

Establishment of key elements of national systems for sound chemicals management in selected countries in eastern Europe, the Caucasus and central Asia

Belarus, Georgia and Kazakhstan

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Abstract

The project "Establishment of key elements of national systems for sound chemicals management in selected countries in eastern Europe, the Caucasus and central Asia" was implemented by the WHO Regional Office for Europe through its WHO European Centre for Environment and Health in three European Member States – Belarus, Georgia and Kazakhstan – from 2018 to 2021. This publication describes the main project outcomes and impacts on chemicals management in the implementing countries. It includes references to global and regional policy contexts, key elements of chemicals management in the context of national policies, and challenges and opportunities for consideration on the road to sound chemicals management. This publication is aimed at public health professionals in countries working towards improving chemicals management.

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Background

The continuous development of the chemical industry and other economic sectors as well as growing agricultural production are associated with increasing demands for chemicals, including those hazardous to human health and the environment. Between 2000 and 2017, the production capacity of the chemical industry increased from 1.2 to 2.3 billion tonnes and is projected to double by 2030 especially in emerging economies (1). The diversity and number of chemicals on the market are also growing exponentially; for example, the total number of synthetic chemicals on the market has been estimated at 100 000 substances, and 600 000 can be searched in toxicological databases (2).

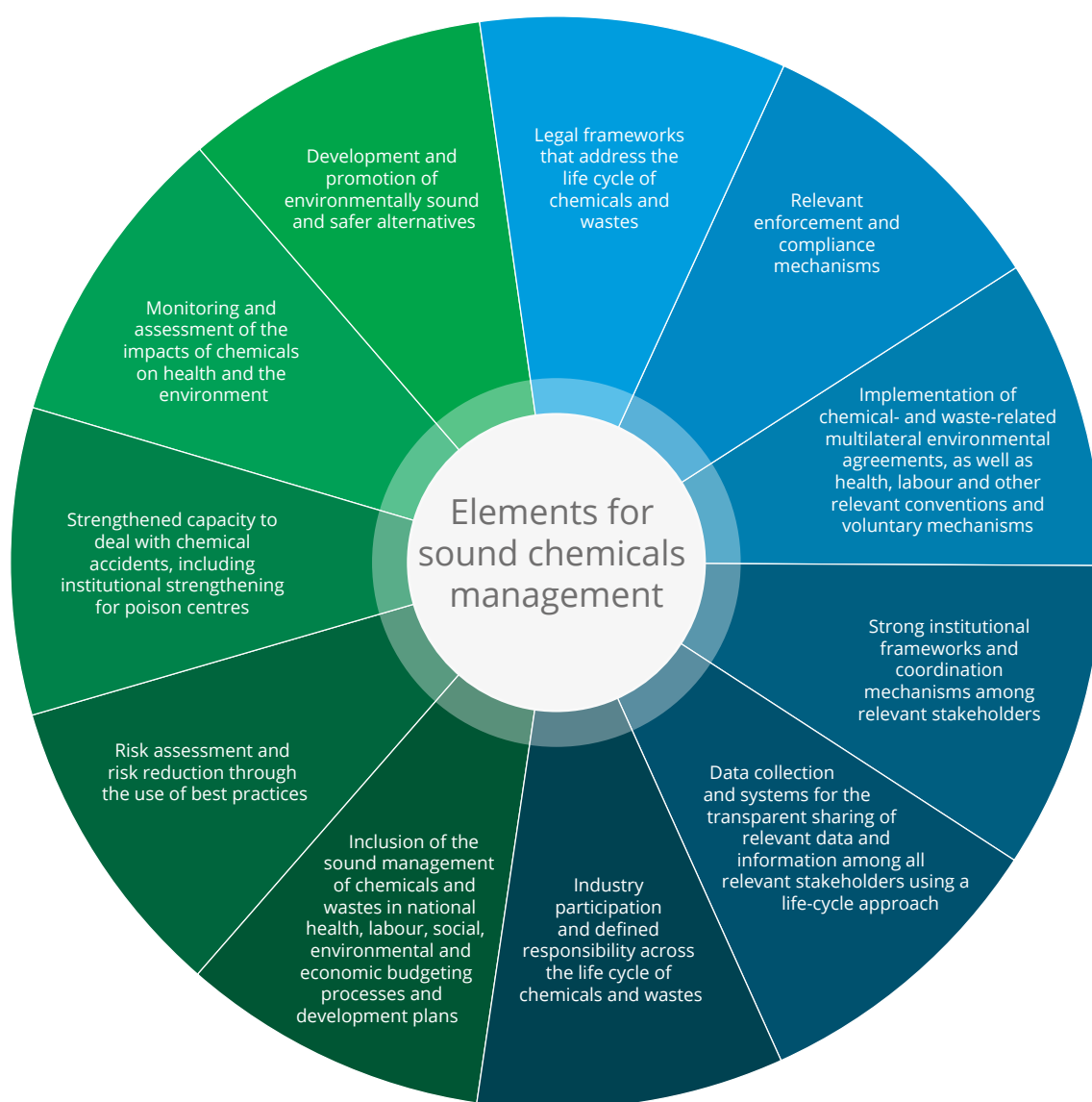
Exposure to such chemicals can cause serious and even deadly health effects. Exposure to inappropriately managed hazardous chemicals and their mixtures generates a range of serious negative health outcomes (3). In 2019, WHO estimated the public health impact of chemicals to be 2 million lives and 56 million disability-adjusted life-years (DALYs) annually. These impacts can be prevented through risk-reduction measures. In the context of sustainable development, achieving a balance between expanding the use of chemicals and reducing the risks of their adverse effects on human health and the environment is increasingly important.

The United Nations 2030 Agenda for Sustainable Development renewed countries' collective commitment to sustainable development (4). Some Sustainable Development Goals (SDGs) and their targets relate explicitly to chemicals, including those focused on human health, water quality, and responsible consumption and production (5). Other SDGs, such as those on poverty eradication, agricultural development, cities and human settlements, ocean protection and climate change, also imply the sound management of chemicals. Multilateral environmental agreements on chemical safety, both legally binding and voluntary, such as the Strategic Approach to International Chemicals Management (SAICM), guide countries towards greater protection of human health and the environment from the negative impacts of chemicals (6). Sectoral strategies such as the WHO *Road map to enhance health sector engagement in the Strategic Approach to International Chemicals Management towards the 2020 goal and beyond* (WHO Chemicals Road Map) identify areas where the health sector has a lead or an important role to play in the sound management of chemicals in coordination with other sectors and stakeholders (7). In the WHO European Region, minimizing the adverse effects of chemicals on human health is a regional environmental health priority recognized in the Parma and Ostrava declarations on environment and health (8,9). Considering the growing volume and diversity of chemicals on the market, the reported health, environmental and socioeconomic losses due to improper chemicals management, and the contribution of chemicals to economic development and achieving the SDGs, national systems for sound chemicals management are of paramount importance.

Key elements of national systems of sound chemicals management

The key components of national systems of sound chemicals management are well known and have been discussed in depth at regional and international forums. Fig. 1 presents 11 elements recognized as critical within the framework of the SAICM *Overall orientation and guidance for achieving the 2020 goal of sound management of chemicals (10)*. Countries with advanced experience in this area confirm that establishing these elements at both national and regional levels leads to safer handling of chemicals.

Fig. 1. Basic elements recognized as critical at the national and regional levels for sound chemicals and waste management

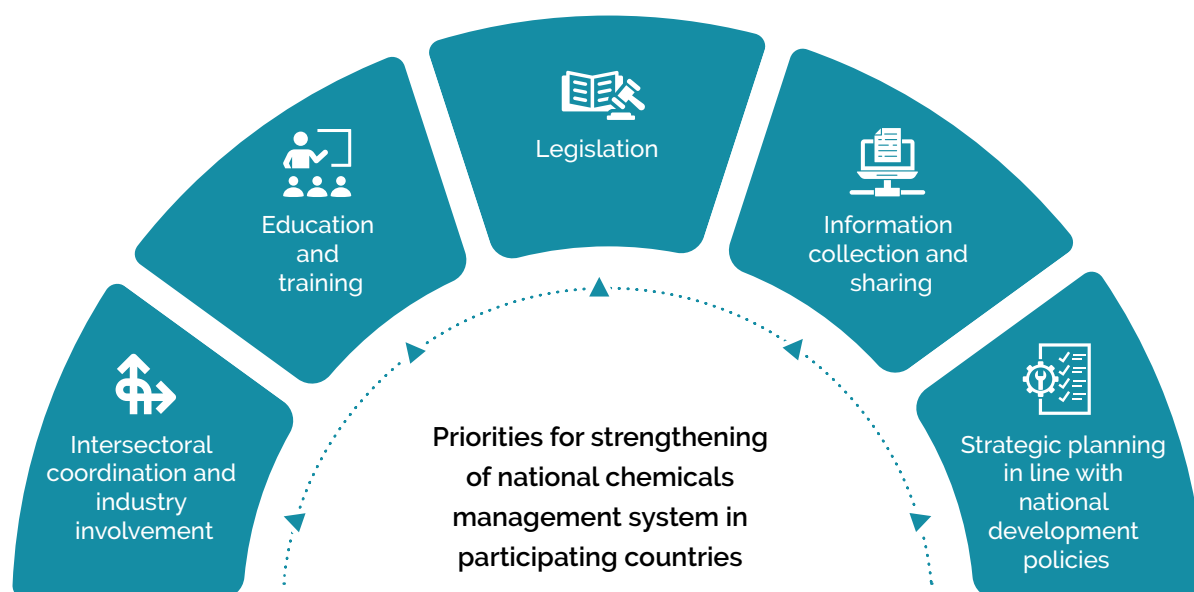


Since the mid 1990s, the International Programme on Chemical Safety (IPCS) and the United Nations Institute for Training and Research (UNITAR) have advised governments on the development of national programmes for chemicals management and safety (11). IPCS and UNITAR draw specific attention to the importance of intersectoral coordination, strengthening of human and other resources, information collection and sharing, identification of chemical risks and their communication and management, and raising awareness among the public. These areas are also a focus of the IOMC Toolbox for Decision Making in Chemicals Management (12).

Actions aimed at engaging the health sector in chemicals management are grouped into four areas in the WHO Chemicals Road Map – risk reduction; knowledge and evidence; institutional capacity; and leadership and coordination – and 12 topics, among which are risk assessment, national policies and regulatory frameworks, and training and education (7).

Screening assessments of the state of chemicals management in the partner countries (Belarus, Georgia and Kazakhstan) during the project's planning stage identified gaps and key elements on which to focus (Fig. 2).

Fig. 2. Areas addressed in the project



Project context

To support countries in strengthening their systems of chemicals management, the WHO Regional Office for Europe through its WHO European Centre for Environment and Health prepared the project "Establishment of key elements of national systems for sound chemicals management in selected countries in eastern Europe, the Caucasus and central Asia". It built on experience gathered through another project on the development of legislative and operational frameworks for collecting and sharing information on hazardous chemicals, implemented from 2015 to 2017 in Georgia. Both projects were funded by the German Environment Agency (UBA) through its Advisory Assistance Programme.

Three countries expressed interest in participating in the project – Belarus, Georgia and Kazakhstan (Fig. 3). These candidate countries demonstrated:

- political commitment at the national level to improve chemicals management;
- strong support on the part of national health and environment authorities;
- political commitment to contribute to chemical safety at the global level (multilateral environmental agreements, SAICM (6) and World Health Assembly resolutions) and the regional level (Parma and Ostrava declarations on environment and health (8,9)); and
- national capacities for the project implementation.

Objectives, tasks and activities

The main objective of the project was to develop national capacities for managing the risks associated with priority groups of chemicals and to put in place the essential elements of national systems of sound chemicals management, including registers of chemicals (Fig. 4). The project aimed to achieve this in three years, from April 2018 to March 2021.

The multicountry nature of the project created opportunities for:

- sharing experience related to the implementation of systems of sound chemicals management;
- multiplying good practices gained through project implementation;
- supporting the establishment of national chemical registration systems;
- harmonizing the collection of information on hazardous chemicals; and
- discussing common barriers and challenges and ways to overcome them.

Fig. 3. Partner countries and implementing institutions in the project



Fig. 4. The project objectives, tasks, and activities



The implementation process

Step-by-step implementation of the project was supported by all involved partners, from the project launch workshop in July 2018 in Tbilisi, Georgia, through to the final project workshop in January 2021. Fig. 5 provides information on the activities implemented in the framework of the project.

Fig. 5. The project workplan



National contexts and political commitments

The countries participating in the project have all demonstrated political commitment to improving chemicals management. This commitment was a strong pillar of the project's success.

In Belarus, a fairly high level of chemical production and use determines more than 15% of the country's total industrial production and more than 25% of its total exports. A wide range of chemicals is produced and used, including mineral fertilizers, synthetic resins and plastics, chemical fibres and threads, solvents, dyes, acids and alkalis, etc. The country also imports oil, plant protection products, industrial chemicals, medicines and household chemicals. Being a member of the Eurasian Economic Union (EAEU), Belarus has undertaken implementation of relevant chemicals management legislation under Technical Regulation (TR) 041/2017 "On the safety of chemical products" (13). Improving chemicals management is one of targets of the country's sustainable development agenda (14).

During the last 10 years, the heavy manufacturing industry **in Georgia** has been one of its most important sectors in terms of added value, exports, employment, innovation and development. The chemical products produced, used and imported in Georgia include industrial and agricultural chemicals such as copper concentrate, manganese ore, ferromanganese, silicomanganese, crude oil, ammonium nitrate, ammonium sulfate, sodium cyanide and nitric acid, as well as paints and varnishes, soaps and detergents, and scouring pastes and powders. According to the Association Agreement between Georgia and the European Union from 27 June 2014 (15), the Georgian Government adopted the National Action Plan on Environmental Health, which includes actions related to chemicals management and biocides regulation (16).

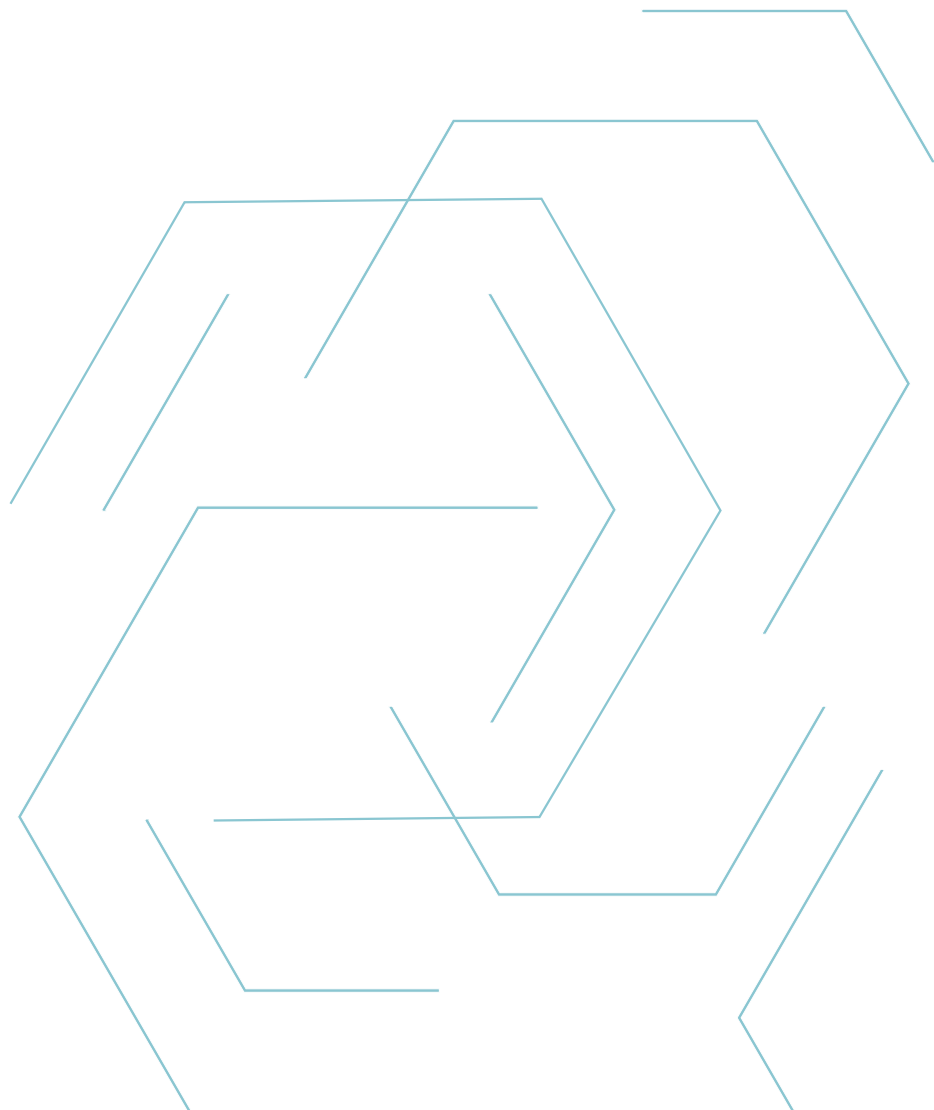
In Kazakhstan, the chemical industry is one of the key branches of the national economy. The country produces and uses oil products, pesticides, fertilizers, carbon dioxide, phosphorus and phosphoric acid, and sulfuric acid. Industrial chemicals and plant protection products, paints and varnishes, pyrotechnic products, perfumes, and household chemicals are imported. Like Belarus, Kazakhstan has accepted its obligation to implement EAEU TR 041/2017. Important provisions for the management of chemicals are also included in Kazakhstan's Green Economy Concept (17).

Stakeholder involvement

The management of chemicals is by nature a multisectoral and multistakeholder process (6). The project therefore began with the establishment of multisectoral and multistakeholder steering groups to ensure:

- open national forums for discussing the implementation of the project;
- the involvement of all stakeholders in discussions on chemical regulation systems; and
- the identification of ways to improve the collection and exchange of information on chemicals.

In all three countries, the steering groups were comprised of representatives of the governmental bodies involved in chemicals management (health, the environment, customs, the economy, finance, agriculture, and emergency situations), as well as industry, the private sector and nongovernmental organizations. Coordination through these multisectoral groups was key to the project's success, as was the involvement of all stakeholders in each stage of implementation.



Screening assessments of the state of chemicals management in the partner countries

The purpose of the screening assessments was to summarize the state of chemicals management in Belarus, Georgia and Kazakhstan. They revealed gaps and areas in need of capacity-building, and thus formed the basis for strategic planning. The following priority areas were identified for improving chemicals management:

- strengthening chemical legislation (including consideration of the precautionary principle, the "polluter pays" model, the "no data, no market" formula, the "right to know" principle) and increasing synergy in the implementation of international agreements in the field of hazardous chemicals;
- developing and implementing methodologies for assessing risks and impacts to human health and the environment, and establishing human biomonitoring programmes for exposure and risk assessment;
- building capacities and developing expertise within the workforce;
- developing a registry of chemicals to which all relevant governmental agencies have access
- improving the collection of data on chemical hazards and their availability in national languages;
- facilitating the transition to classification and labelling of chemicals according to the GHS (18);
- strengthening cooperation and collaboration among governmental agencies and institutions, especially in terms of information collection and exchange, and establishing a relevant mechanism for this;
- enhancing technical capacities for monitoring (environmental and human), including laboratory capacity, harmonized methodologies, etc.; and
- setting up poisoning information centres (poisoning control centres) according to the WHO recommendations for information and advisory support to health-care institutions for the diagnosis and treatment of acute poisoning; the provision of specialized assistance in complex cases and emergencies; the maintenance of medical networks (ambulatory, outpatients, municipal and regional hospitals); and the collection of information on hazardous chemicals causing poisonings and on hazardous chemicals in products.

The screening assessments within the countries also identified specific needs for improved legislation, infrastructural arrangements, chemical legislation enforcement, health impact and burden-of-disease assessments, chemical prioritization, synergy in the implementation of multilateral agreements, and contaminated sites assessment and rehabilitation.

In all countries, the screening assessments served as a basis for prioritization and the development of national road maps towards the sound management of chemicals and biocides.

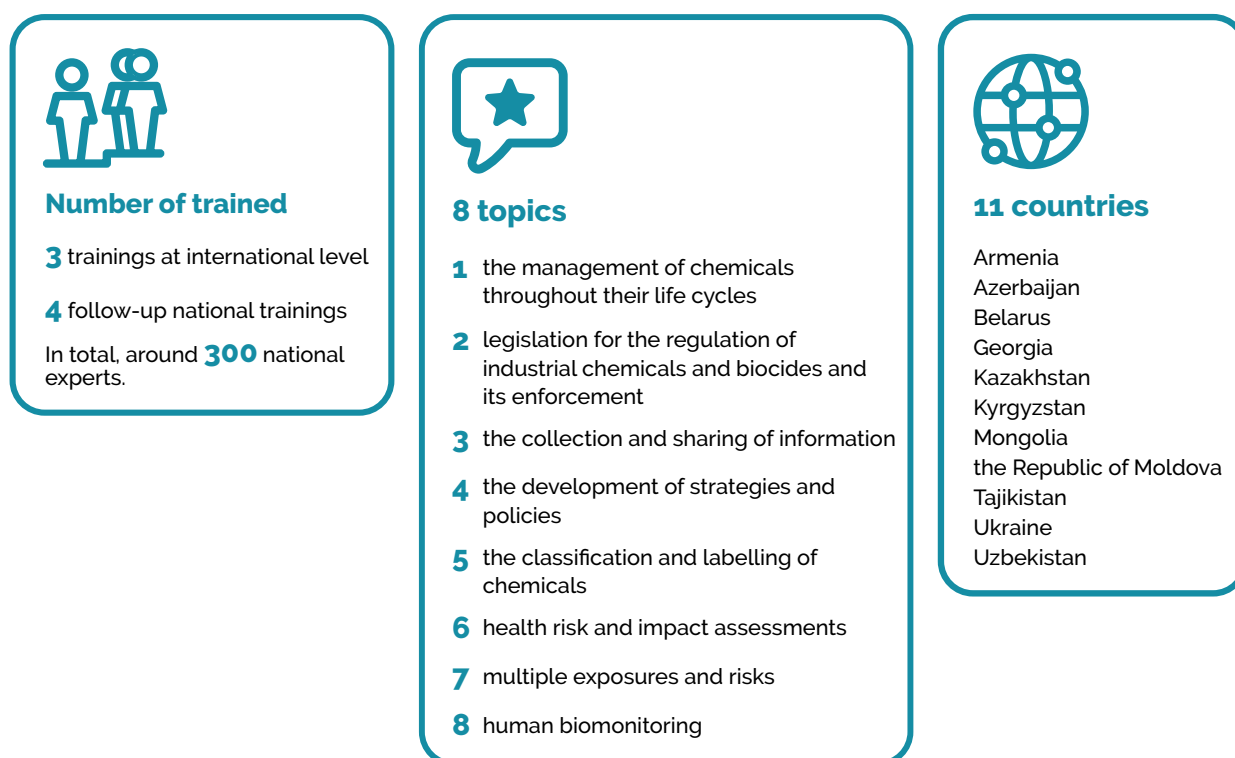
National capacity-building

Strengthening national capacities through trainings and sharing of information on best practices with representatives of governments, industries and nongovernmental organizations were the most important components of the project. A wide range of topics was covered at three trainings organized at the international level (29 to 31 October 2018 in Minsk, Belarus; 9 to 12 April 2019 in Nur-Sultan, Kazakhstan; 11 to 13 November 2019 in Minsk, Belarus). Together with follow-up activities, the national trainings shared new knowledge with around 300 national experts (Fig. 6).

The training materials were developed by leading experts in relevant areas. The IOMC Toolbox for Decision Making in Chemicals Management (13) was a useful source of information on chemicals management through their life cycles. The training materials were then adapted to national contexts and used to organize trainings at the national level.

In keeping with the project's practice, national experts from other countries were also invited to participate in the trainings. In addition to participants from the three partner countries, representatives of Armenia, Bosnia and Herzegovina, the Republic of Moldova, Serbia, Tajikistan and Ukraine took part in the final project evaluation in 2021.

Fig. 6. Capacity building initiatives in the partner and other countries



Online registration of chemicals

All countries involved in the project had legal requirements for and experience in the registration of chemicals: industrial chemicals in Belarus and Kazakhstan, and disinfectants in Georgia. In response to the countries' need for systems to collect information on chemicals for decision-making, and for national chemical registries, the project included the development of software with the following functionalities:

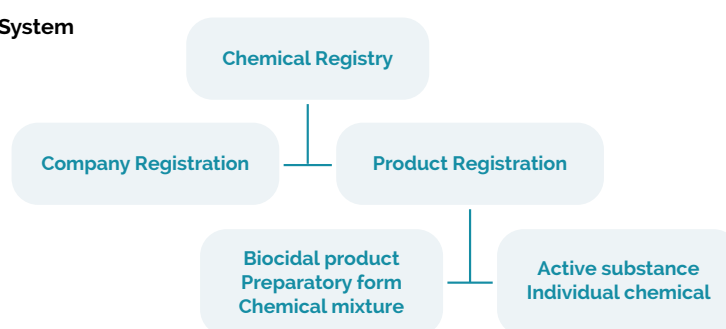
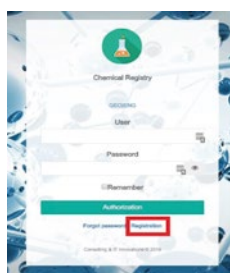
- the online registration of chemicals;
- the collection of information on chemicals to create an information dossier and safety data sheets;
- the sharing of information on chemicals with relevant governmental authorities;
- the post-registration monitoring of the circulation of chemical products; and
- the dissemination of information to the public about chemical threats.

The software allows for the registration of companies (producers, importers), individual chemicals/active substances of biocides and chemical mixtures/biocidal products (Fig. 7), as well as the following information:

- manufacturer (manufacturer's authorized person), importer, distributor identification
- chemical/mixture compound identification
- physico-chemical, health and environmental hazards and labelling
- control measures
- safe handling conditions
- measures to prevent emergencies and their consequences
- transportation conditions.

Fig. 7. Structure of the biocide register in Georgia

Chemical Registry Electronic System



The online registration of disinfectants is fully functional in Georgia for locally produced and imported products,¹ and was successfully tested in Belarus and Kazakhstan.

¹ See: chemicals.ncdc.ge

Strategic actions towards the sound management of chemicals – national road maps

The WHO Chemicals Road Map (7) was developed in response to a request by the World Health Assembly (19) and approved at the Assembly's 70th session in May 2017 (20). Resolution WHA69.4 encourages Member States to develop and implement the WHO Chemicals Road Map as well as national road maps.

The road maps developed in the project's framework identified actions towards the sound management of chemicals and biocides at the national level, including in areas where the health sector plays a leading role. The road maps were developed:

- in consultation with relevant national governmental authorities;
- with the involvement of representatives of leading chemical safety institutions and nongovernmental organizations;
- in line with the main national strategies for socioeconomic development in order to contribute to their achievement; and
- using the WHO methodology for the prioritization of actions (21).

While the development of the three road maps followed a similar process, each focused on country-specific priorities.

Belarus



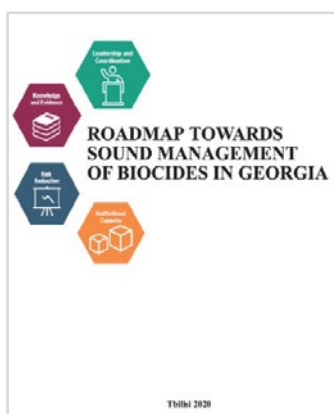
The key actions of the *Road map towards sound management of chemicals in Belarus* (22) were planned to align with and contribute to the National Strategy for Sustainable Socioeconomic Development in the Republic of Belarus until 2030 (14), which declares the need "to ensure environmentally sound management of chemicals throughout their life cycle", "to improve legislation on the regulation of chemicals", "to ensure a healthy environment" and "to reduce the health impacts of chemicals". The actions are organized in five areas: legislation; leadership and coordination; knowledge and information; institutional capacity; and risk reduction (Fig 8).

Fig. 8. Five key areas of actions towards sound chemicals management in Belarus



The implementation of the Road map is expected to reduce the adverse impacts of chemicals on health and the environment, increase synergies in the implementation of multilateral environmental agreements (such as SAICM (6) and the Stockholm (23), Basel (24), Rotterdam (25) and Minamata (26) conventions), and create conditions for the development of sectors of the economy that will contribute to achieving the 2030 goals.

Georgia



Disinfectants management was the area of focus of the *Roadmap towards sound management of biocides in Georgia* (27). Developed according to WHO recommendations (21), it lays out issues and actions that will contribute to the step-by-step implementation of European Union biocidal regulation. The actions must involve all stakeholders in Georgia (state entities, policy-makers, funding bodies, nongovernmental organizations, the chemical industry, academia and commercial entities) to achieve the overarching objectives of SAICM (6) and prevent the negative impact of the production and use of chemicals on human health and the environment.

The national strategic document considers key actions in four areas defined in the WHO Chemicals Road Map (7) (Fig. 9).

Fig. 9. Priority areas of setting a system for sound management of biocides in Georgia

Objective: to create conditions for the health sector to perform its leading role in sound management of biocides in cooperation and coordination with other governmental agencies, industry and the public



Kazakhstan

Fig. 10. Priorities for setting sound chemicals management system in Kazakhstan



The *Road map for setting up a system of sound management of chemicals in Kazakhstan* (28) is likewise expected to contribute to the development of sound chemicals management, reduce the impact of hazardous chemicals on human health and the environment, and accelerate the achievement of the SDGs. It will also contribute to the implementation of the country's Green Economy Concept (17), which prioritizes increasing chemical safety through improving the regulatory framework, introducing environmentally safe technologies and processes, transitioning to the GHS (18), and improving the system of statistical reporting on and accounting of chemicals at the country level.

Stakeholders agreed on intermediate goals in each of the priority areas listed in Fig. xx, as well as the ultimate goal of the *Road map*.

Project outcomes and priorities for going forward

To share lessons learned and experience gained through the project's implementation at national and regional levels and to plan next steps, a final (virtual) workshop was organized on 19–20 January 2021. National experts from the countries implementing the project as well as national focal points for the WHO Global Chemicals and Health Network from other countries of central and eastern Europe, the Caucasus and central Asia were invited to participate.

Representatives of Armenia, Bosnia and Herzegovina, the Republic of Moldova, Serbia, Tajikistan and Ukraine participated in the discussion and positively assessed the project's outcomes, confirming the evaluations of the WHO Regional Office for Europe, the donor agency and the implementing countries.

Main project outcomes

- *More than 300 experts trained* on a wide range of topics related to chemicals management.
- *National expertise in chemicals management increased* through the establishment of educational centres for postgraduate education and the development of national training programmes.
- *National subordinate legislative acts developed* on the registration of chemicals, and national registers established for biocides and chemicals.
- *National systems created* for the collection of information on hazardous chemicals, including a technical basis.
- *Helpdesk created* to guide industry and governmental workers in chemicals management.
- *Intersectoral and multistakeholder coordination and cooperation strengthened.*
- *Strategic directions and further steps defined* towards the creation of systems for sound chemicals management and agreed by all stakeholders.

The following priorities in different areas of chemicals management were also identified.



Identified priorities for strengthening **infrastructure** include:

- poison control centres
- a governmental body authorized to lead chemicals management
- national digital registers of chemicals/mixtures/biocides.



In terms of **legislation**, important elements for consideration include:

- regulation through the life cycle;
- support for substitutions/alternatives to hazardous chemicals;
- principles of circular and green economies;
- information collection, storage, sharing and availability;
- control and prohibition of hazardous chemicals, including in consumer products;
- criteria for chemical hazards and special requirements for the management of hazardous chemicals (endocrine-disrupting chemicals, nanomaterials, etc.);
- setting of reference values for chemicals in the environment, food and consumer products; and
- toxic-free environments for sustainable development, including the safety of water, consumer products and food.



Capacity-building activities were recognized as a priority at both national and regional levels, including:

- establishment of educational centres;
- development of training programmes (on risk assessment, health impact assessment, human biomonitoring, toxicology, protocols on the diagnosis and treatment of diseases caused by exposure to chemicals, etc.); and
- education of representatives of industry and the private sector.



The following topics were identified to be addressed as a **priority**:

- risk assessment of individual chemicals and their mixtures, and the mapping of health risks;
- exposure assessment, including the monitoring of chemicals in environmental media and consumer products, post-registration monitoring, and human biomonitoring (national monitoring programmes);
- health impact assessment, including calculation of the costs and compensations of health lost due to the negative impacts of chemicals;
- the health aspects of contaminated sites; and
- health surveillance in relation to chemicals, with a specific focus on children's health.



Finally, several **groups of chemicals** were identified as **priorities**:

- chemicals causing occupational and non-occupational poisonings
- chemicals contaminating the environment
 - endocrine-disrupting chemicals
 - nanomaterials.

Priorities for going forward

Discussions of the needs, gaps and priorities in different areas of chemical safety in countries of central and eastern Europe, the Caucasus and central Asia yielded the following conclusions.

- The health sector plays/should play an important role in chemicals management, regardless of what agency/sector leads chemicals management in a country. This role should be clearly defined in legislation and/or national policy documents.
- The development of a chemicals road map, a road map towards sound chemicals management or a road map for the engagement of the health sector in chemicals management would facilitate and strengthen the health sector's involvement in and contribution to chemicals management.
- The COVID-19 pandemic has revealed the need for and importance of chemicals management in the health sector and the health sector's role in chemicals regulation. This creates momentum for facilitating health sector involvement.

Support needed to facilitate further actions

The following areas of support from intergovernmental organizations, donors and experts were identified to facilitate actions towards sound chemicals management in countries of eastern Europe, the Caucasus and central Asia:

- provision of technical support and expertise upon request;
- expert assistance with specific issues (for example, lead in paint);
- planning and implementation of multicountry projects (with countries that share common experiences, challenges and languages);
- training of health workers and other relevant groups, such as civil servants, industry representatives, agriculture and transport workers, and students;
- establishment of a formal education centre on chemicals management in collaboration with countries involved in projects initiated by WHO;
- development of training programmes;
- sharing of best practices to address problems at a national level;
- development of harmonized methodologies for risk assessment, human biomonitoring and cost-effectiveness analysis;
- collection of evidence to support legislation and policy promotion; and
- advice on research related to risk factors for noncommunicable diseases.

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WHO European Centre for Environment and Health

Platz der Vereinten Nationen 1,
D-53113 Bonn, Germany
Tel.: +49 228 815 0400 Fax: +49 228 815 0440
Email: euroceeh@who.int
Website: www.euro.who.int