EXECUTIVE SUMMARY

1. Background

Chemical hazard communication, through the provision of labels and safety data sheets, is a key strategy for the prevention of illness and disability due to unsafe use of, or from exposure to potentially hazardous chemicals. The Globally Harmonised System for Hazard Classification (GHS) has been developed in light of the need to strengthen national capacities for management of chemicals in line with Chapter 19 of Agenda 21. It aims to enhance human and environmental safety, reduce the need for duplication in safety evaluations, facilitate trade in chemicals that have been properly assessed and provide an adequate information framework for the safe management of chemicals.

2. Study Methodology and Aims

The Occupational and Environmental Health Research Unit (OEHRU) at the University of Cape Town undertook to conduct the comprehensibility testing component of this feasibility study. The comprehensibility study was conducted under the auspices of a sub-committee of NEDLAC (the Counterpart Group, CPG) and in synchrony with a broader investigation of feasibility by Wiechers Consulting. The study commenced in December 2002 by adapting a comprehensibility testing tool developed by the OEHRU for the International Labour Office (ILO) for use in South Africa. The tool measures how well respondents understand safety messages, symbols, colours and signal words on labels and safety data sheets, and is specifically geared to testing elements of the GHS.

Sampling was planned in January – February 2002. Testing of 402 workers and consumers was conducted from March to June 2003 as a sub-component of the to identify problems in comprehension of hazard communication (labels and safety data sheets). Four sectors were examined, namely agriculture, transport, industry and consumers. The purpose of the study was to:

- provide data on comprehensibility of labels and SDSs presently in use;
- provide data on the comprehensibility of proposed GHS symbols to be used in SA;
- identify areas of low comprehension where training will be required;
- identify areas needing to be addressed during GHS implementation;

3. Results

Respondents in this study were generally representative of the target group for the GHS, including workers in the chemical industry (86), industry other than chemical (90), transport (72), agriculture (67) and consumer (87) sectors, who had substantial experience of exposure to and/or usage of chemicals at the workplace and at home. The sample was predominantly male (>60%) reflecting gender dominance in the sectors surveyed.

The results showed that, in general, comprehension of hazard communication labels and SDSs is low. Comprehension varied across sectors and sub-sectors, by education, home language and by history of previous training. Small differences in comprehensibility of hazard communication elements were identified between categories of job, with laboratory and health care personnel having better comprehension of some elements, but these differences were not common or consistent.

Certain elements of hazard communication are relatively well understood, particularly symbols such as the skull and crossbones and the flammable symbol, and pictograms denoting use of protective clothing. However, the majority of other hazard symbols, warning and activity pictograms, and hazard messages, are of moderate to poor comprehensibility. Some items are associated with significant levels of critical confusions, and the majority of GHS symbols would not achieve adequate comprehensibility based on US ANSI standards

for labelling. Usage of hazard communication materials in practice appeared low, particularly amongst production workers and safety representatives / shop stewards, with respondents generally not making full use of the SDS to identify important hazards, other than the one already evident from label symbols, or from common knowledge. A culture of SDS use is not evident in the sample.

Home language other than English was associated with poorer comprehension on a number of items. Colour was uncontributory to discriminating hazard other than a universal agreement that red denoted the highest level of hazard. Agricultural workers and consumers, for whom the sequence of colours is important in denoting pesticide toxicity, fared poorly on agreeing on a colour-ranking scheme that matched the current system in use for pesticides. Colour blindness played a small role in predicting colour preference (related to yellow) but did influence the overall comprehensibility findings.

Labels were regarded as the priority source of information on a chemical and opportunities for occupational health practitioners, Poison Centres and Trade Unions to play a more useful role in providing information were identified. Co-workers and supervisors were identified as sources most likely to be elicited by prompting, and this emphasises the importance of peer education. Even a limited training intervention, provided in the form a 5-minute interviewer administered explanation of symbols, was shown to reduce the number of critical confusions, and impact significantly on the comprehension of the symbol for chronic illness, recently introduced as part of the GHS.

Training levels reported in the sample were low, even in the industrial sectors subject to South African legislation, which mandates such training. Nonetheless, the effects of the questionnaire administration alone appeared sufficient to prompt serious shifts in the stated intended use of labels and SDSs in future compared to reported reasons for previous use. Training is therefore not only a priority but also potential a feasible strategy to effect real change.

4. Conclusions and Recommendations

Recommendations emerging from this study include the following:

1. Invest in training to support the GHS, with a particular focus on training in symbols, and items identified in this study as generating key critical confusions (e.g. environmental hazard). Agricultural workers require particular training on colour associated with hazard. Training should be peer-driven, where possible, and make use of context where similar symbols are used to maximise the effectiveness of training.
2. Include symbols on SDSs, identify ways to abbreviate SDSs or produce adjunct summaries in simple language for shop floor use.
3. Produce hazard statements written in simpler English, glossaries to explain complex words, and a bank of simplified hazard statements.
4. Establish standards for simple and understandable language to be used on hazard communication material.
5. Radio and TV-based education programmes must be used to reach consumers.
6. Concurrent with the introduction of the GHS, other sources of information (e.g. occupational health personnel, Poison Information Centres) on chemicals should be encouraged, so as to maximise the impact of training on hazard communication. The labour movement should be encouraged to review and expand its role in providing support and information for the GHS implementation.
7. Specific changes suggested are the inclusion of UN chemical number, enlarged fonts