

## CHEMICALS AND WASTE MANAGEMENT: ESSENTIAL TO ACHIEVING THE SUSTAINABLE DEVELOPMENT GOALS (SDGs)

In adopting the 17 Goals of the 2030 Agenda for Sustainable Development, world leaders outlined a transformational course of action for the people, planet, and prosperity. Chemicals and waste<sup>1</sup> management are related to achieving every aspect of this Agenda.

Chemicals and waste management play an important and increasingly significant role in every economic and social sector. Sound management of chemicals throughout their lifecycle is essential to avoiding complex risks to human health and ecosystems, and substantial costs to national economies. Similarly, sound management of chemicals and waste is necessary to maximize the potential benefits of their contribution to human well-being.

Either as an input to or consequence of activities, sound management of chemicals and waste can provide practical solutions to achieve sustainable development.

Chemicals and waste management are reflected explicitly in a number of goals and targets, including those addressing health, water, cities and human settlements, and responsible consumption and production. Moreover, they relate implicitly to the goals on poverty, agriculture, oceans, decent work, climate change, and while less pronounced, their contribution is also important in areas such as education and gender equality.

Sound management of chemicals and waste underpins the effective implementation and achievement of the Goals at the country level. Mainstreaming the sound management of chemicals and waste within national development plans is therefore vital. Failing such integration, the complex and interlinked range of hazards and risks of chemicals will continue to cause adverse impacts on the environment, human health, and economic development.

<sup>1</sup> considered as: hazardous waste in the lifecycle of chemicals



# CHEMICALS AND WASTE FOR ALL SDGs:

## SOUND MANAGEMENT OF CHEMICALS AND WASTE AS KEY FACTORS FOR ACHIEVING THE SDGs

**1 NO POVERTY**  
  
 Poor populations are the most vulnerable to exposures from hazardous substances.

It is estimated that 99% of children and 98% of adults affected by lead exposure live in low- and middle-income countries. All people are exposed to chemical residues in their diet.

**2 ZERO HUNGER**  
  
 Chemicals, in particular agrichemicals, are essential to food safety and security. With increasing demand for food, a new approach to food security must include green technologies that reduce hazardous chemical inputs including pesticides and fertilizers.

In low income countries the percentage of the population working in agriculture is often high (typically above 40%) compared to high income countries (typically below 5%).

**3 GOOD HEALTH AND WELL-BEING**  
  
 Exposure to various chemicals occurs every day and through multiple routes such as ingestion, inhalation, skin contact and via the umbilical cord to the fetus. Many chemicals are harmless or even beneficial; others are a threat to our health and to the environment. Chemicals production continues to increase and, with it, the potential for chemical exposure.

Just over one third (35%) of ischaemic heart disease, the leading cause of deaths and disability worldwide, and about 42% of stroke, the second largest contributor to global mortality, could be prevented by reducing or removing exposure to chemicals such as from ambient air pollution, chemical residues in food, household air pollution, second-hand smoke and lead.

**10 REDUCED INEQUALITIES**  
  
 People who are poor, marginalised or members of ethnic minorities tend to face a higher level of exposure to chemicals more than others.

Poverty and lead exposure go hand-in-hand, even in developed nations like the United States, where average lead levels among poor children are four times higher than levels among children who are not in poverty.

**11 SUSTAINABLE CITIES AND COMMUNITIES**  
  
 Sustainable cities and communities include improvements in energy and water efficiency and reductions in toxic chemicals use - a set of design parameters proven to result in improvements in health and safety of communities.

A third of the world's urban population live in slums, which are affected by pollution, chemicals and wastes and typically lack adequate sanitation and other public services.

**12 RESPONSIBLE CONSUMPTION AND PRODUCTION**  
  
 Chemicals innovation, safer chemicals and non-chemical alternatives can contribute to the development of ecodesign and circular economies and promote more sustainable patterns of production, consumption and lifestyle.

Waste generation is projected to increase from 1.3 billion tons per year to 2.2 billion tons per year by 2025, with high increases in middle-income developing countries.

**4 QUALITY EDUCATION**  
  
 Exposure to toxic chemicals can reduce a child's ability to learn by causing mental and physical impairment as well as different types of non-communicable diseases.

In low- and middle-income countries, there is an estimated cost of \$977 billion due to IQ loss in children affected by exposure to lead.

**5 GENDER EQUALITY**  
  
 Chemicals impact men and women differently due to sociocultural and physiological differences. For women, vulnerability to chemicals is exacerbated by power imbalances.

In a study of 278 known chemical carcinogens, the US National Toxicology Programme found that 201 exhibited statistical gender differences.

**6 CLEAN WATER AND SANITATION**  
  
 Water scarcity and quality are determined by many factors including the polluting of water supplies by toxic chemicals. Water needs to be used more efficiently, available to all at a reasonable cost and free from harmful chemical pollutants.

Safe and adequate water, sanitation and hygiene could prevent more than 350 000 deaths of children under five years annually, representing 5.5% of total deaths in that age group.

**13 CLIMATE ACTION**  
  
 Sound management of chemicals and waste can help prevent and mitigate climate active substances from entering the environment and reduce the need for difficult and costly environmental remediation. Climate change also has the potential to impact human exposure to chemicals due to changes in use patterns, releases and environmental pathways.

1.07 million km<sup>2</sup> of the Arctic's sea ice is lost every decade due to warming. A wide range of POPs long trapped in the region's snow have been remobilized into the Arctic atmosphere over the past two decades because of climate change.

**14 LIFE BELOW WATER**  
  
 Toxic pollutants are discharged into the oceans and are later absorbed by some of the fish we eat.

Oceans serve as the world's largest source of protein, with more than 3 billion people depending on the oceans as their primary source. It is estimated that the total deposition input of mercury to the oceans in 2008 was 3700 tons.

**15 LIFE ON LAND**  
  
 Chemicals and waste can cause severe environmental degradation and disrupt ecosystems through the contamination of water, soil, air and flora and fauna.

Toxic pollution from contaminated sites affects over 200 million people worldwide, with tens of thousands poisoned each year.

**7 AFFORDABLE AND CLEAN ENERGY**  
  
 The chemical industry's products, processes and research capabilities can help conserve energy, deliver energy more efficiently, develop renewable resources and reduce greenhouse gas emissions.

Innovations in chemical products and materials have generated light emitting diodes (LEDs) which use 75-80% less energy than conventional ones and last 25 times longer.

**8 DECENT WORK AND ECONOMIC GROWTH**  
  
 The safety of people engaged in economic activities where chemical exposures are possible need to be ensured without compromising employment opportunities.

Approximately one quarter of workplace deaths result from exposure to hazardous substances. The roughly USD 4 trillion chemical industry employs more than 20 million people.

**9 INDUSTRY, INNOVATION AND INFRASTRUCTURE**  
  
 Innovation in the sound management of chemicals through ecodesign and product lifecycle management can reduce the amount of natural resources used and hazardous materials in products and waste. This can also support the development of new markets and create job opportunities.

A 45% increase in revenue per unit from recycling desktop computers was achieved using best practice recycling technologies in Ghana.

**16 PEACE AND JUSTICE STRONG INSTITUTIONS**  
  
 Institutional frameworks and coordination mechanisms among relevant stakeholders has been recognized as essential to the attainment of the sound management of chemicals and waste.

**17 PARTNERSHIPS FOR THE GOALS**  
  
 Sound management of chemicals can contribute to enhanced policy coherence for sustainable development through public-private partnerships, capacity building and technology innovation.

**17 PARTNERSHIPS FOR THE GOALS**  


# CHALLENGES AND ENABLING FACTORS TO STRENGTHEN THE CONTRIBUTION OF SOUND MANAGEMENT OF CHEMICALS & WASTE TO THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

A fundamental challenge to be addressed is the prioritization of chemicals and waste management, which is often less prominent than headline issues, such as poverty eradication and climate change, but key to achieving progress towards the related SDGs.

The need for sound chemicals management is further stressed by the continued growth in production, trade and use of chemicals. This exerts an increasing burden, particularly on developing countries and countries with economies in transition, which have less capacity to address these challenges.

Enabling factors include:

- Sound management of chemicals and waste that is vital to a circular economy where material is recycled in a safe way and does not lose its value.
- A comprehensive, multi-stakeholder and proactive approach to the management of chemicals and waste in which costly problems can be avoided from the start.

The Global Chemicals Outlook<sup>1</sup> provides a set of general policy recommendations and more specific technical and managerial ones. The Strategic Approach to International

Chemicals Management (SAICM) endorsed the Overall Orientation and Guidance<sup>2</sup>, which identifies the necessary country level actions to achieve the SAICM 2020 goals.

Both make it clear that coordinated actions at national, regional, international, corporate and civil society levels are urgently needed and will require:

- Decoupling economic growth from negative (and growing) impacts, thus maximizing societal benefits.
- Increased political priority, commitment and resources for the sound management of chemicals and waste.
- Integrating the sound management of chemicals and waste into environmental, public health, labour, social and economic development programs.
- Adopting and implementing legal instruments that define the responsibilities of the public and private sector for chemicals and waste control and improve administrative coordination for compliance and enforcement.

<sup>1</sup>[www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/policy-and-governance/global-chemicals-outlook](http://www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/policy-and-governance/global-chemicals-outlook)

<sup>2</sup>[www.saicm.org/Implementation/Towards2020/tabid/5499/language/en-US/Default.aspx](http://www.saicm.org/Implementation/Towards2020/tabid/5499/language/en-US/Default.aspx)

## DELIVERING AS ONE - THE SOUND MANAGEMENT OF CHEMICALS AND WASTE TO ACHIEVE THE SDGs TRANSFORMATIVE AGENDA

### THE IOMC VISION STATEMENT

The Inter-Organization Programme for the Sound Management of Chemicals (IOMC)<sup>3</sup> is the pre-eminent mechanism for initiating, facilitating and coordinating international action to achieve the WSSD 2020 goal for sound management of chemicals.

As a result of its commitment to promote coordination of policies and activities, the IOMC participating organizations have assisted developing countries in building their capacity for mainstreaming the sound management of chemicals and waste.

The IOMC is dedicated to providing a comprehensive set of scientific and technical tools that promote the sound management of chemicals and waste, and the opportunities it provides for green and decent jobs.

<sup>3</sup>[www.who.int/iomc/en/](http://www.who.int/iomc/en/)

# IOMC



INTER-ORGANIZATION PROGRAMME FOR THE SOUND MANAGEMENT OF CHEMICALS

A cooperative agreement among FAO, ILO, UNDP, UNEP, UNIDO, UNITAR, WHO, World Bank and OECD

