Approach to International Chemicals Management
SCEGHS	Subcommittee of Experts on the GHS (UN)
SDS	safety data sheets
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNITAR	United Nations Institute for Training and Research
UN RTDG	United Nations Recommendations on the Transport of Dangerous Goods
WHO	World Health Organization
WSSD	World Summit on Sustainable Development

Annex 2: The GHS and Key Agreed Sustainable Development Measures

Millennium Development Goals (MDGs)

The Millennium Development Goals (MDGs) set out a set of time bound and measurable targets for reducing poverty and other issues. Millennium Development Goal 7 is to “ensure environmental sustainability”. One of the recommendations of the MDG 7 task force includes "Reduce exposure to toxic chemicals in vulnerable groups" including to "Improve frameworks for chemical management."

In particular, it was suggested that:

> *National and municipal government authorities should establish and enforce legislation, policies, and programs to manage chemicals safely throughout their life cycles (including implementation of extended producer responsibility or product stewardship). Education and training on safe chemical management and good environmental practices and the organized and systematic involvement of different sectors of society on policy, legislation, and program formulation and implementation should be developed as a means of creating synergies and outreach. Enforcement of regulations requires training and employment of chemicals experts across all sectors. These efforts should draw on existing and emerging multilateral environmental agreements, including the Rotterdam, Stockholm, International Labour Organization, and Basel Conventions and the Montreal Protocol. In addition, governments and industries should support such international policy development strategies and actions as the Strategic Approach to International Chemical Management.*[12]

Protecting the Health of Marginalised Groups

Harm from exposure to chemicals can disproportionately affect traditionally disempowered persons, including women, children and the poor. Agenda 21, and Chapter 19 in particular, recognize the vulnerability of these groups to toxic chemicals. For example, chemical production facilities are usually located, like many manufacturing facilities, in close proximity to communities (as sources of labour), which can include settlements where poverty is a pressing social problem. In developing countries, women and children can often be at most risk of exposure or misuse of chemicals. Use of unlabelled pesticides in the home, children playing in areas contaminated with or containing barrels of unknown substances, and mislabelled cleaning agents (for example) are all real situations that could be improved by the effective implementation of a harmonized hazard communication system. The poor and illiterate are often the most at risk from the hazards of products labelled in another language or using confusing symbols. Successful implementation of a sound plan for chemical hazard communication can lead to direct benefits to the health of workers, consumers, and the environment through behavioural changes due to successfully conveying chemical hazards (e.g. on labels and safety data sheets).

[12] For further information, please visit: <http://www.unmillenniumproject.org/who/task06.htm>.

Protecting water supplies and drinking water

Access to clean water has become one of the priorities on the sustainable development agenda. Yet, at the level of the end user, empty containers that had previously held chemicals often serve to carry and store water. Proper labeling of chemical containers combined with a basic understanding of potential hazards can help to ensure that old barrels are not reused for holding drinking water (as is often the case with unlabelled barrels) or that certain chemicals are not poured in to water supplies in the belief that they may "purify" the water or provide an apparently "easy" way to kill fish for eating.

Ensuring Safe Transport of Chemicals

Incidents of transport accidents, resulting in spills of hazardous chemicals and injuries to bystanders and emergency responders who were not aware of the hazards have been recorded in many countries. For example, in Zambia it has been documented that there is very little knowledge on the meaning of the symbols and numbers on transport vehicles. In one case, a derailed tanker caught fire killing about 20 people who did not understand the hazard warning that a flammable liquid was being transported. In another case, a tanker near the Zambian town of Kitwe spilled sulphuric acid, burning a driver to death.[13] National implementation of a comprehensive and harmonized labelling system in the transport sector, accompanied by appropriate awareness raising and training measures, based on the UN RTDG/GHS would significantly decrease the likelihood of these types of problems resulting from accidents or incidents.

The GHS as a Tool to Facilitate Free Trade of Chemicals

In addition to the direct benefits of protecting human health and the environment and its contribution to achieving broader sustainable development goals, implementation of the GHS has significant benefits to trade. As noted in the GHS document itself, one objective of the System is to "facilitate international trade in chemicals whose hazards have been properly assessed and identified on an international basis". Countries currently have different regulations regarding requirements for importing or exporting chemicals and chemical products, and therefore there are different labels or SDS for the same product in different countries. Through variations in definitions of hazards, a chemical may be considered flammable in one country, but not in another. Companies wishing to be involved in international trade must be able to follow the changes in these laws and regulations and prepare different labels and SDS. In addition, given the complexity of developing and maintaining a comprehensive system for classifying and labelling chemicals, many countries have no system at all. Thus, given the reality of the extensive global trade in chemicals, and the need to develop national programs to ensure their safe use, transport, and disposal, it is recognised that an internationally harmonized approach to classification and labelling provides the foundation for such programs.

[13] Banda, Samuel F. *National Chemical Hazard Communication Situation Analysis for Zambia* (Environmental Council of Zambia/UNITAR, 2001).

Annex 3: GHS in Relation to International Chemical Agreements

There are existing international standards on classification and hazard communication, especially those of ILO, WHO and FAO, which countries may have employed to develop national systems. However, efforts are underway and it is expected that the classification criteria and hazard communication elements, as appropriate, for those agreements will be brought in to line with the GHS over time to ensure the benefits of multi-sectoral harmonization. Other agreements (such as the Rotterdam Convention) reference the use of international standards for labelling in their requirements.

ILO Chemical Convention 170 and Recommendation 177

The purpose of Convention 170 and Recommendation 177 concerning safety in the use of chemicals at work, adopted by the International Labour Conference (77th Session, 1990), is to protect workers against the risks associated with the use of chemicals at their workplace. It applies to all branches of economic activity in which chemicals are used. It covers all chemicals without exception and provides for specific measures in respect of hazardous chemicals. The Convention sets out the responsibilities of competent authorities, suppliers of chemicals, employers and workers. The Convention came into force in November 1993, and to date, 9 countries have ratified it.[14]

The Convention requires that classification systems be established. In addition, it states that all chemicals should be marked to indicate their identity and that hazardous chemicals should be labelled so as to provide essential information on their classification, their hazards and the safety precautions to be observed. It also requires that chemical safety data sheets for hazardous chemicals be provided to employers. Chemical suppliers are responsible for ensuring that chemicals have been classified, marked and labelled and have chemical safety data sheets.

In 1993, ILO elaborated a "Code of Practice for the Safety in the Use of Chemicals at Work", which provides guidance on the implementation of Convention 170. The practical recommendations of the Code cover all the elements necessary to ensure an efficient flow of information from manufacturers or importers to users of chemicals, and enable employers to formulate measures to project workers, the public and the environment. The subjects covered include classification systems, labelling and marking, chemical safety data sheets, design and installation, control measures, work systems, personal protection, information and training, medical surveillance, emergency procedures, monitoring and reporting, and confidentiality.[15]

[14] The ratifying countries are: Brazil, Burkina Faso, China, Colombia, Mexico, Norway, Sweden, Tanzania, Zimbabwe.

[15] More recently, the 89th session of the International Labour Conference adopted in June 2001 a Convention and Recommendation on Safety and Health in Agriculture. The Convention (No. 184) and Recommendation (No. 192) address a range of chemical safety issues including: importation; classification; packaging and labelling; disposal of chemical waste, obsolete chemicals and empty containers; risk assessment; and provision of adequate and appropriate information.

FAO International Code of Conduct on the Distribution and Use of Pesticides

The 1985 International Code of Conduct, amended in 1989, was developed to address a number of difficulties associated with the use of pesticides in developing countries where adequate regulatory infrastructures are frequently lacking. It was recognized that in order to remain relevant the Code must evolve in order to reflect changing needs of countries and that there was a need to monitor progress in the observance of the Code. One of the basic functions of the Code is to serve as a point of reference, particularly until such time as countries have established adequate regulatory infrastructures for pesticides. The objectives of the Code are to set forth responsibilities and establish voluntary standards of conduct for all public and private entities engaged in or affecting the distribution and use of pesticides. The Code suggests how to distribute the responsibilities between government, industry and others. The twelve articles of the Code are supported by a set of detailed technical guidelines which provide guidance on their implementation. Article 10 of the Code specifically addresses "Labelling, packaging, storage and disposal" of pesticides.

GHS and the Rotterdam Convention

The Rotterdam Convention is intended to allow countries to monitor and control the trade in certain hazardous chemicals, including facilitating information exchange about the characteristics of the traded chemicals. It therefore has close links to hazard identification and communication issues and the GHS. The text of the Convention, for example, refers to a "desir[e] to ensure that hazardous chemicals that are exported … are packaged and labelled in a manner that is adequately protective of human health and the environment" (Preamble). Article 13 requires that exported PIC chemicals (listed in Annex III) are subject to labelling requirements that ensure adequate availability of information with regard to risks and/or hazards to human health or the environment, taking into account relevant international standards.

The Convention also requires Parties to ensure that chemicals used for occupational purposes have a safety data sheet that follows an internationally recognized format, setting out the most up-to-date information available. The information on the label and on the safety data sheet should, as far as practicable, be given in one or more of the official languages of the importing Party. Moreover, the Convention also provides the opportunity for parties to take responsibility for exported chemicals by allowing them to require that chemicals subject to national environmental or health labelling requirements (not just PIC chemicals) are exported subject to labelling requirements taking into account relevant international standards. The references to an "international standard" and format for labels and SDS are thus references to the GHS.

GHS and the Stockholm Convention

The Stockholm Convention aims to protect human health and the environment from persistent organic pollutants (POPs). The Convention text underlines "the importance of manufacturers of persistent organic pollutants taking responsibility for reducing adverse effects caused by their products and for providing information to users, governments and the

public on the hazardous properties of those chemicals"(preamble). In the long term, Article 10 on "Public information, awareness and education," the Convention encourages parties to use safety data sheets, reports, mass media and other means of communication. As with the Rotterdam Convention, countries may use the GHS as a basis for the information to be provided on the characteristics of the chemicals, as well as for a format for communication tools such as SDS.

GHS and the Strategic Approach to International Chemicals Management (SAICM)

At its seventh special session held in February 2002, the Governing Council of the United Nations Environment Programme (UNEP) adopted decision SS.VII/3, in which it decided that there was a need to further develop a Strategic Approach to International Chemicals Management (SAICM)[16]. The SAICM process has an aim to review current actions to advance the sound management of chemicals, identify gaps and propose concrete projects and priorities. In advance of the first PrepCom of SAICM, nine countries[17], four international organizations[18], and two NGOs[19] (from a total of 37 submissions) made reference to the GHS being an important or possible element of SAICM. Others did not refer to GHS explicitly, but mentioned issues relating to data generation, right-to-know, labelling, transport and other related-issues. Based on this broad stakeholder support and recognition of its important role in chemicals management, GHS implementation and capacity building is very likely to be included as a core element of the strategic approach.[20]

FAO Guidelines on Good Labelling Practice for Pesticides

The 1995 FAO "Guidelines on Good Labelling Practice for Pesticides" give guidance on the preparation of labels and specific advice on content and layout. They are intended for use by those in industry involved with label preparation and also by national regulatory personnel involved with the approval of labels and the specification or recommendation of suitable text and layout. The Guidelines contain four main sections with appendices. The first section identifies the main objectives and considerations in preparing a label. The second section identifies the information which must appear on a label. The third section deals with writing a label with maximum clarity and consideration of the level of knowledge of users. The Guidelines include pictograms that communicate key safety information to users in different countries and with varied levels of literacy. The fourth section discusses the establishment of toxicity and hazard classifications for a product. The appendices contain examples of labels, hazard statements, agricultural practice statements and other summaries of specific and generic label contents which can help to clarify the general text.

ISO 11014-1: International Standard for Safety Data Sheets

In 1994, the International Organization for Standardization (ISO) developed a standard format for safety data sheets to create consistency in providing information on safety, health and environmental matters for chemical products. In order to establish uniformity, certain

[16] http://www.who.int/ifcs/Saicm.htm
[17] Australia, Austria, Canada, EU, Japan, New Zealand, Serbia, Switzerland and USA
[18] ILO, UNIDO, UNITAR and WHO.
[19] ICCA, WWF.
[20] See for example the report of PrepCom-1, SAICM/PREPCOM.1/7, pages 8 and 44.

requirements are laid down as to how information on the chemical product shall be given (for instance the wording, numbering and sequence of the headings). The ISO SDS standard uses the 16-heading format similar to the one outlined in section 3.3.

WHO Recommended Classification of Pesticides By Hazard And Guidelines To Classification

The WHO Recommended Classification of Pesticides by Hazard was approved by the 28th World Health Assembly in 1975 and has since gained wide acceptance. Guidelines were first issued in 1978, and have since been revised and reissued at 2-yearly intervals. The hazard referred to in the Recommendation is the acute risk to health (that is, the risk of single or multiple exposures over a relatively short period of time) that might be encountered accidentally by any person handling the product in accordance with the directions for handling by the manufacturer or in accordance with the rules laid down for storage and transportation by competent international bodies. The classification distinguishes between the more and the less hazardous forms of each pesticide in that it is based on the toxicity of the technical compound and on its formulations. In particular, allowance is made for the lesser hazards from solids as compared with liquids. The classification is based primarily on the acute oral and dermal toxicity to rats since these determinations are standard procedures in toxicology.

Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemicals Weapons and on their Destruction (Chemical Weapons Convention, CWC)

The CWC, which came into effect on 29 April 1997, is aimed at eliminating an entire category of weapons of mass destruction under strict and effective control that is largely outside the scope of this summary. However, it also covers chemicals and activities not prohibited under the Convention. These include the so-called dual purpose chemicals and their precursors. Indeed the exchange of scientific and technical information, and the production, processing and use of such chemicals for purposes not prohibited under the Convention, are permitted. Imports and exports of scheduled chemicals are also permitted subject to the conditions as laid down in the Convention and the relevant decisions that have been taken by the policy making organs of the organization.

National implementation of the Convention involves adoption of measures by each State Party to fulfill its obligations under the Convention. In particular, it includes the enactment of necessary legislation to prohibit activities which are not permitted under the Convention, setting up National Authorities which are to serve as national focal points for implementation of the Convention, and bringing national regulations concerning trade in chemicals into line with the provisions of the Convention. In order to facilitate national implementation, technical assistance, training of personnel, and legal assistance aimed at capacity building are provided by the Technical Secretariat of the OPCW. As with other Conventions, activities are undertaken through the National Authorities which assist in briefing national scientific and technological communities and the public at large on the requirements of the Convention. Synergies between the CWC and the GHS could strengthen national chemicals management.

ANNEX 4: TABLE OF CONTENTS OF THE GHS (REVISED 1ST EDITION)

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Chapter 4.1 Hazardous to the aquatic environment

ANNEXES

The United Nations Institute for Training and Research (UNITAR) was established in 1965 as an autonomous body within the United Nations with the purpose of enhancing the effectiveness of the United Nations through appropriate training and research. UNITAR is governed by a Board of Trustees and is headed by an Executive Director. The Institute is supported by voluntary contributions from governments, intergovernmental organizations, foundations and other non-governmental sources.

The International Labour Organization is the UN specialized agency which seeks the promotion of social justice and internationally recognized human and labour rights. It was founded in 1919 and is the only surviving major creation of the Treaty of Versailles which brought the League of Nations into being and it became the first specialized agency of the UN in 1946. The ILO formulates international labour standards, provides technical assistance and promotes the development of independent employers' and workers' organizations and provides training and advisory services to those organizations. Within the UN system, the ILO has a unique tripartite structure with workers and employers participating as equal partners with governments in the work of its governing organs.