

# Chemicals management

Chemicals are essential for modern life, but they also pose high health risks for those who do not know about the risks and how to prevent them. The poor are particularly vulnerable, since they often have to put up with primitive working conditions. Improving chemicals management is a means to combat poverty.

There is no doubt that a life without chemicals would be difficult since we depend on medicines, printing ink, detergents, etc. However, there are risks associated with chemicals if they are not used and disposed of properly, or if they are introduced without adequate information about their impacts on human health and the environment.

Chemicals are used for a number of purposes in developing countries:

- Pesticides and other agrochemicals
- Mineral oils used as fuels, lubricants
- Industrial processes in tanneries, the electronics industry and paper mills
- Solvents
- Refrigerants
- Detergents
- Preservatives
- Food additives.

Chemicals are used by all sectors of society – at home and in the workplace. People tend to think that chemicals are contained in bottles. Few are aware of the chemicals present in shirts or in electronic devices, which may be released to air, water and soil at different stages of their lifecycle. Chemicals in products are an increasing problem, due to the globalisation of production and trade. Examples are additives in electronics and plastics.

Sometimes disastrous events take place when, for example, a tank containing hazardous chemicals starts to leak or fire strikes an industrial plant.

Over 5000 people died in one such event, in Bhopal, India in 1984, and over

200,000 were affected. They lived very close to a plant where uncontrolled releases occurred from a tank.

## Key issues

### *Health and environment*

Chemicals may be characterized by their properties:

- Toxicity (acute and chronic)
- Biodegradability
- Bioaccumulation
- Physical state, volatility

Chemicals may be harmful to some species but not necessarily to others. Different species may have different abilities to degrade the chemicals. It is important to test chemicals properly, and information about them should be made available to the public when they are marketed. There are a whole range of effects on human health from chemicals, sometimes at very low levels of exposures. Effects may be both immediate and chronic, for example:

- Mercury may cause neurological and kidney impairment.
- Asbestos may cause cancer.
- Organic solvents may cause neurological impairment.

There are also environmental effects, for example:

- Polychlorinated biphenyls (PCBs) used, for example, as electric insulation oils cause reproductive system damages in seals and birds.
- Mercury causes poisoning of birds and fish, especially those at the top of the food chain.

There are no pristine areas left that are not affected by long-range transport of chemicals through air, water or living organisms. Thus, indigenous Arctic people, polar bears and Arctic fish have persistent organic pollutants in their bodies.



PHOTO: SCANPIX

**Samirul, 12, lays out sheets of raw leather to dry at Hazaribagh, Dhaka, Bangladesh. Sacrificing his childhood and working with hazardous chemicals, he earns 150 taka (2 euros) for a 6-7 hour workday.**

When chemicals have been used they might end up as waste and in many cases hazardous waste. The chemical might be discharged to water, released to air or landfilled. This will cause health or environmental problems if the hazardous waste is not treated in an appropriate way.

Working conditions may be very primitive in developing countries, with no protection for workers' skin, eyes or respiratory system, for example in the tanning industry or in the asbestos industry. Workplaces in developing countries often lack proper ventilation facilities and are not at all designed for safe use of chemicals. Poor people are more exposed, since they work more frequently under primitive conditions and handle harmful chemicals unsafely.

Inappropriate recycling of waste may cause exposure to hazardous chemicals. The presence of hazardous waste and the emissions from burning waste pose serious health risks for the waste scavengers and their families who work or live near waste dumps. The poor will have higher health risks, since they are forced to find a way to support themselves, but do not know about the risks nor how to handle chemicals.

### *Social aspects*

Pesticide poisoning is a major public health problem in developing countries. Beverage bottles are often reused for storing chemicals. This has caused many cases of intoxication and death, in particular when children mistake the contents for soft drinks. Children in developing countries often work and may be exposed to chemicals that harm growing individuals more than adults.

Pregnant mothers are especially susceptible to some chemicals, and can pass them on to a foetus or a newborn, causing intergenerational risks.

Poor people cannot afford to choose where to live and are often forced to live near industrial plants, waste dumps or stocks of obsolete toxic pesticides and are thus exposed to higher risks regarding health and well-being.

### *Institutional aspects*

If there is legislation regarding chemicals and hazardous waste in place, the responsibility is often fragmented among different ministries, such as the ministries of agriculture, industry, trade, environment and health. This makes it difficult to manage chemicals safely and with an overall life cycle approach.

Even with legislation in place, resources for enforcement are usually inadequate or missing entirely. For example, there is often insufficient capacity for customs control, which means that toxic chemicals may enter the country illegally. Analytical capacity and training is lacking, which makes it difficult to trace sources of chemical incidents and accidents.

The infrastructure for collecting and treating hazardous waste, including appropriate waste treatment facilities might be lacking. If they exist, it might be considered too expensive to treat the

waste and enforcement of legislation is too weak.

### **Strategic areas for support**

Within chemicals and associated waste management the following areas should be considered:

- Capacity development including institutional reforms, planning and training
- Enactment and enforcement of laws and regulation concerning chemicals, hazardous waste and worker health and safety
- Ratification and implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs), the Rotterdam Conventions on Prior Informed Consent (PIC) and the Basel Convention on Hazardous Wastes
- Implementation of the Strategic Approach to International Chemicals Management (SAICM)
- Safety promotion through using less hazardous chemicals and non-chemical approaches
- Worker health and safety
- Involving civil society, for example, by dialogue with and support to non-governmental organisations.

### **To be aware of**

Lack of mechanisms for inter-sectorial coordination can lead to ineffectiveness of new initiatives. Lack of integration of chemicals safety into development policy leads to low priorities and lack of political buy-in.

Banned or severely restricted chemicals may have a value on the black market.

### **Examples of Sida support**

■ Sida supports an Indian NGO, Toxics Link, which aims at disseminating

credible information regarding chemicals and waste in India, including municipal and medical waste, electronics waste, POPs and mercury.

■ Sida supports Africa Stockpiles Programme, which aims at removing obsolete pesticides in Africa and capacity building regarding chemicals management.

■ Through the Swedish Chemicals Inspectorate, Sida supports a comprehensive chemicals programme including activities at the global, regional and bilateral levels.

■ Sida will arrange an annual international training course on chemicals management.

■ Sida supports research on chemicals through its research programmes.

### **Swedish resources**

Sweden has experienced environmental pollution and therefore has developed environmental research, chemical analysis and risk assessment. Sweden has a central government authority that implements the legislation on chemicals in Sweden, the Chemicals Inspectorate.

### **Sida references**

**Available at [www.sida.se](http://www.sida.se)**

*Fighting Poverty in an Urban World, Sida Policy (2006)*

*Using Environmental Conventions in Development Cooperation (2004)*

*Urban Issue Paper on Air Pollution*

*Urban Issue Paper on Public Environmental Management*

*Urban Issue Paper on Industrial Environment*

*Urban Issue Paper on Urban Solid Waste Management*

*Urban Issue Paper on Water and Sanitation*

### **Published separately**

Tannerfeldt, G and Ljung, P (2006) *More Urban – Less Poor, An introduction to urban development and management*, London, Earthscan

## **REMINDERS**

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|---|--|--|
| <input type="checkbox"/> Is chemical safety integrated into the poverty reduction strategy?   | <input type="checkbox"/> Are there adequate resources for enforcement?   | <input type="checkbox"/> Is information on chemicals available and accessible?                                     |
| <input type="checkbox"/> Is there legislation on chemicals management, hazardous waste and worker health and safety in place and are they implemented properly? | <input type="checkbox"/> Has the country ratified and implemented the international conventions on chemicals and waste (Stockholm, Rotterdam and Basel conventions)? | <input type="checkbox"/> Are there mechanisms for involving civil society and have they been involved?             |
| <input type="checkbox"/> Are there institutional barriers to effective implementation?  | <input type="checkbox"/> Has the country developed a National Implementation Plan for the Stockholm Convention?  | <input type="checkbox"/> Is the country implementing the Strategic Approach to International Chemicals Management? |
|   |  | <input type="checkbox"/> Has the country prepared a National Profile on Chemicals Management?                      |