

# Chemicals for the poorest – hazard or chance?

*In developing countries, chemicals are always handled by the poorest and least educated. Theirs are the most dangerous jobs. Conditions are worst in small, informal workshops, dyeing works, tanneries and carpet and textiles factories, which often employ children, and in agriculture, where hired hands apply hazardous plant protectants.*

Georg vom Kolke  
German Federal Ministry for Economic Cooperation and Development (BMZ)  
Environment and Sustainable Use of Natural Resources Division  
Bonn, Germany  
Georg.vom-Kolke@bmz.bund.de

Dr Matthias Kern  
Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH  
Convention Project Chemical Safety  
Bonn, Germany  
Matthias.Kern@gtz.de

Improving safety when handling chemicals is a way to actively protect human health and the environment. More importantly, it protects the poorest in society, who suffer most from a lack of safety precautions and from the short-term objective of maximizing profit. A systematic, precautionary approach is a basis for sustainable development, so that chemicals can be used without harming humans or the environment, from their production through to their use in industry, agriculture or at home. Such precautions are not just necessary in large industrial plants. Small- and medium-sized enterprises must also take precautions, and the same is true of agriculture, which employs up to 80 percent of the population of many developing countries. The Plan of Implementation agreed at the 2002 Johannesburg World Summit on Sustainable Development states that unsustainable patterns of production and consumption must be changed. These include the handling of chemicals.

## Increasing amounts of chemicals in developing countries

Worldwide, the turnover in chemical production and trading valued more than 1 700 billion in 2000. That is equivalent to seven percent of the world's income and nine percent of global trade. According to OECD estimates, this turnover is more than double that from the telecommunications sector worldwide. The chemicals market is developing rapidly. Extrapolating from current trends, OECD calculates that between 1995 and 2020 world chem-

**OECD, in its guidelines for technology transfer, calls for uniform safety standards to be applied worldwide.**



ical production will have expanded by 85 percent. However, it is not just the rate of growth which is important, but also where this growth will occur and which chemicals are involved. OECD estimates indicate that by 2020 the market will have undergone a fundamental change. While OECD countries will focus increasingly on producing specialty chemicals, the production of basic chemicals in large volumes will transfer to the developing world, with annual growth rates in double figures.

## A long road to travel

The figures for chemicals handling in developing countries give cause for alarm. According to 2002 figures from ILO (International Labour Organisation), 340,000 people die each year from toxic chemical poisoning at their place of work. WHO estimates that three million cases of severe pesticide poisoning occur each



Women in developing countries are usually most at risk, as they are often unable to take part in training on the safe handling of pesticides.

Photo: Global Aware

year, of which 220 000 are fatal. It is striking that 70 percent of fatal accidents involving agricultural chemicals occur in developing countries, although only 20 percent of chemicals produced worldwide are used there.

A look into Germany's past reveals that we have also paid dear for the lessons we have learned. In the 1950s, smoking chimneys were viewed as a sign of corporate success. Scum on rivers was seen as an inevitable by-product of our economic resurgence. Only gradually were discussions broadened to incorporate the burden industry was placing on human health and the environment, and counter measures introduced.

Technological developments here were focussed on industrialization. Only much later did health and the environment come into play. This meant that, from the 1970s onwards, industrial plants had to be retrofitted with environmental technology. Yet it would take another 20 years before consistent efforts began to tackle

industry's environmental problems by integrating appropriate technologies into the production process itself. Nowadays, Germany and Europe are guided by the principle of a clean, closed-loop production economy and a sustainable chemicals industry.

In 1971, Germany banned the production and use of the chlorine-based insecticide DDT. In 1976 in Seveso, Italy, two and a half kilograms of dioxins were released accidentally. On 17 May 2004, the Stockholm Convention on Persistent Organic Pollutants came into force. This Convention prohibits, among other things, the production and use of DDT worldwide, and reduces the release of dioxins and furans to a minimum. In May 2005, delegates from every region of the world met in Punta del Este, Uruguay, for the first Conference of the Parties which brought progress towards the global implementation of this Convention.

It takes time for us to learn from our experiences and to become convinced of the need for action. However, if we look at the change which has occurred in practice here, we can clearly see the risk many developing countries run of repeating the mistakes which industrialized nations have made during their development cycle. All sides are, however, willing to share experiences and learn from one another's mistakes. If we look to the

Photo: GTZ-Archiv



future, we can see immense potential for improvement: the challenge is to fulfil this potential.

## An indicator for successful development

Aspects of chemical safety are a feature in almost all areas of development cooperation: environmental and resource protection, health, agriculture, education, industrial policy, occupational safety, the efficiency of state-run institutions and also in international cooperation, for instance on implementing safety standards or transposing international environmental agreements into national agreements. In all these areas, we have become aware that chemicals are now part of all spheres of life and that they need to be handled safely and sustainably. This awareness can be seen as an indicator of successful development.

## Protecting the environment and its resources

Nevertheless, the higher yields from agriculture and enhanced foreign-currency revenues from mining and industry which the developing world seeks are still being earned by poisoning soils and rivers and by damaging human health. Whole tracts of land have already been poisoned. Many such countries have obsolete chemicals, toxic waste dumps and corroded industrial plants which contaminate land and

What can be done to protect the poor, who are often unaware of the dangers from chemicals due to a lack of information and training?



Many developing countries are still struggling with significant stocks of hazardous, obsolete chemicals.

large stockpiles of pesticides that can no longer be used. The link between environment and development is clear: developing countries suffer painful economic losses if their export products are rejected because of their chemical contamination. In the case of export crops, this rejection affects not only the traders but above all growers and workers in the agricultural sector. Very few developing countries can afford costly clean-up and disposal measures.

### Training and health

To handle hazardous chemicals, especially pesticides, employees in almost all industrialized nations are required by law to provide evidence that they possess subject-specific knowledge.

In contrast, in developing countries, especially in rural areas, many of the people who handle chemicals are illiterate or lack all but the most basic formal education. Frequently, these people have no opportunity to understand the substances they are dealing with. Without knowing it, they proceed to ruin their health and that of their children, to poison their own drinking water and food. This is why the handling of chemicals should be restricted to people with sufficient training to enable them to assess what they are doing. OECD, in its guidelines for technology transfer, calls for uniform safety standards to be applied worldwide.

### Environmental protection in industry

When industrialization takes place without environmental protection, it often leads to the pollution of air, water, soils,

flora and fauna and endangers human health. Some of the damage done is irreparable.

Yet the safe use of chemicals can bring companies immediate benefits. The correct, targeted use of chemicals brings down production costs because materials are being used economically. The quality of the products also improves. Better protection against accidents and poisoning means less time off for workers. Thus companies become more competitive, on both domestic and international markets. Sparing use of chemicals means fewer pollutants enter the environment reducing the detrimental impacts. When integrated into industrial environmental protection, preventative chemical safety measures help secure markets, help them expand and consequently also help companies develop along sustainable lines.

### Travelling the road together

International cooperation has the task of sharing experiences and assisting with the implementation of sustainable ideas. Agenda 21, which was agreed in Rio in 1992 and reaffirmed at Johannesburg in 2002 (see box) and a series of international chemicals and environmental conventions including the Stockholm Convention described above, have successfully paved the way for achieving this. The ensuing – often lengthy – implementation processes must not deter the parties, but spur them on to greater efficiency and commitment.

A toxic chemical poses many risks and hazards which emerge throughout the substance's life cycle, be it during production, transportation or trading, storage, use or disposal. Chemical safety must be incorporated into all the relevant areas of

life and manufacturing as part of the move towards sustainable development. Many people have yet to make this connection with sustainability. However, now is the best time to convince all concerned of the value of making such connections and of changing their patterns of conduct. This can be achieved by clearly focussing on the positive outcomes of chemical safety measures. An economical and careful use of chemicals will normally bring direct financial benefit to users. Even if outlay increases in the short term, due to the cost of safety measures, training or the introduction of alternative procedures, measures such as these deliver health and environmental benefits and hence pay off in the medium, and particularly the long, term – both in economic and social terms. We now possess a sufficient armoury of good, convincing arguments and experiences to drive this process forward. When used appropriately, chemicals can significantly improve quality of life and contribute to economic development. To get the chemistry right, we must make chemical safety an integral part of all the steps we take along the road to sustainable development.

### Johannesburg Plan of Implementation

[...]

#### Changing unsustainable patterns of consumption and production

§ 14. Fundamental changes in the way societies produce and consume are indispensable for achieving global sustainable development.

[...]

§23. Renew the commitment, as advanced in Agenda 21, to sound management of chemicals throughout their life cycle and of hazardous wastes [...] inter alia, 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 [...]