

# Reducing chemical risks in low-income countries: strategies for improved coverage of basic chemicals-management legislation

## Key findings

- A decade after the agreed target year, most countries have yet to introduce a harmonized system to classify chemical hazards and to use the same format and content for information to ensure the safe use, transport, and disposal of chemicals worldwide.
- The failure of countries to implement such rules aligned with the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is linked to both low regulatory capacity and low GDP per capita.
- Low commitment to occupational health and safety, low commitment to international cooperation in general, and a low degree of trade dependence also link to non-implementation of the global classification system.
- Potential avenues for gaining traction in achieving wider implementation include: regional collaboration, drawing on the potential of GHS to reduce trade barriers, and capitalizing on benefits related to occupational health and safety commitments.

## Legislation on classification and labelling of chemicals – a cornerstone for risk reduction

If not properly managed, the use of hazardous chemicals constitutes a risk to human health and the environment. Sound chemicals management is needed to reduce the risks. Such management consists of several components cutting across all sectors of society. One of the most basic components is a legislative framework that sets the rules for classifying and labelling chemicals. Such a framework is needed to lay the groundwork for countries to implement other risk-reduction measures, such as reducing imports of certain types of hazardous substances, or regulating best practices in handling, storage, and disposal of these chemicals.

The need for an internationally harmonized system for classification and labelling of chemicals was first raised in 1992. This served as the starting point for the United Nations to take the lead in the development of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). A decade later, in the outcome document of the World Summit on Sustainable Development in 2002, countries were encouraged to implement the GHS, with the aim of having the system fully operational by 2008. This goal, part of a broader vision to facilitate the sustainable production and use of chemicals, was later taken up by the global action plan under the Strategic Approach to International Chemicals Management (SAICM) (see Box 1).

This policy brief examines how far countries have come in implementing the GHS in national legislation, and it ex-



A worker samples the contents of a discarded drum. A worldwide system to harmonize the classifying and labelling of chemicals would help to ensure their safe use, transport, and disposal.

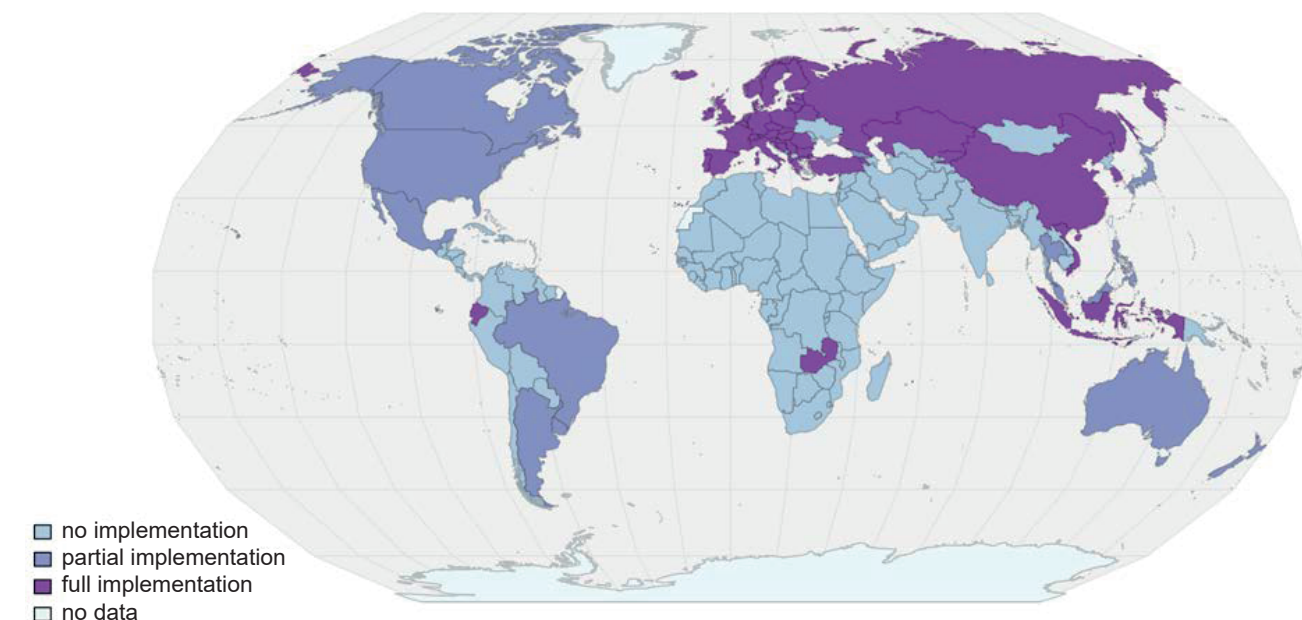
plores possible policy options to increase GHS implementation coverage. The brief draws on recent SEI research published by Persson et al. (2017).

## Why the implementation gap?

The majority of UN member countries have not yet implemented the GHS in national legislation. As of April 2017, research shows that rules aligned with the GHS had been fully implemented in national legislation in 50 countries, partially implemented in 15 countries, and not yet implemented in 128 member countries. There is distinct regional variation in the implementation, with national implementation lacking to a striking degree in Africa, the Middle East, and South Asia (see Figure 1).

Our research examined the implementation gap and looked for policy measures that might be used to address it. Our study found multiple factors underlying the gap. Most of these are linked either to capacity to implement a complex system such as the GHS, or to the motivations of countries to introduce the GHS in national legislation.

Low regulatory capacity and low Gross Domestic Product (GDP) per capita emerged as key factors in explaining the implementation gap. The GHS is a technical system, designed in a building-block approach, to allow for custom-made implementation. The capacity to imple-



**Figure 1: World map of GHS implementation as of 1 April 2017 (Persson et al., 2017). The study is limited to implementation in national legislation.**

ment the system requires having resources at the government's disposal for developing new or adjusting existing legislation and guidance to create a coherent legislative alignment with the GHS. This requires a high level of technical knowledge, in addition to an ability to cover implementation costs and staff time in ministries and agencies. Thus, the GHS implementation requires both regulatory and financial capacity. Figure 2 shows implementation levels among UN member countries according to income groups.

At the same time, other factors play roles. For instance, one potential source of motivation stems from the aspiration to join a regional trade organization or economic community where the GHS has already been implemented. Conversely, low commitment to occupational health and safety, a low degree of trade dependence, and a low level of international cooperation in general are linked to a lack of implementation.

### What could increase implementation?

A mix of factors underlies the GHS implementation gap, and a number of policy options could be considered to increase coverage globally. Viable options would address both capacity and motivation. The GHS implementation study found that among all explanatory factors evaluated, the regulatory capacity of a country was most highly correlated with GHS implementation. Regulatory capacity

### Box 1: Sound management of chemicals

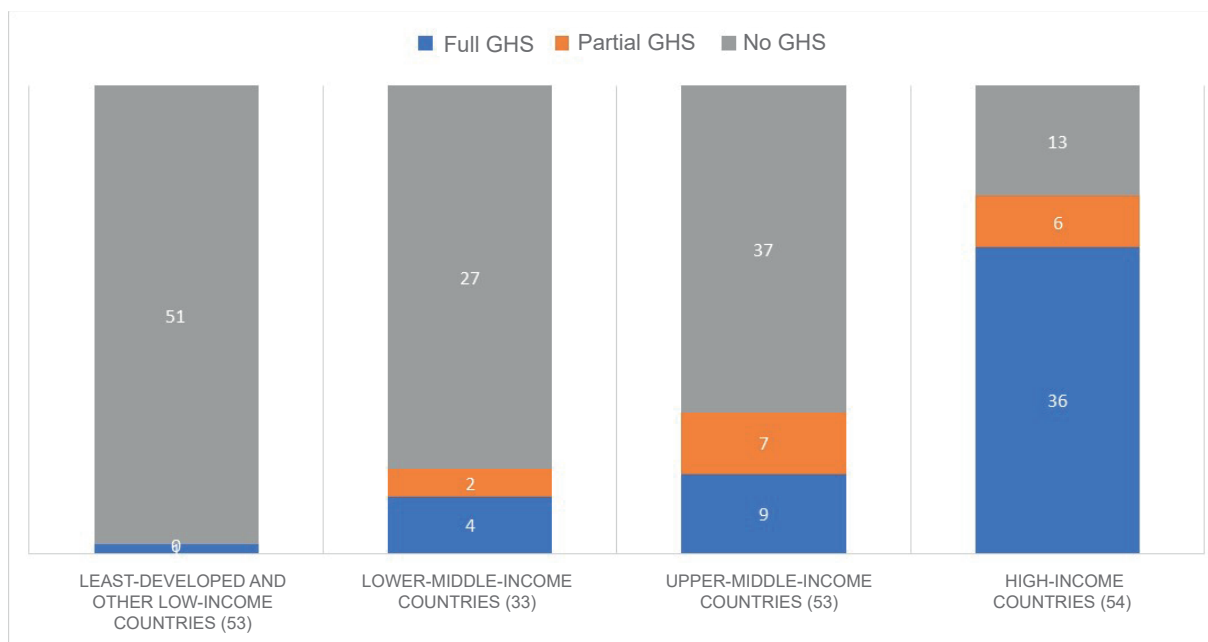
The Johannesburg Plan of Implementation, agreed upon at the 2002 World Summit on Sustainable Development, defines sound management of chemicals through the so-called 2020 goal: "aiming to achieve, by 2020, that chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment" (UN, 2002). The Strategic Approach to International Chemicals Management (SAICM, 2006), a voluntary agreement with broad stakeholder participation, follows up on the 2020 goal. Implementing the GHS is one of the basic elements of the SAICM Global Plan of Action.

was measured by an indicator constructed from surveys of firms and households, and from expert assessments of the country's overall quality of public services, including aspects relating to the perceived quality of policy formulation and implementation of the government (Kaufmann et al., 2010).

Building on this finding, any strategy to increase the GHS implementation should include **efforts to strengthen the regulatory capacity of countries that have yet to put GHS aligned rules into effect**. Particular areas of focus could include overall institutional strengthening of government agencies with responsibility for designing and implementing legislation for chemicals management across sectors. Steps could include, but not be limited to anti-corruption efforts and investments in capacity building of human resources at government agencies and offices with these regulatory functions. Examples from Zambia and Viet Nam, for instance, have shown positive results from long-term capacity-building support for the strengthening of national chemicals-management capacity. The work has aided GHS implementation, which has been carried out in both countries. Further exploration of the factors that have enabled low-income countries to progress with GHS implementation



Labelling of chemical hazards varies widely within and among countries.



**Figure 2: Global legal implementation of the GHS by income levels of countries (data from Persson et al., 2017).**

and chemicals management in general would benefit countries where work remains, and would serve to guide the efforts of implementing countries, as well as donor countries and other stakeholders interested in supporting the development of sound management of chemicals.

**Supporting regional collaboration** on GHS implementation has the potential to address issues that encompass both motivation and capacity. Collaborative efforts may include better-resourced countries in a region to support less-resourced neighbouring countries. In a regional collaboration around GHS, countries may pool human and financial resources in the implementation effort, and thus may address capacity limitations. Zambia, one of only two countries in the African region to have implemented the GHS, could serve to guide efforts elsewhere. South Africa has advanced far in the preparations and is expected to release legislation implementing GHS during 2018. This is also a country that could share solutions supporting other countries in the region.

The aspiration to join a regional trade organization has been an important driver for countries to implement the GHS. Joint implementation of the GHS by regional trade organizations or economic communities also provides a push factor for those who already are members. The Eurasian Economic Union, whose member countries have decided to jointly implement the GHS in harmonized legislation, offers a recent example.

Our study indicated that one of the lessons learned is that **implementing the GHS as part of an overall national chemicals strategy rather than as a stand-alone project increases the chance of successful implementation**. One reason for this is that introducing GHS aligned legislation will inevitably cover all sectors and a variety of processes and stakeholders involved. If this is done within a framing of an overall vision of sound management of chemicals, the likelihood of achieving a design of the GHS implementation that will work well within the specific context of each country increases.

Chemicals and waste are also addressed in the Agenda 2030 in its target 12.4, which aims “to achieve environmentally sound management of chemicals and all wastes throughout their life cycle, and to reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment” (UN, 2015). **Linking GHS to the implementation of the Agenda 2030 may increase the political support** for chemicals management at the national level, and, thus, may also influence the motivation of countries to implement GHS. The link to Agenda 2030 may also provide a way to find national budgetary space for the GHS implementation, should the Agenda 2030 efforts be favoured in the national budget. Implementing the GHS and reducing chemicals risks across sectors will also contribute to other goals and targets of the Agenda 2030, including those related to health.

Governments and stakeholders with an interest in pursuing GHS implementation in their countries may also find it useful to **build alliances with additional actors that may have interest in GHS implementation, such as trade unions and consumer organizations**. We found that countries with a history of commitment to occupa-



Chemical storage tanks and shipping containers at the Port of Rotterdam, Netherlands. The potential to reduce trade barriers may help harmonized systems for classifying and labelling chemicals to gain traction.

## Policy options

**Invest in and support the regulatory capacity of low-income countries.** Regulatory capacity stands out in the data set as a main factor behind the implementation gap. Drawing closely on lessons learned from earlier experiences of how to set up effective capacity building and institutional strengthening for improved regulatory capacity for chemicals management is key.

**Support regional collaboration on GHS implementation.** Pooling of resources between neighbouring countries can result in increased capacity to achieve implementation. A harmonized approach to GHS implementation among trading partners can increase motivation through potential trade-facilitation benefits.

**Build alliances with “new” actors** such as in the occupational health and safety field, trade unions, consumer organizations, as well as private-sector actors interested in trade harmonization for increased export opportunities. New partnerships can support implementation both from motivation and capacity perspectives.

**Implement the GHS as part of an overall chemicals-management strategy.** Designing the GHS implementation as part of an overall national strategy for sound management of chemicals seems to increase chances of success, rather than doing GHS as a stand-alone project.

**Link GHS implementation to the national Agenda 2030 efforts.** This will frame the aim of chemicals management in the perspective of a broader development effort of which it is a part. This link may also open additional avenues for creating budgetary space for chemicals in national budgets.

tional health and safety were more likely to have implemented the GHS than others. Indeed, without a system in place that makes sure that chemicals are classified and labelled according to intrinsic hazard properties, workers are at higher risk of harmful occupational exposure. Chemical products produced for and used directly by consumers are also part of the GHS system. Consumer organizations may have an interest in working actively to support the development of adequate hazard labelling of products used in homes.

## References

- Kaufmann, D., Kraay, A., Mastruzzi, M., 2010. *Policy research working paper 5430, the Worldwide Governance Indicators, Methodology and Analytical issues*. The World Bank, Development Research Group, Macroeconomics and Growth Team, September 2010.
- Persson, L., Karlsson-Vinkhuyzen, S., Lai, A., Persson, Å., Fick, S., 2017. The Globally Harmonized System of Classification and Labelling of Chemicals—Explaining the Legal Implementation Gap. *Sustainability* 9, 2176. <https://doi.org/10.3390/su9122176>
- SAICM, 2006. *SAICM The Strategic Approach to International Chemicals Management*. Texts and resolutions of the International Conference on Chemicals Management in 2006. United Nations Environment Programme and the World Health Organization, Geneva, Switzerland.
- The Johannesburg Plan of Implementation, 2002. UN, the World Summit on Sustainable Development, Johannesburg, South Africa.
- UN, 2015. Resolution by the General Assembly on 25 September 2015. *Transforming our world: the 2030 Agenda for Sustainable Development*. United Nations, A/RES/70/1.
- UN, 2002. The Johannesburg Plan of Implementation of the World Summit on Sustainable Development.

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