



SDG target 3.9: by 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination.



SDG target 6.3: by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and increasing recycling and safe reuse globally.



SDG target 12.4: by 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

Fact sheets on sustainable development goals: health targets

Hazardous Chemicals

Harmful effects of chemicals are a serious threat to health and development. Sound management of chemicals will support the attainment of the Sustainable Development Goals (SDGs) and good health for all by contributing to poverty elimination, food security and health security; promoting sustainable cities and communities; ensuring sustainable consumption and production; and mitigating climate change.

Overview

Chemicals are an integral part of our life and play a substantial role in economic growth and human well-being. However, the improper management of hazardous chemicals and waste can lead to acute and chronic effects on health, for both present and future generations.

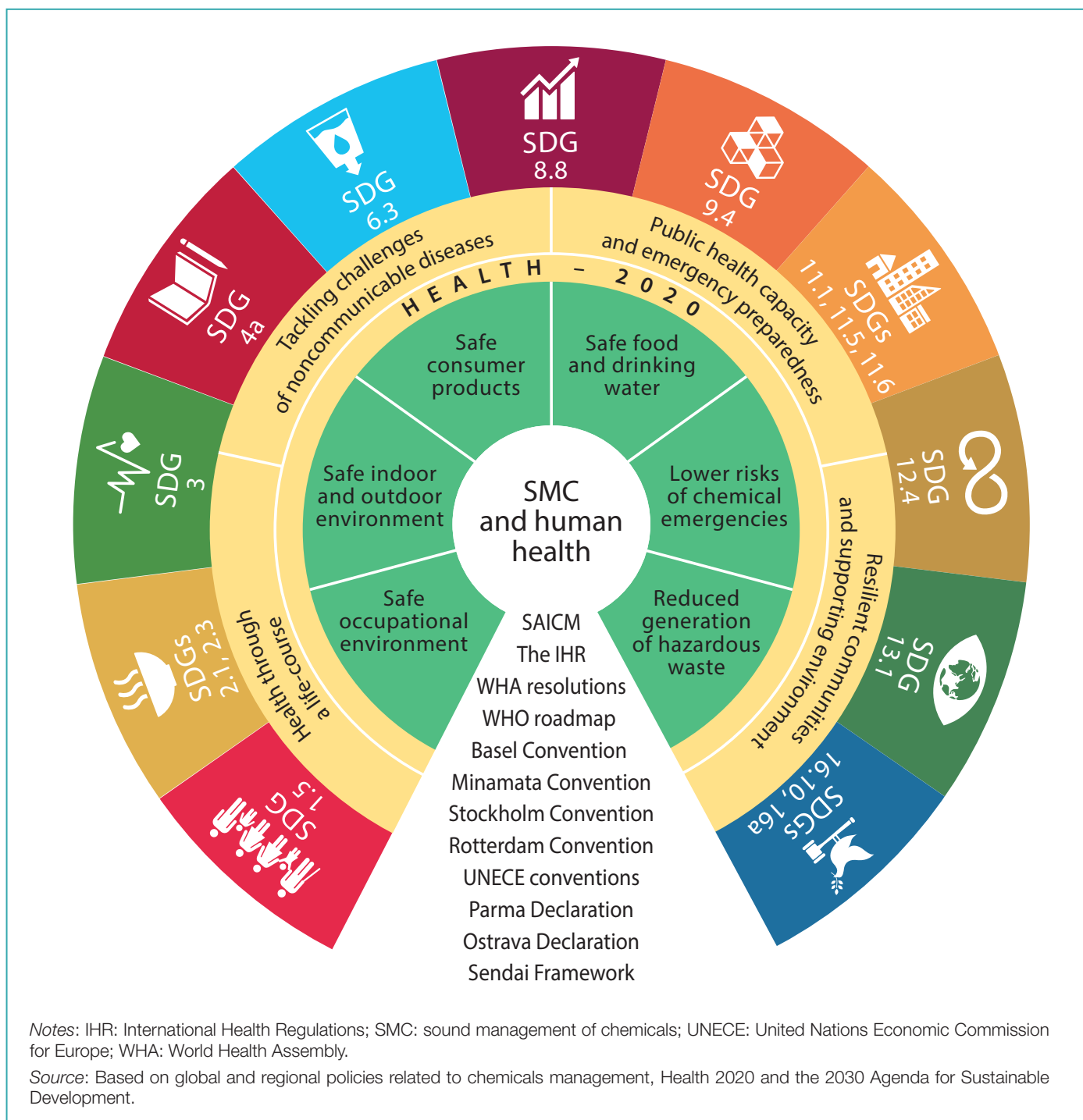
Hazardous chemicals in air, water, food, consumer products and the occupational environment have the potential to cause a range of diseases including cancer; fetal malformations; diseases of the respiratory, endocrine, cardiovascular and urinary systems; and neurodevelopmental and immune disorders. Children are particularly



vulnerable to negative effects of chemicals. It is increasingly recognized that preconception and prenatal exposure to toxic environmental agents can have profound and long-lasting effects. These can include diseases with onset later in life, when adult (1). For some chemical exposure during critical times of development, the effects can even carry across generations (2).

The sound management of chemicals and the prevention of their negative impact on human health would contribute to the creation of supportive environments and resilient communities. Links between sound management of chemicals, health and well-being, SDGs and Health 2020 are shown in Fig. 1 (3).

Fig. 1. Sound management of chemicals and human health



Chemicals and SDGs: facts and figures



- The WHO European Region has the second highest preventable burden of disease related to chemicals among all the WHO regions (4).
- In 2010, unintentional poisonings were estimated to cause 58 000 deaths annually in the European Region, with the major part being from preventable chemical exposures (Fig. 2) (5).
- Single chemical accident releases, involving dangerous substances in industrial installations, continue to happen frequently in Europe. Since 2010, major industrial accidents in the European Union have been responsible for approximately 20 deaths, 70 injuries, evacuation or shelter-in-place of several thousand citizens and damage to property and the environment, which account for millions of euros (7).

End preventable deaths of newborns and children under 5 years: a broad estimate of the childhood burden of disease in the European Union from conditions such as developmental disability, asthma and cancer, linked to exposure to lead and methylmercury, has suggested an attributable cost of illness of US\$ 71 billion in 2008, amounting to 0.48% of the European Union's gross domestic product (8).

Reduce premature mortality from noncommunicable diseases: most recently, the costs of the burden of disease attributable to endocrine-disrupting chemicals in the European Union has been estimated to be €163 billion/year (9, 10). This estimation did not include many indirect costs of chronic diseases linked to the effects of endocrine-disrupting chemicals.



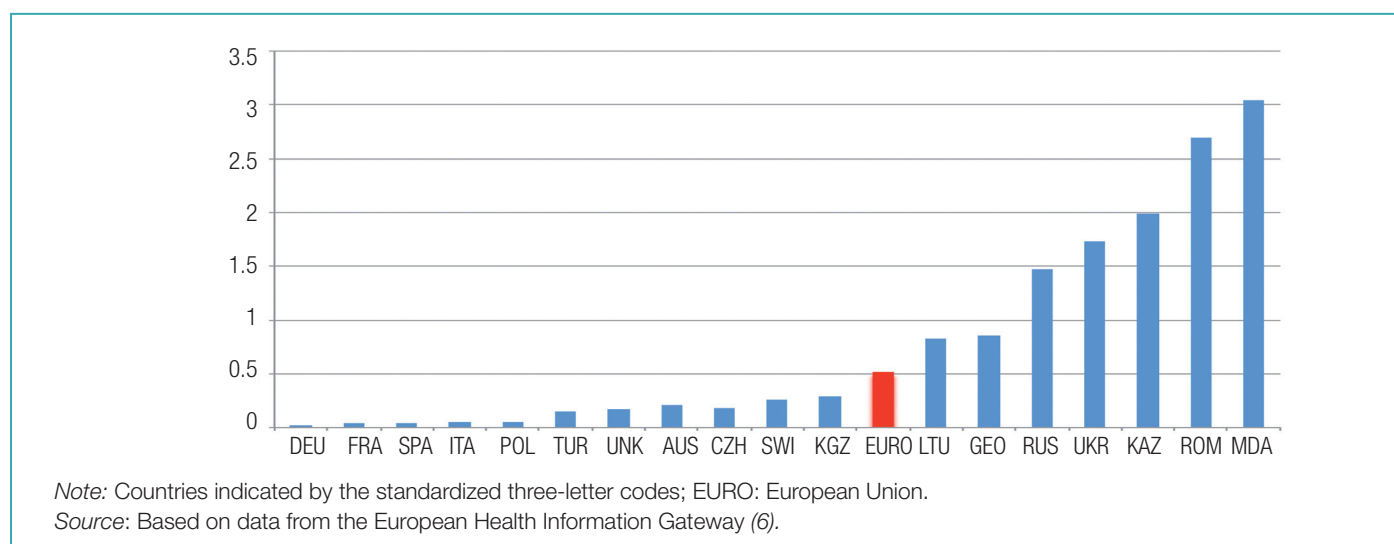
The WHO European Region has the highest figures in the world for chemical production and consumption.

- Eleven of the top 30 major chemicals-producing countries are European, generating chemicals sales of €533 billion annually (11, 12).
- For the period 2013–2021, an increase of approximately 3% in the annual growth of chemical sales and production is expected in western Europe. The Russian Federation and the emerging economies of central and eastern Europe have a growth forecast of 35% until 2020 (11). In the face of this expected rise in chemical production, implementation of the Strategic Approach to International Chemicals Management (SAICM) is essential for the effective management of economic growth without creating any additional ill health burden.



According to the latest assessment from the WHO Regional Office for Europe, approximately 30% of the Region's Member States lack policies aiming at protection of vulnerable population groups from negative impact of chemicals (Box 1) (13).

Fig. 2. Average mortality rate (deaths per 100 000 population) from unintentional poisoning in 19 countries in the WHO European Region, 2009–2014



Commitment to act

In 2006, the global community adopted the SAICM, which aims to achieve the sound management of chemicals throughout their life cycle by 2020, with the intention of reducing the significant adverse effects that hazardous chemicals can have on human health and on the environment (15). At the 70th session of the World Health Assembly, the WHO roadmap on the role of the health sector in SAICM towards the 2020 goal of minimizing the adverse impacts of chemicals on human health and the environment was adopted (16). Strengthening the engagement of the health sector in chemicals management provides a unique opportunity to advocate and influence policies and strategies in the area of chemical safety. The availability of relevant infrastructure, including poison centres, should be strengthened, especially in countries where chemicals are currently not properly regulated (17). Given that the health sector is also one of the biggest consumers of chemicals, minimizing the impact of health care activities on the environment should be a consistent part of planning sustainable health services (18).

In June 2017, at the Sixth Ministerial Conference on Environment and Health (Ostrava, 2017), high-level representatives of the WHO European Region Member States identified chemical safety as one of the main priority areas to be addressed and committed to take actions to minimize the adverse effects of chemicals on human health and the environment (19,20).

Box 1. Leaving no one behind...

Policies to protect vulnerable groups form the negative impact of chemicals: about 30% of Member States in the WHO European Region lack policies aiming to protect vulnerable population groups from the negative impact of chemicals. Growing scientific evidence on the harmful effects on health from exposure to hazardous chemicals at early development stages has provided the basis for a high-level commitment to invest in early childhood development and protect against toxic exposure at the early stages of life (14).

To achieve the goal set by the World Health Assembly for 2020 (16), the following priorities have been identified, in line with global and regional (19) perspectives, and focused on the protection of human health:

- developing and implementing diverse evidence-informed policies, in particularly for the protection of vulnerable population groups and life stages;
- improving health surveillance and monitoring of chemicals in the environment, food, consumer products and occupational settings;
- facilitating risk assessment and evidence collection;
- building national and regional capacities and strengthening institutional and human resources;
- ensuring sustainable financial support; and
- facilitating scientific research to provide evidence-informed recommendations that can be easily translated for policy-makers (Box 2).

Box 2. Intersectoral action

Health sector role in the management of chemicals: the involvement of the health sector is of paramount importance for the success of the SAICM and the achievement of its 2020 goal, other international commitments and the SDGs. Chemicals should be a subject of interest and concern for the health sector, in view of their important contribution to the burden of noncommunicable diseases.

The health sector must be active in partnerships and alliances for the sound management of chemicals with other stakeholders, such as research and nongovernmental organizations that are active in the area of chemical safety and through activities such as evidence collection and translating science into policy, raising awareness of the health impact of chemicals, evaluating the economic costs of ill health, and education (21).

Monitoring progress

As proposed in the Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development of the United Nations Economic and Social Council (ECOSOC), the following will support monitoring progress of the sound management of chemicals (22,23).

ECOSOC indicators

3.9.3. Mortality rate attributed to unintentional poisoning

6.3.1. Proportion of wastewater safely treated

6.3.2. Proportion of bodies of water with good ambient water quality

12.4.1. Number of parties to international multilateral environmental agreements on hazardous waste and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement

12.4.2. Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment

Health 2020 additional indicators

(6) 1.3.b. Age-standardized mortality rates from accidental poisoning (ICD-10 codes X40–X49 (24))

WHO support to its Member States

WHO provides evidence-based strategies and policy support to Member States to address the negative impacts of chemicals to enable a comprehensive and sustainable response. Specific WHO programme activities under the European environment and health process include:

- sharing scientific knowledge and expertise through meetings of Member States, expert missions, communication with WHO country offices, publications and guidance documents;
- supporting the development and implementation of projects, including establishing systems for collection and information sharing on hazardous chemicals, strengthening national legislation, assessing risks of chemicals and their mixtures, assessing exposure to chemicals through human biomonitoring, and identifying sources of exposure;
- building national human and laboratory capacity through training on emergency preparedness and response and implementation of International Health Regulations;
- raising awareness about the negative impacts of chemicals, advising on policy decisions and navigating prioritized actions; and
- promoting scientific research.

Partners

WHO collaborates with the following partners to control the use of and prevent harmful incidences involving chemicals:

- United Nations Environment, Chemicals and Wastes (UN Environment)
- United Nations Food and Agriculture Organization
- Inter-Organizational Programme for the Sound Management of Chemicals
- Organisation for Economic Development and Co-operation
- United Nations Industrial Development Organization
- Organisation for the Prohibition of Chemical Weapons
- European Environment Agency.

Resources

- SAICM texts and resolutions of the International Conference on Chemicals Management, Dubai, 2006
http://www.saicm.org/Portals/12/Documents/saicmtxts/New%20SAICM%20Text%20with%20ICCM%20resolutions_E.pdf
- International Programme on Chemical Safety: chemicals road map 2017
<http://www.who.int/ipcs/saicm/roadmap/en/>
- Sound management of chemicals
http://web.unep.org/chemicalsandwaste/sites/unep.org.chemicalsandwaste/files/publications/SoundManagementofChemicals_0.pdf
- Strategy for strengthening the engagement of the health sector in the implementation of the strategic approach to international chemicals management
http://www.who.int/ipcs/saicm/health_sector_strategy.pdf
- International Health Regulations, third edition, 2005
<http://www.who.int/ihr/publications/9789241580496/en/>

Key definitions

- **Endocrine disruption.** A physiological condition in which production of hormones by the endocrine system is irregular due to genetic or environmental factors.
- **Hazardous chemicals.** Substances that have the potential to cause adverse effects when an organism, system, (sub)population or the environment is exposed to that agent.
- **Sound management of chemicals.** The practice of using and handling chemicals that does not harm or impact negatively on an organism, system, (sub)population or the environment.

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