

3. SOCIO-ECONOMIC IMPLICATIONS OF THE GHS

3.1 Introduction

The purpose of this section is to report on the socio-economic implications of the GHS for South Africa. The impact of the GHS in the socio-economic sphere is felt primarily through South Africa's external trade in chemicals. The impact of non-implementation of the GHS on trade would be negative with the knock-on effects on employment, earnings, growth and investment. Conversely, implementation of the GHS, would enhance the realisation of the socio-economic benefits that the GHS is believed to transmit through positive impacts on trade. The first part of this chapter focuses on the socio-economic implications of the GHS for the chemical industry. An understanding of the socio-economic context of the chemical industry forms a basis for the evaluation of gaps in the present phase (two) of the study, which in turn will form the basis for the formulation of an implementation strategy in the third phase. The socio-economic analysis reported in the Situation Analysis (Part 1), is the point of departure for the analysis in this section.

Implementation of the GHS will require resources and financing. In the second part of this chapter, a broad assessment is made of the resource requirements and financial implications of implementing the GHS. Benefits are weighed up against costs, as far as available information allows, while potential "high impact" aspects are identified. This part of the analysis is based on the information reported in Chapter 2 of this report. Potential sources of funding are identified and the chapter concludes with a list of socio-economic gaps to be attended to by the implementation strategy.

3.2 The Socio-Economic Profile of the Chemical Industry

The socio-economic relevance of the GHS is to be found in the impact on the international trade in chemicals, worker safety and the environment. Consequently, it was concluded in the Situation Analysis that the chemical industry in South Africa can be profiled as set out below.

3.2.1 Socio-economic Importance

The chemical sector is the single most important sector in the South African manufacturing industry. It is responsible for about a fifth of value added in manufacturing, a fifth of salaries and wages paid by factories and about a fifth of the exports of all manufactured goods. Since the manufacturing industry contributes almost one fifth to gross domestic product, the value added by the chemical industry amounts to approximately 4% of the gross domestic product. This is about of the same value added compared to the agriculture-, forestry- and fishing sector. The GHS is thus set to impact on a significant portion of South African manufacturing and of the economy as a whole.

3.2.2 Socio economic Dynamics: Employment

The chemical sector is highly capital intensive in the upstream sphere of the industry, but the relatively more labour intensive downstream activities makes it an important employer, contributing in total, 14% of total manufacturing employment. 77% of employment in the chemical sector is in downstream activities and 71.5% of salaries and wages paid by the sector are found here. While overall manufacturing employment declined over the past decade, growth in employment by the chemical sector as a whole recorded an increase between 1994 and 2001. This growth in employment in the chemical sector arose from downstream activities. Upstream activities invariably recorded a loss in employment. Table 3.1 demonstrates the increase in employment and labour remuneration between 1994 and 2001 among the downstream sectors, in particular Other Chemical Products and the Plastic Products sectors. These two downstream sectors are predominant both in employment as well as earnings by employees and, as is shown in Table 3.1, could be important in future growth through trade.

Table 3.1: Percentage composition of employment and labour remuneration for sub-groups of the chemical sector: 1994 and 2001

SECTOR	EMPLOYMENT %		REMUNERATION%	
	1994	2001	1994	2001
Upstream				
Petroleum & petroleum products	10.86	7.64	16.85	15.74
Industrial chemicals	17.71	15.41	22.41	22.77
Downstream				
Other chemical products	37.55	38.17	36.87	40.65
Rubber products	9.24	7.07	8.33	6.41
Plastic products	24.63	31.71	15.55	24.44
Total Chemicals	100.00	100.00	100.00	100.00

Source: Situation Analysis Tables 2.4 and 2.5.

3.2.3 Socio economic dynamics: Trade

The past decade observed an opening-up of the chemical sector to international trade as the result of the lifting of sanctions and the introduction of trade liberalisation. As can be seen from Table 3.2 below, local production for local consumption averaged 78.4% of total demand in 1990, (during the protective phase).

Table 3.2: Local sales from local production, imports and exports as a percent of total demand for sub-groups of the chemical sector for 1990, 1994 and 2001

		1990			1994			2001		
SECTOR		A	B	C	A	B	C	A	B	C
Upstream	Coke oven products	97.51	0.05	2.45	94.97	0.74	4.29	78.61	20.09	1.30
	Petroleum refineries & synthesisers	97.33	1.61	1.07	95.78	1.39	2.83	65.07	9.26	25.67
	Basic chemicals	37.92	40.28	21.80	12.78	44.81	42.41	9.46	40.10	50.44
	Fertilisers and nitrogen compounds	84.69	7.30	8.01	79.80	7.79	12.41	71.01	13.19	15.80
	Plastics in primary form	72.52	21.93	5.54	66.03	26.16	7.81	56.61	28.53	14.86
Downstream	Pesticides & agro-chemical products	77.36	14.15	8.48	49.92	25.11	24.97	37.37	26.90	35.74
	Paints, etc, printing ink & mastics	90.65	6.58	2.77	88.39	8.59	3.03	75.22	15.12	9.66
	Pharmaceuticals & medicinal chemicals	71.20	25.21	3.59	62.66	34.24	3.10	42.97	50.63	6.40
	Soap, etc & polishing, perfumes, etc	91.18	6.27	2.55	81.89	6.25	11.86	77.56	11.51	10.94
	Other chemical products	67.03	28.79	4.18	60.01	32.41	7.58	45.61	38.77	15.62
	Tyres & tubes of rubber, etc	89.01	8.85	2.14	80.75	12.16	7.08	61.17	19.67	19.15
	Other rubber products	75.61	22.20	2.19	64.61	31.14	4.25	43.48	44.05	12.47
	Plastic products	87.95	10.38	1.67	85.05	11.47	3.48	75.56	17.45	6.99
TOTAL CHEMICALS		78.35	16.25	5.40	70.44	19.19	10.37	55.67	23.75	20.58
Description:										
<ul style="list-style-type: none"> • Column A: (Local Production for Local Consumption) as percent of (Total Demand) • Column B (Imports) as percent of (Total Demand) • Column C (Exports) as percent of (Total Demand) 										
Source: IDC (Primary source: Statistics South Africa and Customs and Excise)										

Ratios in excess of 90% were seen for local consumption in some sub-groups in 1990, with ratios less than 70%, being the exception. In 2001, the percentage of local consumption produced locally, declined to 55.7% with the ratios for most sub-groups being less than 70%. Because of trade liberalisation, the internationally traded component of total demand for chemicals doubled between 1990 and 2001. Exports plus imports increased from 21.7% of South Africa's total demand for chemicals in 1990 to 44.3% in 2001.

As can be expected, imports of chemicals penetrated the local market on a more significant scale than prior to trade liberalisation. This is evident in the period after 1994 when the share of imports as a percentage of total demand for chemicals rose from 19.2% to 23.8%. Among the upstream sub-groups, import penetration was more evident than others in the case of Coke Oven Products, Petroleum Products and Fertilizers and Nitrogen Products. Among the downstream sub-groups the most severe import penetration occurred in the consumption of Pharmaceutical and Medicinal Chemical Products. This was also significant in the case of Paint, Printing Ink and Mastics, and, in Other Chemical Products.

Export penetration was even more significant than import penetration. Exports as a percentage of total demand nearly doubled from 10.4% in 1994 to 20.6% in 2001. Among the upstream sub-groups, the ratio for the Basic Chemicals sub-group rose to more than 50% and that of Petroleum Products from 2.8% in 1994 to 25.7% in 2001. With respect to the more labour intensive downstream sub-groups of the chemical sector, it is important to note that their entry into international markets invariably started from a low base. They recently reached a stage where exports became substantial and furthermore are in need of preserving the recently acquired export momentum to be able to tap increasing growth from international markets. This is imperative since import penetration in downstream chemicals tends to check the ability of local producers to hold their own in local markets.

3.2.4 Trade barriers

Important shifts in the destination of exports and the origin of imports occurred over the past decade. However, most of South Africa's exports of chemicals (50%+) are destined for the markets of the developed countries, while imports (73%+) are predominantly sourced from the developed countries. It can be expected that the developed countries will be the most committed in applying the regulatory aspects of the GHS. Non-compliance with the GHS could result in self-imposed non-tariff barriers against a country's exports of hazardous chemicals.

3.2.5 Regional Aspects

South Africa dominates in the trade in chemicals between Southern African Development Community (SADC) countries, and between SADC and the rest of the world.

3.3 Socio-economic Issues

The socio-economic profile of the chemical sector identified a number of issues that are addressed in the gap analysis reported in this chapter.

3.3.1 Harmonised hazard communication is to facilitate trade

Harmonised hazard communication aims to simplify the inter-modal and cross border movement of hazardous chemicals thereby facilitating the trade in these products. As demonstrated above, South Africa's international trade in chemicals grew more intense, particularly since 1994 with the advent of trade liberalisation. To the extent that the GHS is to facilitate trade, the following arguments are advanced for its diligent and comprehensive implementation against the backdrop of the socio-economic dynamics of the present day South African chemicals industry.

The chemicals industry, as the single largest manufacturing sector in South Africa, has built up a significant export momentum in the past decade. This export momentum has a positive impact on the growth of the chemical sector, as well as the manufacturing sector as a whole and the economy at large. It is imperative that this export momentum be preserved as far as it is possible. Implementation of the GHS will impact positively on the export momentum while non-implementation will distract from it. The latter could become especially evident among the downstream exporters that are trying to grow their export business and among first time exporters. As a result of non-compliance, they may then not share in the benefits that the GHS has to offer to exporters, while most foreign markets will still expect them to comply with the harmonised communication system to enable their goods to enter these markets. Although the prevalence of hazardous chemicals is less among downstream than upstream chemicals, non-compliance with the GHS may frustrate efforts at the penetration of export markets in both regards. It is doubly important that the export momentum among the downstream sub-groups be preserved and even be strengthened due to their social attributes of being more labour intensive than the upstream sub-groups and with a higher incidence of small and medium sized enterprises.

With already advanced hazard communication systems at their disposal and being well resourced, it is taken as given that the developed industrialised countries will be at the forefront of implementing the GHS. Non-compliance with the GHS by exporters to the developed countries could then find the GHS in effect becoming a non-tariff trade barrier to them with the importing countries demanding compliance to the GHS before goods are allowed to cross their borders. Conversely, by complying with the GHS, exporters of chemicals to the developed country markets may find it easier than before

to comply with other non-tariff measures of these countries as the GHS objectively lays down the criteria, test methods etc. to which exporters and importers subscribe. At present, exporters to developed countries are at the mercy of the requirements, procedures and test facilities of the developed countries, which in many instances can behave in an explicitly trade frustrating manner.

The GHS is going to allow for discretion in the treatment of the different aspects of hazard communication by individual countries. This could become an additional source of non-tariff protective measures. With the trade in chemicals having to comply to a high incidence of non-tariff trade measures, and with the propensity of many developing countries to employ non-tariff trade barriers as protective mechanisms, the behaviour of especially the developed countries need to be monitored in this respect.

The internationally traded component of the total demand for chemicals in the South African market is 44% at present and could approach 50% by the time that the GHS is implemented internationally. In this respect, hazard communication for the trade of at least 50% of the demand for chemicals will be required to be communicated with the help of the GHS. Foreign suppliers to the South African market would invariably communicate hazards complying with the GHS. Most foreign markets would require South African exporters to do the same. Market requirements, thus, are likely to be a driving force in enforcing compliance with the GHS in a decisive manner.

3.3.2 Southern Africa Development Community

South Africa is the overwhelming force in chemicals in trade amongst SADC members and the trade of SADC with the rest of the world. Compliance with the GHS can facilitate trade in chemicals among SADC members and trade between the SADC and the rest of the world. South Africa is best placed for promotion of SADC-wide implementation of the GHS because of its extensive trade in chemicals and its access to resources to develop the GHS system.

3.3.3 Harmonised hazard communication is to enhance the protection of humans

The GHS is expected to impact positively on productivity. Improved productivity because of better hazard communication is expected to arise from two sources. The first would be improved work performance because of greater clarity in the handling of hazardous materials. The second would arise from the reductions in the number of incidents. The latter also implies benefits in reduced costs of treatment of a lower number of casualties as well as a reduction in the loss of wage income by the victims of incidents due to better hazard communication.

The implementation of the GHS is not expected to give rise to job redundancies as its objective is only the improvement of hazard communication. However non-implementation could be a threat to jobs as the result of negative consequences on exports.

Worker safety is increasingly being regarded as a trade issue (particularly by the EU and the World Trade Organisation). The trade in chemicals is more susceptible to such concerns than that of the perceived "safer industries". Non-compliance of the GHS may strengthen the case for non-tariff protective measures on the grounds of worker safety because of concerns as to the commitment of a country to the promotion of worker safety. This may invite non-tariff barriers some time in the future while compliance would avoid such actions.

South Africa's specific circumstances (in terms of for example, illiteracy and the extent of the informal economy) also leave scope for improved human safety among consumers as the result of better hazard communication.

3.3.4 GHS to enhance protection of the environment

Environmental issues are important concerns in world trade. The reality of non-tariff measures to promote the protection of the environment is much more evident than is the case with worker safety considerations. The EU, South Africa's largest trading partner, plays a leading role in this respect.

The GHS is expected to have a favourable impact on the environment especially with regard to water resources. A perceived lack of commitment to comply with the GHS may also invite the threat of non-tariff measures by developed countries. Such threats can be ameliorated by implementation of the GHS.

3.3.5 Conclusion

The socio-economic implications of the GHS are transmitted through trade to a significant extent. Non-compliance with the GHS could invite non-tariff trade measures against the exports of a country because of a disregard to communicate chemical hazards according to the harmonised international norms, scheduled to become fully operational in 2008. In addition, non-compliance will also signal a disregard for human safety and protection of the environment as two very important social objectives of the GHS. Worker safety and environmental considerations – in their own right – could become grounds for the introduction of non-tariff measures because of non-compliance with the GHS.

The chemical industry is the most important manufacturing sector in South African and is adapting successfully to the demands of globalisation since trade liberalisation became an official policy in 1994. The sector is one of the few that achieved an increase in employment during the period 1994 to 2001. Exports for the chemicals sector became prominent as a growth factor in this period. Whilst exports are more prominent in the upstream sub-groups of the sector, it has progressed to become a significant part of the demand for the products of the downstream, more labour intensive, sub-groups after 1994. The chemical sector has thus built up significant export momentum that is important for future growth, investment and employment of the sector. This is especially so for the downstream more labour intensive portion, among which small and medium sized enterprises predominate. Non-compliance with the GHS will distract from the development potential of the chemical sector, while compliance would enhance the development of the sector's potential through the trade facilitating attributes of the GHS and the positive impacts on human safety and the environment.

The future environment in which imports and exports are to take place will probably enforce compliance to the GHS since no country that is serious about the trade in chemicals would be able to isolate itself from the rest of the world without incurring serious disadvantages. Consequently, trade will enforce compliance to the GHS to a large extent, leaving it to the implementation authority to approach it diligently and comprehensively for the sake of trade facilitation, human safety and for the protection of the environment.

3.4 Resource Requirements

The purpose of the GHS is to establish an internationally harmonised system for the communication of chemical hazards. This implies that existing national hazard communication practices need to be adapted to comply with the GHS in those instances where differences occur. As a result, this would mean that implementation of the GHS would require incremental resources to those already employed by institutions and others involved in the administration of hazard communication. Resource requirements are expected to peak during the implementation phase when the majority of adaptations will be required to comply with the GHS.

The Situation Analysis established that the administration of South Africa's existing hazard communication system is under-resourced. Competent and diligent administration of the GHS may thus require more than merely incremental resources allocation. However, some of these increased costs may be absorbed due to certain benefits arising from implementation of the GHS such as a reduction in the need for testing and evaluation of chemicals for purposes of hazard communication.

The Situation Analysis also found that specific information on the resources applied in terms of the existing hazard communication system is difficult to source, ruling out accurate quantitative estimates of the additional resources and their costs for the implementation of the GHS. Consequently a broad based and qualitative approach was followed to obtain an indication of additional resource requirements and the financial implications of implementing the GHS, using the information reported in Chapter 2 to:

- Define the gaps between present practice and the requirements of the GHS in terms of the nature of resources that are required for implementation of the GHS and the presently responsible

institutions. Summary tables for each element of the GHS (where present practice differs from the GHS) were extracted from the relevant tables in previous sections and the number of identified hazards that need adaptation contrasted with the total number of identified hazards; and

- Draw on those sections in previous paragraphs entitled “Current Practices” and “Implementation Issues” where these have a resource or cost implication.

3.4.1 Hazard Classification

A summary of the gaps between present practice and GHS requirements for hazard classification is given in Table 3.3. There is a comparatively stronger need (5 out of 10) for the health and environmental hazards to be aligned to the GHS than for the physical ones (5 out of 21). Expert human resources and testing facilities for toxicity are needed. Expert capacity in the employ of the competent authority to align categories and classification and for the extension of categories for health hazards can be in short supply (see section 2.2.5). Various ways around this are found and differs according to access to international and local information by multi-national; large local; and medium and smaller companies. Medium and smaller companies could find themselves at a disadvantage against larger and foreign counterparts when required to meet the prescriptions of the GHS.

Table 3.3: Summary of the gaps between present practice and GHS requirements for hazard classification

HAZARD.	HAZARDS NO.	GAPS NO. (%)	SHORT DESCRIPTION OF GAP	TYPE OF RESOURCE REQUIRED/INSTITUTION
HAZARD CLASSIFICATION				
Physical Hazards	16	1 (6.25)	<p>Use worst-case scenarios for classification of mixtures for health and environment</p> <p>Do not take synergistic effects of ingredients into account. This is a health hazard problem Differences in hazard categories between GHS and SABS 10228/0265</p> <p>SABS 0228 and 0265 not fully aligned</p> <p>Classification of flammable liquids</p> <p>Hazardous Substances Act does not reference methodology for classification for chemicals not included in SABS 0228</p>	<p>Alignment of categories.</p> <p>Alignment of classification</p> <p>Mainly expert human resources but also testing facilities.</p> <p>SABS, NDA, DOH, NDOT DOL, & Emergency services</p> <p>Industry</p> <p>Training</p> <p>Access to centralised information</p> <p>Attendance at international meetings at which adoption of GHS is discussed that will impact on decision on which elements of GHS to adopt</p> <p>Revision of appropriate legislation</p>

HAZARD.	HAZARDS NO.	GAPS NO. (%)	SHORT DESCRIPTION OF GAP	TYPE OF RESOURCE REQUIRED/INSTITUTION
Environmental and Health Hazards	10	5 (50)	<p>Skin and mild eye irritation not included in SABS 10228 and 0265.</p> <p>Target organ systemic toxicity exposure not hazard category at present.</p> <p>Elements for sub-divisions of aquatic environment hazards dissimilar.</p> <p>SABS 0228 only addresses acute toxicity</p> <p>Classification of mixtures</p>	<p>Extend and align re GHS</p> <p>Expert human and testing resources</p> <p>SABS, NDA, DOH, DOL, NDOT & Emergency services</p> <p>Industry</p> <p>Testing facilities</p> <p>Attendance at international meetings at which adoption of GHS is discussed that will impact on decision on which elements of GHS to adopt</p> <p>Revision of appropriate legislation</p> <p>Database to be maintained of incidents and relevant information</p>

3.4.2 Classification Criteria

The focus for alignment with the GHS involves health and environmental hazard criteria (37 out of 51) rather than the physical ones (7 out of 61), see Table 3.4. The latter mainly implies alignment of present practice (SABS 0228) with the GHS in classes of explosives and differences in criteria for flammable aerosols, compressed gases, flammable liquids, and for SABS 0265 explosives, flammable liquids, flammable solids, oxidising liquids and organic peroxides. Alignment of health and environmental hazards implies the extension of criteria to the larger number of hazards as defined by the GHS, criteria for the methodology for untested mixtures including acute toxicity, and lastly the criteria for skin corrosion and irritation.

Table 3.4: Summary of the gaps between present practice and GHS requirements for hazard classification criteria

HAZARD CATEGORY	HAZARDS NO.	GAPS NO. (%)	SHORT DESCRIPTION OF GAP	TYPE OF RESOURCE REQUIRED/INSTITUTION
Physical Hazards	10 (with 61 sub-sections)	7 (12)	<p>SABS 0265 differences:</p> <p>Explosives, flammable liquids category 1, 3 and 4, flammable solids, oxidising liquids</p> <p>SABS 0228 differences:</p> <p>Flammable aerosols, compressed gases, flammable liquids category 1, 3 and 4</p>	<p>Align with GHS</p> <p>Expert human resources</p> <p>SABS, DOH, DOH, DOL, NDOT & NDA</p> <p>Industry</p> <p>Training programmes</p>
Health and environmental hazards.	16 (with 51)	37 (73)	<p>SABS 0265 differences:</p> <p>Acute toxicity, corrosive criteria for</p>	Align with GHS

	sub-sections)		<p>preparations, skin irritation category 2, serious eye damage/eye irritation, germ cell mutagenicity category 2, Carcinogenicity category 2, reproductive toxicity, hazardous to the aquatic environment criteria for mixtures</p> <p>SABS 0228 differences:</p> <p>Acute toxicity, corrosive criteria for preparations</p> <p>SABS 0304 difference in acute toxicity.</p> <p>Current systems do not include criteria for classes of Effects on lactation; Specific organ systemic toxicity – single exposure; Specific organ systemic toxicity – repeat exposure; and Hazardous to the aquatic environment – chronic toxicity categories.</p> <p>Bridging principles for mixtures not formally applied</p>	<p>Human resources.</p> <p>Testing facilities</p> <p>SABS, DOL, DOH and NDA</p> <p>Industry</p>
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The main resource requirement is expert human resources at the disposal of the competent authority. Appropriately specialised personnel in industry will have to use existing information to re-classify chemicals.

3.4.3 Test Methods

Rather limited alignment with the GHS is required but more for test methods for human and environmental hazards than for physical hazards (Table 3.5). Expertise is required to align with GHS.

Table 3.5: Summary of the gaps between present practice and GHS requirements for test methods

HAZARD CATEGORY	HAZARDS NO.	GAPS NO. (%)	SHORT DESCRIPTION OF GAP	TYPE OF RESOURCE REQUIRED/INSTITUTION
Physical	16	2 (12.5)	Similar methods for flammable liquids but different procedures. Differ on hazards corrosive to metals.	Align expertise
Health and environment	10	4 (40)	South Africa does not specify single or repeated exposure in respect of "specific target organ systemic toxicity" and "bioaccumulation potential and chronic aquatic toxicity". GHS does not specify the category "dangerous to the non-aquatic environment."	Align expertise

3.4.4 Labelling

Major alignment of physical and health hazards as well as environmental hazards by the competent authority is required for compliance with the GHS. Labels for physical hazards lack signal words and hazard statements and are not compliant in respect of workplace use and storage. This also applies to health and environmental hazards. The latter also need to be extended to comprise the full set of hazards provided for by the GHS. Formalised procedures need also to be developed for consumer labelling, i.e. at the retail level. There are cost implications for companies to comply with the labelling requirements.

Table 3.6: Summary of the gaps between present practice and GHS requirements for labelling

HAZARD CATEGORY	HAZARDS NO.	GAPS NO. %	SHORT DESCRIPTION OF GAP	TYPE OF RESOURCE REQUIRED/INSTITUTION
Physical hazards	10	50 (90)	Labelling for all hazards are GHS compliant for transport. Labelling for all hazards are deficient because of a lack of signal words and hazard statements. They are also not compliant with GHS in respect of workplace use and storage.	Major alignment with GHS Expert human resources. Expenditure by companies on revised labels/signage. SABS, DOL, NDA and companies. Industry training Emergency services training Consumer awareness
Health and Environment	16	40 (100)	16 of the gaps are not provided for by SABS 0265 and 0228 Almost all of the others are lacking in signal words and hazard statements and are not compliant for workplace use and storage.	Major alignment with GHS required Expert human resources. Expenditure by companies on revised labels/signage SABS, DOL, NDA, DOH and companies.

3.4.5 Safety Data Sheets

Safety data sheets need to be aligned to the GHS by the competent authority and legal requirements complied with by companies (Table 3.7). Expert human resources are required.

Table 3.7: Summary of the gaps between present practice and GHS requirements for safety data sheets

HAZARD CATEGORY	HAZARDS NO.	GAPS NO. %	SHORT DESCRIPTION OF GAP	TYPE OF RESOURCE REQUIRED/INSTITUTION
All	19	2 (11)	<p>Hazard identification is only partially compliant because of not specifically requiring GHS label elements and secondary hazards while phraseology of Act 36 of 1947 (pesticides) differ from EU/SABS terminology .</p> <p>Accident release measures only partially compliant and lacking in specifications for protective equipment, emergency procedures, methods and materials for containment.</p>	<p>Alignment with GHS requirements by competent authority and legal requirements complied with by companies.</p> <p>SABS, DOL & NDOT and companies.</p>

3.4.6 Legal Framework

Some amendments in existing legislation and regulations are required (Table 3.8). The following summary thereof is intended to inform on resource requirements in this respect. The main resource requirement is for expert human resources. It will be noted that some of the contents below overlap with those of previous sections.

Table 3.8: Summary of the gaps between present practice and GHS requirements for legal framework

HAZARD CATEGORY	SHORT DESCRIPTION OF GAP	TYPE OF RESOURCE REQUIRED/INSTITUTION
CLASSIFICATION AND CRITERIA		
Overall Classification/Criteria	No uniform approach to classification by different relevant Acts. SABS 0228 incorporated in legislation to streamline classification but gaps remain. SABS 0304 does not have legal standing in all instances. Ministerial powers to exempt legal provisions not allowed by GHS.	Align with GHS by amendments to relevant Acts; alignment of Acts and SABS Codes; and alignment of Codes to GHS where needed.
Hazardous Substances Act	Groups I and II as classified in Act are important. See also "Classification" above. Minister can go wider than SABS 0228 and can exempt substances from prescriptions contained in Act. Latter not allowed by GHS.	As per "Classification" above. Legal expertise required.

HAZARD CATEGORY	SHORT DESCRIPTION OF GAP	TYPE OF RESOURCE REQUIRED/INSTITUTION
Fertilizers, Farm Feeds Agricultural Remedies and Stock Remedies Act.	Ambiguity with respect to consumer products and use of LD 50 values. Act does not reference relevant SABS Codes.	Law reform process underway.
Occupational Health and Safety Act	Not completely specified	See "Classification" above.
LABELLING		
Overall labelling:	SABS 0265 not incorporated into legislation and is thus unenforceable. In its present form it needs to be revised to comply with the GHS. . Information on labels to be periodically reviewed Provisions of the Promotion of Access to Information Act, the GHS and confidential business information. "Gaps" identified under labelling in relevant paragraph above. SABS transportation Codes 0228 and 232-1.	Revise SABS 0265 to reflect GHS and incorporate into legislation. Provide for period review of labels in legislation. Align requirements to prevent disputes. Legislation/Codes to provide for signal words, product identifier, chemical identity, contact details etc. Align SABS 232-1 with GHS.
Hazardous Substances Act	Regulations re Group 1 and 11	Any amendments required to comply with GHS with significant resource implications
Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act	Provide provisions for sale of products; containers packaging and labelling; submission of labels for registration; and pamphlet inserts where packaging too small for labels.	Repeal current regulations and replace with ones complying with GHS.
Occupational Health Safety Act	Provide that products are properly identified classified and handled according to SABS codes 072 and 0228 and 0229. Decanted products required to be clearly labelled.	Any amendments required to comply with GHS with significant resource allocations
National Road Traffic Act	Requires emergency information that details labelling requirements for placards.	Amendments requiring significant resources
CONSUMER LEGISLATION		
	GHS requires education of consumers to interpret labels. No legislation in this respect.	Legislation may be expanded to allow for this, or may require a new Act.
SAFETY DATA SHEETS		
	Requirements for Safety data sheets are specified by the GHS.	The GAR and Mines and Health Safety Act Section 21 and Codes need to be aligned with the GHS.

3.4.7 Training and Awareness

Substantial resources are required to implement effective training in chemical hazard communication as required by the GHS. Training in respect of hazard classification; classification criteria; test methods; labelling; safety data sheets and emergency response are required for proper implementation of the GHS by competent authorities. Training would also be required in the workplaces; in agriculture; among transporters; among emergency responders; and with consumers. Such training would incur the costs of trainers, trainees and facilities and training material. Unfortunately quantification of these resource requirements and associated cost could not be undertaken due to lack of data.

Together with the expertise that is required to align all elements of hazard communication with the GHS, successful implementation revolves around human resources. Training and awareness on all levels of workers, management and public officials and even consumer awareness are of decisive importance for the effective implementation and efficient management of the GHS.

3.4.8 Summary

An important outcome of the analysis above is the prominence of gaps with a bearing on human safety. Considerations of human safety are pivotal for chemical hazard communication in South Africa is to comply with the GHS. Non-compliance with the GHS, thus, for the larger part would mean failure to meet the human safety and workplace requirements of the GHS. Mobilisation of the resource requirements needed for the implementation of the GHS must thus be viewed against the benefits to be derived from better human safety. However, the penalty for non-implementation is not limited to benefits foregone in terms of human safety, but also to negative implications for the international trade in chemicals.

A variety of resources are required for the implementation of the GHS. Human expertise is required in respect of classification; classification criteria; test methods; labelling; legislation; and training. The financing of this is expected to be primarily by the public sector. However, expenditure by the private sector becomes important to comply with the testing, labelling, adaptation of safety data sheets and workplace training that are required for the implementation of the GHS.

Success with implementation will require extensive training, but more so in the workplace, in transport and the delivery of emergency services, while consumer awareness and training need to be more prominent and effective than in the past. Substantial resources will be required for training and awareness raising.

3.5 Implementation

3.5.1 Costs

Because of a lack of suitable information, the cost of implementation cannot be quantified. Many of organisations/institutions involved in chemical hazard communication are unable to estimate the cost of their present activities in hazard communication. This would suggest that hazard communication does not carry high costs and that adoption of the GHS would imply incremental rather than substantial costs. However, a shortfall in the levels of existing delivery seems to be apparent even before the higher performance requirements of the GHS are considered. Furthermore, once-off costs need to be incurred during the implementation phase, while recurrent costs may become of lesser concern once the system is running capably.

Nonetheless, according to the preceding analysis the following can be said about the cost of implementation:

- The public sector would be the focal point in terms of incurring costs of meeting the regulatory requirements of the GHS for classification, classification criteria, test methods, labelling, and public sector training, including enforcement of compliance.
- The DOL, NDA, DOH, NDOT and **the dti** are the national departments involved. The DOL is particularly prominent because of the importance of workplace safety in the GHS, legislation it administers, its responsibilities in respect of the SETAs for the financing of training and the co-ordinating role it has to play in the implementation of the GHS. The other departments are responsible for specific pieces of legislation except **the dti** which, through the SABS, is responsible to operationalise the GHS by establishing the relevant Codes. Enforcement of compliance and the provision of emergency services are in the domain of provincial and local authorities as well as the national government.
- The private sector is to incur costs to meet the GHS for testing; labelling; safety data sheets and workplace training.

3.5.2 Benefits

The major benefits to be derived from the GHS are:

- Improved safety in the work place including a lowering of loss in wages resulting from incidents, less cost to the firm in dealing with incidents and better productivity due to the lower numbers of incidents.
- Better protection of consumers.
- Better protection of the environment as the result of the safer management of hazardous chemicals.
- Safeguarding and the enhancing the trade in chemicals.
- More effective response to transport accidents.

Since the aim of the GHS is to improve hazard communication, no work place losses are foreseen to arise from its implementation. Negative impacts on employment may arise because of trade barriers that trading partners may impose in reaction to the non-implementation of the GHS.

Adoption of the GHS is anticipated to result in cost saving benefits which would be derived by:³²:

³² WSSD Global Partnership for Capacity Building to Implement the Globally Harmonised System for Chemical Classification and Labelling. Progress Report 2002, May 2003.

- An internationally maintained system, thereby obviating the need for individual countries to design and maintain the infrastructure required by the system.
- An informational framework for the sound management of chemicals throughout the population.
- Elimination of duplicate testing and evaluation of chemicals to determine their hazardous effects
- International trade in chemicals whose hazards have been properly assessed and identified on an international basis.

The GHS can be implemented with the assistance of foreign and local resources; these are discussed below. In the longer term the system should be maintained on a self-financing basis in as far as it is practicable.

3.5.3 WSSD GHS Partnership between UNITAR, ILO and OECD

The World Summit on Sustainable Development (WSSD) GHS Partnership between UNITAR, ILO and OECD has specifically been devised to assist with implementation of the GHS. It can be expected that the Partnership will be one of the vehicles for donor assistance for implementation of the GHS.

The Partnership was launched at the WSSD in Johannesburg during 2002. The objective of the Partnership is to "mobilise support and catalyse partnerships for capacity building activities at the global, regional and national levels". South Africa is one of the 25 members that became a Partner. Specific objectives of the Partnership that can offer resource benefits to South Africa (and SADC) are:

- to implement GHS awareness raising activities at the regional and national levels, including train-the-trainer strategies;
- to assist preparation of regional and national GHS related situation analyses and capacity needs assessments both at the regional and national levels; and
- to develop capacity building guidance and training materials on important aspects of GHS strategy development and implementation.

Important targets for delivery are:

- Regional and sub-regional GHS capacity needs assessments and GHS implementation scenarios prepared by 2004;
- Regional GHS Awareness Raising Workshops organised in major regions by 2005;
- Pilot projects on GHS Action Plan Development completed in four countries by 2004;
- Two pilot projects for GHS Action Plan Development per UN region completed and evaluated by 2005;
- National GHS Action Plan projects initiated in the greatest possible number of countries, subject to the availability of resources (2005-2008);
- GHS and hazard communication awareness-raising materials prepared, peer reviewed and widely disseminated by 2003; and
- GHS capacity building guidance and training package prepared, pilot tested, and adapted by 2004/2005.

South Africa's active involvement in and use of the opportunities presented by the Partnership for national and regional (SADC) purposes appears to be an attractive supplement to the resources required in the implementation of the GHS.

3.5.4 Donor Funds

Donor funds could in all probability be accessed for discrete and once-off elements required in the implementation of the GHS. This source may overlap with that under the Partnership (above), as donor countries (and South Africa) may prefer to make a contribution to the relevant element a

Partnership target.³³ Incorporation of GHS elements in other donor-funded projects on chemical safety could be an additional source of funding.

3.5.5 Departmental Budgets

Since the cost involved in the implementation of the GHS would only be incremental to current expenditure, it is likely that it could be absorbed into departmental budgets. This is especially applicable for recurrent costs while once off costs may tend to be defrayed from donor funds.

Further funding opportunities also exist by the incorporation of GHS elements in other donor-funded projects on chemical safety and the relevant National Implementation Programmes (NIPs).

3.5.6 SETAs

The SETAs have been identified in various sections of the report as the appropriate source for the financing of training. Financing by the SETAs will require the accreditation of a number of training programmes with them to cover the full spectrum of training implied by the implementation of the GHS.

3.5.7 Public sector backing for medium sized and small enterprises

From a company perspective, medium and small businesses, in particular new export entrants, will find it more difficult and more costly to comply with the GHS than larger concerns. From among the different incentive schemes of **the dti**, the Competitiveness Fund provides for the type of expenditure that enterprises are expected to incur to comply with the GHS. In its present form this Fund provides for a variety of costs that are incurred by enterprises to enhance their international competitiveness. One such cost is that of testing of products that may be required to comply with standards stipulated by importing countries. The principle of the Competitiveness Fund can be applied to assist enterprises to meet testing and other costs that are required to comply with the GHS.

The Competitiveness Fund is a matching grant scheme with equal contributions by government and enterprises towards costs. The contribution by government is capped at R600,000. (Capping of the amount eliminates the need to limit schemes of this kind to medium sized and small enterprises). The Competitiveness Fund is funded by **the dti** with World Bank support.

Unfortunately, the Competitiveness Fund is scheduled to terminate by March 2004 when the funding agreement with the World Bank comes to an end. As the Competitiveness Fund had proved it to be one of the more popular incentive schemes of **the dti**, the department may decide to continue with it, which will be to the benefit of chemical companies that are required to take steps to comply with the GHS.

However, due to the uncertainty surrounding the continuation of the Competitiveness Fund and the particular requirements of the GHS, it may be preferable to approach **the dti** to develop a scheme along the lines of the Competitiveness Fund, but tailored to the implementation requirements of the GHS. The objective of such a fund would be amelioration of cost by companies to comply with the GHS, particularly the cost of testing, labelling and possibly the costs associated with the adaptation of new MSDS requirements.

3.5.8 Implementation across different departments and institutions

A number of national government departments (e.g. DOL, DOH, NDA and NDOT) have a regulatory function in the implementation of the GHS. **The dti** has an overall promotional role to play in the implementation of the GHS, in line with its responsibilities in the area of trade and investment promotion (including possible assistance to companies as mentioned in the previous section). Apart from facilitation across government departments, **the dti** will be enhancing implementation through Standards South Africa (SABS) as the key institution responsible for formulating and setting of the

³³ WSSD Global Partnership for Capacity Building to Implement the Globally Harmonised System for Chemical Classification and Labelling. Progress Report 2002, page 6, May 2003.

standards contained in the GHS. **The dti** should preferably provide for once off funding of expenditure by the SABS.

Effective implementation may benefit from a co-ordination mechanism that could encompass business and labour apart from different government departments/institutions.

3.6 High Impact Initiatives

Implementation of the GHS is seen to be following a largely incremental sequence and it may be unwise to single out implementation of any specific aspect of the GHS in “isolation”. However, it has also been found that hazard communication at present suffers from a number of deficiencies. Labelling is an aspect that may have an immediate high impact in the priority of the human safety area in the course of the build-up to full implementation of the GHS by 2008. Labelling is pivotal in hazard communication and is one of the aspects where present South African practices demonstrate a significant gap with the practices that are desired in respect of the GHS.

Another feature that can be considered for “high impact” is to engage with the WSSD Partnership to the fullest extent, for the leveraging of assistance for implementation of the GHS on the national and regional level.

3.7 Summary

The salient aspects of this chapter that are to be carried forward to the formulation of an implementation strategy in the next phase are summarised below.

Implementation of the GHS is an imperative for South Africa in view of its importance as an international “conformity” requirement with respect to human and work place safety, the environment and the future international trade in chemicals.

Enhancement of access to foreign markets by South African exporters is vital for socio-economic reasons. This will assist in maintaining the export momentum that the upstream chemical industry has gained since the introduction of trade liberalisation in 1994 and the momentum of the downstream industry in more recent years. The latter is important for the creation of employment. Non-implementation of the GHS may hinder progress in this respect while exporters are likely to benefit from implementation.

Gaps between the existing hazard communication system and that required by the GHS are mainly in respect of human safety and environmental considerations. Non-compliance with the GHS, thus, for the larger part would mean failure to meet the human safety and work place requirements of the GHS. Mobilisation of the resource requirements needed for the implementation of the GHS must therefore be viewed against the benefits to be derived from better human safety and the positive impact on the environment. However, the penalty for non-implementation is not limited to benefits foregone in terms of human safety because of the negative implications for the international trade in chemicals.

A variety of resources are required for the implementation of the GHS. Human expertise is required in respect of classification, classification criteria, test methods, labelling, legislation and training with regard to the GHS. Success with implementation will require extensive training but probably more so in the work place, in transport and the delivery of emergency services, while consumer awareness and training need to be more prominent and effective than in the past. Substantial resources are required for training and awareness raising. The government departments need extensive capacity building.

Because of a lack of suitable information, the cost of implementation cannot be quantified. Many of those involved are unable to estimate the cost of their present activities in hazard communication. This would suggest that hazard communication does not carry high costs and that adoption of the

GHS would imply incremental rather than considerable costs. However, a shortfall in the levels of existing delivery seems to be apparent even before the higher performance requirements of the GHS are considered. Furthermore, once-off costs need to be incurred in the course of the implementation phase, while recurrent costs may become of lesser concern once the system is running capably.

The public sector would be the focal point for costs of meeting the regulatory requirements of the GHS. The DOL, NDA, DOH, NDOT and **the dti** are the *national departments* involved. The DOL is particularly prominent because of the importance of workplace safety in the GHS, the legislation it administers, its responsibilities in respect of the SETAs for the financing of training, and the co-ordinating role it will have to play in the implementation of the GHS. The other departments are responsible for specific pieces of legislation except **the dti**, which through the SABS, is responsible to operationalise the GHS by establishing the relevant Codes. Enforcement of compliance and the provision of emergency services are in the domain of *provincial and local authorities*. The *private sector* is to incur costs to meet the GHS for testing; labelling; safety data sheets and workplace training.

The GHS offers benefits in standardised elements of hazard communication obviating the need for their development by individual countries. The objective of the WSSD GHS Partnership between UNITAR, ILO and OECD, that was launched at the WSSD will be mobilising support and catalyse partnerships in assisting with implementation of the GHS. It can be expected that the Partnership will be the vehicle for donor assistance for implementation of the GHS. The Partnership will assist especially in respect of capacity building, awareness, training and strategy development for implementation. As a member of the Partnership, South Africa is favourably positioned to benefit from it. Donor funds could in all probability be accessed for discrete and once-off elements of the GHS implementation programme. This source may overlap with that of the Partnership.

Since the cost involved in the implementation of the GHS would only be incremental to current expenditure it may well be absorbed into departmental budgets. This is especially applicable for recurrent costs, while once off costs may tend to be defrayed from donor funds.

The SETAs have been identified in various sections of the report as the appropriate source for the financing of training.

From a company perspective, medium and small businesses as well as new export entrants will probably find it harder and more costly to comply with the GHS than the larger companies. From among the different incentive schemes of **the dti**, the Competitiveness Fund provides for the type of expenditure that enterprises are expected to incur to comply with the GHS. Unfortunately, the Fund is to terminate in March 2004. Support by **the dti** for implementation of the GHS, because of the latter's importance in trade, could be provided by the introduction of a fund similar to the Competitiveness Fund to assist businesses to comply with the GHS, particularly in respect of the cost of testing, labelling and possibly for expenses that may be incurred in adapting to new MSDS requirements.

Effective implementation would benefit from a co-ordination mechanism that encompasses business and labour in addition to the different government departments/institutions that are required to participate in implementation of the GHS.

Labelling is pivotal in hazard communication and is one of the aspects where present South African practices demonstrate a significant gap in comparison with the practices that are required in respect of the GHS. Labelling could thus be singled out as a initiative through which "high impact" could be achieved in the short-term. Full and creative engagement with the WSSD Partnership could be another possible initiative to achieve "high impact" in the short-term.