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National Programme on Hazardous Chemicals

Interim review and revision 2017

MINISTRY OF THE ENVIRONMENT

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Interim review and revision 2017

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Abstract

A review has been conducted on the implementation of the National Programme on Hazardous Chemicals and its recommendations have been revised. The programme was prepared in accordance with Prime Minister Vanhanen's Government Programme in 2006 and it was supplemented in 2013 as required by Prime Minister Katainen's Government Programme.

The objective of the programme is to ensure that chemicals pose no significant environmental risks or human health hazards in Finland in 2020. With regard to the management of chemical risks the revision focused on changes in the operating environment. These include the circular economy, the 7th EU Environment Action Programme, the Agenda 2030 for Sustainable Development and Sustainable Development Goals, and the reform of the EU the legislation and policy on occupational health and safety. The matters considered also included how the programme can contribute to the sustainable use of biocides and application of the principles of sustainable chemistry, enhance the knowledge base on environmental microplastics, and better take into account the exposure to sensitizers.

The recommendations for measures have been further specified and updated. More information is still needed on the exposure of the population and employees to chemicals and environmental load caused by hazardous chemicals. Matters to be taken into account in promoting the circular economy include the risks of hazardous substances contained in the materials and possibilities to use non-harmful alternatives instead of these.

The new recommendations for measures are concerned with making sustainable chemistry better known, reducing exposure to sensitizers at workplaces, preparation of instructions for sustainable use of biocides, and taking international action to reduce plastic wastes in marine areas and the harmful substances contained in and bound to these.

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Tiivistelmä

Kansallista vaarallisia kemikaaleja koskevan ohjelman toimeenpanoa on arvioitu ja sen suositukset on tarkistettu. Itse ohjelma on laadittu vuonna 2006 pääministeri Vanhasen hallitusohjelman mukaisesti ja sitä on täydennetty vuonna 2013 pääministeri Kataisen hallitusohjelman edellyttämällä tavalla.

Kemikaaliohjelman tavoite on, että kemikaalit eivät aiheuta Suomessa merkittävää terveys- ja ympäristöhaittaa vuonna 2020. Tarkistuksessa kiinnitettiin kemikaaliriskien hallinnan näkökulmasta huomiota toimintaympäristön muutoksiin. Näiksi tunnistettiin kiertotalous, EU:n 7. ympäristöalan toimintaohjelma, Agenda 2030-toimintaohjelma ja kestävän kehityksen tavoitteet sekä EU:n työsuojelulainsäädännön ja -politiikan uudistaminen. Lisäksi pohdittiin, miten ohjelmalla voidaan edistää biosidien kestävää käyttöä ja kestävän kemian periaatteiden soveltamista, lisätä tietopohjaa ympäristön mikromuoveista sekä huomioida nykyistä paremmin altistuminen herkistäville aineille.

Ohjelman toimenpidesuosituksia on täsmennetty ja ajanmukaistettu. Väestön ja työntekijöiden altistumisesta kemikaaleille sekä haitallisten aineiden ympäristökuormituksesta tarvitaan edelleen lisää tietoa. Kiertotaloutta edistettäessä tulee myös ottaa huomioon materiaalien sisältämien haitallisten aineiden riskit ja mahdollisuudet korvata ne haitattomilla vaihtoehdoilla.

Uusina toimenpidesuosituksina esitetään kestävän kemian tunnetuksi tekemistä, herkistäville aineille altistumisen vähentämistä työpaikoilla, biosidien kestävän käytön ohjeiden laatimista sekä merten muovijätteiden ja niihin sisältyvien ja sitoutuvien haitallisten aineiden vähentämistä kansainvälisin toimin.

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Referat

Verkställandet av det nationella programmet för farliga kemikalier har utvärderats och dess rekommendationer reviderats. Själva programmet har utarbetats 2006 i enlighet med statsminister Vanhanens regeringsprogram och har kompletterats 2013 på det sätt som statsminister Katainens regeringsprogram förutsatte.

Kemikalieprogrammets mål är att kemikalier inte ska orsaka betydande hälso- och miljöolägenheter i Finland efter år 2020. I revideringen fäste man uppmärksamhet vid förändringar i verksamhetsmiljön vad gäller hanteringen av kemikalierisker. Som förändringar identifierade man cirkulär ekonomi, EU:s 7:e åtgärdsprogram för miljön, åtgärdsprogrammet Agenda 2030 och målen för hållbar utveckling samt reformen av EU:s arbetsmiljölagstifting och politik. Därtill funderade man på hur programmet kan främja hållbar användning av biocider och tillämpningen av principer för hållbar kemi, öka kunskapsbasen om mikroplaster i miljön och beakta exponering för allergiframkallande ämnen bättre än i nuläget.

Programmets åtgärdsrekommendationer har preciserats och uppdaterats. Det behövs fortsättningsvis mer information om befolkningens och arbetstagarnas exponering för kemikalier och om miljöeffekterna av skadliga ämnen. När cirkulär ekonomi främjas ska man också beakta riskerna med de skadliga ämnen material innehåller och möjligheterna att ersätta dem med ofarliga alternativ.

Som nya åtgärdsrekommendationer föreslår man mer information om hållbar kemi, minskad exponering för allergiframkallande ämnen på arbetsplatser, upprättande av anvisningar för hållbar användning av biocider samt minskning av plastavfallet i havet och de skadliga ämnen de innehåller och binder genom internationella åtgärder.

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1 Introduction

Finland adopted the National Programme on Hazardous Chemicals in 2006 with a view to ensuring that chemicals cause no significant harm to human health and the environment in Finland in 2020. This objective is in line with one of the goals agreed at the 2002 Johannesburg World Summit on Sustainable Development and the United Nations (UN) Strategic Approach to International Chemicals Management (SAICM) adopted in 2006.

The programme has assessed the harm caused by chemicals to consumers, public health, occupational health and the environment throughout their life cycles. The programme aims to promote and develop chemical risk management, particularly in those sectors and functions of society that have so far received less attention. The groups of substances addressed include industrial and consumer chemicals (substances and mixtures), plant protection products, fertilisers, feed and food additives and contaminants, biocides, medicinal products and veterinary medicinal products, cosmetics, chemicals in products (articles), and harmful substances generated in industrial and combustion processes.

The key programme objectives include:

- achieving the objectives laid down in the EU Regulations on chemicals (REACH and CLP) effectively and making use of new information obtained in the process;
- gathering information on and monitoring exposure to hazardous substances;
- developing chemical risk assessment and risk management among industrial and other operators;
- reducing chemical risks posed by products;
- contributing to the reduction of the adverse effects of chemicals at an international level.

The scope defined for the programme does not include environmental or health risks arising from viable microbes or genetically modified organisms (GMOs), nor those posed by intentional misuse of chemicals. Chemicals affecting climate change, acidification and eutrophication are not discussed, because their risks are covered in other programmes; nor

are chemical accidents and transport operations covered. Furthermore, the programme does not explore health risks due to smoking, regardless of the fact that environmental tobacco smoke contains several carcinogenic and other hazardous chemicals, as these are governed by separate legislation. In addition, this second revision took note of the fact that Finland's 2011 National Action Plan on the Sustainable Use of Plant Protection Products is implementing the objectives of the National Programme on Hazardous Chemicals with regard to plant protection products.

The first interim review of the National Chemicals Programme was conducted in 2012. At the time, the review looked into the progress made through the original measures in terms of achieving the international goal of minimising the health and environmental risks of chemicals by 2020. In keeping with an objective set out in Prime Minister Katainen's Government Programme of 22 June 2011, the review also assessed the need for further action to address newly emerging topics, such as nanomaterials, endocrine-disrupting substances, and the combined effects of chemicals.

As part of the first interim review and revision, it was decided that the Ministry of the Environment and the Ministry of Social Affairs and Health would get together in 2016 to assess the need and methods for a new interim review on the status of implementation of the programme's recommendations. The two ministries recognised the need to review whether the current measures would be sufficient in order to achieve the international goals and to consider any possible further action due to changes in the operating environment. The Ministry of the Environment set up a working group to carry out an interim review and revision of the National Programme on Hazardous Chemicals between 1 October 2016 and 31 January 2017. The working group was assigned to review whether the measures set out in the programme were sufficient to achieve its objective and to submit a proposal for revising the programme, considering the changes in the operating environment. Before the working group began its work, the following aspects were identified as changes in the operating environment: i) the circular economy; ii) the EU Seventh Environment Action Programme; and iii) the 2030 Agenda for Sustainable Development and the Sustainable Development Goals. A further change in the operating environment raised during the consultation process involved the European Union's new policies for modernisation of occupational safety and health legislation. While drafting its proposal, the working group was also expected to explore how the programme could contribute to the sustainable use of biocides and application of the principles of sustainable chemistry. Based on these assessments and reviews, the working group put forward a proposal for the interim review and revision of the programme, which was sent out for a consultation process on 23 February 2017. Opinions on the proposal were submitted by 28 parties, which were mostly satisfied with the proposal. The opinions included some suggestions for technical revisions, which have been taken into account. A few opinions called for more emphatic recommendations for measures than proposed, considering that the programme should be strategic

and goal-oriented, while not making any specific proposals for changes. Furthermore, a few opinions highlighted the significance of chemical exposure through pharmaceutical waste, foodstuffs and imported goods. Raising the topic of sustainable chemistry was also supported. Some opinions called for a more active role in the European Union and at an international level to restrict the most harmful substances, etc. Several opinions stressed the need to take the circular economy into account and to review legislation governing the topic.

Working group members

The working group was chaired by Director General Tuula Varis from the Ministry of the Environment, with Director Jari Keinänen from the Ministry of Social Affairs and Health as deputy chair. The working group consisted of the following members: Ministerial Advisers Hanna Korhonen and Sirkku Saarikoski, Ministry of Social Affairs and Health; Laura Holkko, Senior Adviser, Ministry of Economic Affairs and Employment; Tove Jern, Senior Agricultural Officer, Ministry of Agriculture and Forestry; Ministerial Advisers Pirkko Kivelä and Ari Kangas, Ministry of the Environment; Heads of Unit Annette Ekman and Paula Haapasola, Finnish Safety and Chemical Agency (Tukes); Jukka Mehtonen, Senior Expert, Finnish Environment Institute; Hannu Kiviranta, Research Professor, National Institute for Health and Welfare (THL); Tiina Santonen, Senior Specialist, Finnish Institute of Occupational Health; Irina Simola, Adviser, Confederation of Finnish Industries (EK); Eliisa Irpola, Senior Advisor, Chemical Industry Federation of Finland; Kari Mäkelä, Work Environment Officer, TEAM Industrial Union; Terhi Kuljukka-Rabb, Chemicals Specialist, Association of Finnish Technical Traders; Jenni Vainioranta, Expert on Sustainable Consumption, Consumers' Union of Finland; and Jari Huhtala, Chemical Adviser and Specialist, Finnish Association for Nature Conservation. The deputy members were as follows: Senior Inspectors Jussi Poutanen and Kirsi Kyrkkö, Ministry of Social Affairs and Health; Pirjo Salminen, Ministerial Adviser, Ministry of Agriculture and Forestry; Tarja-Riitta Blauberg, Ministerial Adviser, and Kaisa Kauko, Senior Engineer, Ministry of the Environment; Heads of Unit Marilla Lahtinen and Kaija Kallio-Mannila, Finnish Safety and Chemical Agency (Tukes); Noora Perkola, Chemist, Finnish Environment Institute; Tapani Tuomi, Senior Specialist, Finnish Institute of Occupational Health; Juha Pyötsiä, Director, Chemical Industry Federation of Finland; Markku Aaltovirta, Collective Bargaining Officer, TEAM Industrial Union; Marja Ola, Environmental Manager, Association of Finnish Technical Traders; Sari Karjomaa, Director-General, Finnish Cosmetic, Toiletry and Detergent Association; and Pertti Sundqvist, Expert, Finnish Association for Nature Conservation. The working group's workshop was also attended by the following specialists: Ministerial Advisers Taina Nikula, Eeva Nurmi and Ulla-Riitta Soveri, Ministry of the Environment; Johanna Salomaa-Valkamo, Director of Communications, Finnish Safety and Chemical Agency (Tukes); and Helvi Heinonen-Tanski, DSc (Agr. & For.), Finnish Association for Nature Conservation. Ministerial Adviser Laura Niskanen from the Ministry of the Environment functioned as the working group's secretary.

Work implementation

The working group prepared an interim review on the implementation of the National Programme on Hazardous Chemicals between 2013 and 2016, complete with a proposal for a revised version of the programme. The interim review is available on the website of the Ministry of the Environment. The working group focused on reviewing the implementation of the recommended measures aiming to achieve the programme's intended impacts between 2013 and 2016, while also identifying development and reform needs relating to the recommendations. The group also analysed key changes that had taken place in the operating environment since the previous interim review and revision process, identifying needs for new recommendations for measures and actions. In its work, the group confined itself to the scope of application outlined in the original programme, while also taking note of the fact that the National Action Plan on the Sustainable Use of Plant Protection Products is implementing the objectives of the Chemicals Programme with regard to plant protection products.

The group launched its work by reviewing the implementation of the recommended measures from 2013 to 2016, following the programme's first interim review and revision. Drawing on the annual monitoring efforts carried out by Finland's Advisory Committee on Chemicals (KENK), the parties represented in the working group collected the outcomes of implementation of the recommended measures and made proposals for further action to ensure their implementation by 2020. Furthermore, based on the outcomes, the working group assessed the progress of implementation using the following four-step scale: i) green = recommended measure completed; ii) yellow = implementation of recommended measure ongoing and proceeding on schedule; iii) blue = implementation of recommended measure continuing and under control; iv) red = implementation of recommended measure not started or not on schedule.

The working group convened four times. In addition, a workshop was organised i) to assess whether the programme's recommendations for measures and the subsequently proposed further actions would suffice to achieve the objectives by 2020, while also proposing new further actions as required for impact areas 1–4; ii) to deliberate and propose new recommendations for measures, considering changes in the operating environment and analysing how the programme could contribute to the sustainable use of biocides and application of the principles of sustainable chemistry; and iii) to discuss the cross-cutting role of communications in support of the programme. The workshop was attended by both members and their deputies, as well as the above-mentioned specialists. The workshop was led by Research Engineer Pia Rotko from the Finnish Environment Institute, while working group members facilitated the work carried out in smaller groups.

The working group assessed the proposals made in the workshop for revising the programme, while also analysing the objectives, responsibilities and impacts of the recom-

mendations for measures. The group aimed to further specify the previous recommendations for measures which were still found to be relevant and require continued implementation. Some recommendations for measures were removed from the revised proposal, because they were assessed to be complete in the interim review or could no longer be implemented for resource-related or other reasons. Completely new recommendations for measures were identified in some impact areas. The analysis paid special attention to the changes identified in the operating environment and to the ways in which the programme could contribute to the sustainable use of biocides and application of the principles of sustainable chemistry, while also considering exposure to sensitisers.

2 Programme objectives

The objective of the 2006 National Programme on Hazardous Chemicals is to ensure that chemicals cause no significant harm to human health and the environment in Finland in 2020. In keeping with the original version of the National Programme on Hazardous Chemicals, as adopted in 2006, the programme still places emphasis on the general principles of the EU chemicals policy, a high level of protection of human health and the environment, and the wellbeing of present and future generations. It starts from the precautionary principle that risk reduction measures must be taken if scientific results indicate that a chemical may cause harmful effects, even if there remains some scientific uncertainty on the significance and nature of such harm.

A further premise is to promote substitution of harmful substances with less harmful ones, should suitable alternatives be available. The impact areas and intended impacts specified for the programme in 2012 remained unchanged.

The programme's impact areas and their intended impacts are as follows:

1) Achieving the objectives laid down in the REACH and CLP Regulations and making use of new information

The obligations imposed by the EU's REACH and CLP Regulations concerning the registration, evaluation, authorisation and restriction of chemicals, as well as the classification, labelling and packaging of chemicals will have been effectively implemented, including the achievement of the objectives set by these Regulations for ensuring a high level of protection of human health and the environment, as well as the widespread application of information obtained through implementing these Regulations.

2) Exposure data and monitoring

Adequate information, covering emissions and exposure to substances hazardous to human health and the environment will have been made available for risk assessment

and risk management purposes, as well as for assessing the impact of the measures taken.

3) Chemical risk assessment and risk management among industrial s and other operators

Operators will have adequate information on chemical risk management, including appropriate practices put in place, and such information is used to ensure a high level of protection of human health and the environment, irrespective of the size of the enterprise or unit. Workplaces will have a good command of risk assessment, which is also put into action.

4) Reducing chemical risks posed by products and preparations

Adequate information will have been made available on chemicals contained in products and preparations, and the risks posed by these will be controlled throughout their life cycles.

5) International influencing

Finland will have actively contributed to the goal of minimising the most significant harmful effects of chemicals on a global scale by 2020, in order to achieve the targets set in the Johannesburg Plan of Action. Finland will be an active participant in international collaboration on chemical risk management and exchange of information.

3 Changes in the operating environment

The second interim review and revision of the National Programme on Hazardous Chemicals explored the need for any further action due to changes in the operating environment. This chapter provides a general outline of the key changes in the operating environment from the perspective of chemicals management that the working group considered. At the beginning of its work, the changes identified in the operating environment included the circular economy, the EU Seventh Environment Action Programme, and the 2030 Agenda for Sustainable Development and its Sustainable Development Goals. In addition, the sections covering the key changes in government organisations and legislation have been updated.

As part of drafting the original 2006 National Chemicals Programme, the national bases for drawing up the programme were thoroughly analysed. From its own perspective, the programme described Finland's national characteristics and current status, chemical use and manufacturing, steering methods aimed at reducing chemical risks and key authorities, the then-draft REACH Regulation, international cooperation, operators' voluntary actions, other parties involved in reducing chemical risks, research, and harmful chemicals covered in other programmes. In addition, extensive studies on the chemicals management situation in Finland were conducted to provide some background for drafting the programme. The 2012 interim review and revision of the programme only described the key changes in government organisations and legislation since the adoption of the Chemicals Programme.

3.1 The circular economy and chemicals

In a circular economy, resources are retained in the economy even when a product has reached the end of its life. The aim is to design and manufacture products from the start in such a way that they can be used and recycled for as long as possible. Transition to a circular economy requires changes throughout value chains, ranging from product design to new business and marketing models and consumer behaviour. The circular economy entails a multi-sector and profound transformation in operating methods. One of the objec-

tives specified in Prime Minister Sipilä's Government Programme is to elevate Finland as a pioneer in a circular economy by 2025. Published in the autumn of 2016, the 'Leading the cycle – Finnish road map to a circular economy 2016–2025' is a plan jointly prepared by the Finnish Innovation Fund Sitra, the relevant ministries and a wide variety of other stakeholders to respond to the opportunities offered by the circular economy.

The European Commission Communication of December 2015 on the circular economy contains an extensive action plan and proposals to amend six Directives in the waste sector. The implementation of this Circular Economy Package was mainly scheduled for 2016–2017. The Circular Economy Action Plan explores actions to be taken at EU level in order to work towards a circular economy. It contains measures to close material cycles and address different stages of product life cycles from production and consumption to waste management and secondary raw materials markets.

With regard to production processes, the Commission will establish the European Resource Efficiency Excellence Centre with a view to helping small and medium-sized enterprises (SMEs) to benefit from the business opportunities of increased resource efficiency. Examples of actions in this area include facilitating substitution of chemicals of concern and SME access to innovative technologies. In the waste sector, the Commission will launch work on EU-wide quality standards for secondary raw materials. Moreover, the rules to determine when a secondary raw material should no longer be legally considered as 'waste' will be established by clarifying existing rules on 'end-of-waste'. The aim is to provide operators with more certainty and a level playing field.

The promotion of non-toxic material cycles[1] and better tracking of chemicals of concern in products will facilitate recycling and improve the uptake of secondary raw materials. The Commission will assess the interaction of different pieces of legislation on waste, products and chemicals to address the presence of substances of concern, limit unnecessary burden for recyclers and facilitate the traceability and risk management of chemicals in the recycling process. The results of this work will feed into the future EU strategy for a non-toxic environment.

The analysis of legislative interfaces aims to facilitate substitution of chemicals of concern in products; to improve identification of such chemicals in products; to promote non-toxic material cycles; to facilitate the risk management of chemicals in recycling processes; to facilitate recycling, reduce unnecessary burden for recyclers and enhance the uptake of

1 'Non-toxic material cycles' is a concept used in the Circular Economy Package to refer to material cycles that do not contain harmful chemicals to such an extent that they could be regarded as being of concern for health or the environment. The Commission is yet to come up with a more precise definition of the concept, but it is mainly considered to refer to persistent organic pollutants (POPs) and substances of very high concern (SVHCs).

secondary raw materials; to facilitate the cross-border circulation of secondary raw materials across Europe; and to create a foundation for the future EU strategy for a non-toxic environment.

3.2 The European Union Seventh Environment Action Programme

The European Union Seventh Environment Action Programme (7th EAP), entitled 'Living well, within the limits of our planet', will guide the EU environment policy up until 2020. The relevant EU institutions and Member States are jointly responsible for implementing the Action Programme and achieving its priority objectives. The European Parliament and Council adopted the Decision (1386/2013) on the current Action Programme on 20 November 2013.

The priority objectives of the Action Programme are as follows:

1. to protect, conserve and enhance the Union's natural capital;
2. to turn the Union into a resource-efficient, green and competitive low-carbon economy;
3. to safeguard the Union's citizens from environment-related pressures and risks to health and wellbeing;
4. to maximise the benefits of Union environment legislation by improving implementation;
5. to improve the knowledge and evidence base for Union environment policy;
6. to secure investment for environment and climate policy and address environmental externalities;
7. to improve environmental integration and policy coherence;
8. to enhance the sustainability of the Union's cities;
9. to increase the Union's effectiveness in addressing international environmental and climate-related challenges.

The third EAP priority objective concerns challenges relating to human health and wellbeing and reduction of risks to these posed by pollution, chemicals and climate change. The Action Programme also sets out a long-term vision for a non-toxic environment. It suggests that efforts need to be stepped up to ensure that, by 2020, all relevant substances of very high concern (SVHCs), including substances with endocrine-disrupting properties, are placed on the REACH candidate list of substances of very high concern for authorisation.

The Action Programme also includes a commitment to developing a Union strategy for a non-toxic environment by 2018. The aim is to promote non-toxic material cycles, innovation and the development of sustainable substitutes, including non-chemical solutions. The strategy's horizontal measures intend to ensure:

1. the safety of manufactured nanomaterials and materials with similar properties;
2. the minimisation of exposure to endocrine disruptors;
3. appropriate regulatory approaches to address combination effects of chemicals; and
4. the minimisation of exposure to chemicals in products, including, inter alia, imported products, with a view to promoting non-toxic material cycles and reducing indoor exposure to harmful substances.

The European Commission has begun efforts to draft the strategy. Background studies and actions will be prepared in the following themes by the spring of 2017: i) the most vulnerable population groups; ii) substitution of chemicals and grouping of substances; iii) development of non-toxic substances; iv) very persistent chemicals; v) chemicals in products and material cycles; vi) policy measures, innovations and competitiveness; and vii) an early warning system.

3.3 The 2030 Agenda: Sustainable Development Goals and chemicals

The global 2030 Agenda for Sustainable Development (the '2030 Agenda') will guide progress in sustainable development up until 2030. The aim is to eradicate extreme poverty and achieve sustainable development in all of its dimensions. Adopted at the UN Sustainable Development Summit in September 2015, the Agenda and its Sustainable Development Goals (SDGs) entered into force at the beginning of 2016. The 2030 Agenda forms an integrated whole with the 2015 Addis Ababa Action Agenda, focusing on financing for development and support for implementation. The new Sustainable Development Goals build on the UN Millennium Development Goals. However, the Sustainable Development Goals differ from the Millennium Development Goals in that they are universal, concerning all UN Member States, rather than just developing countries.

The 2030 Agenda contains 17 Sustainable Development Goals, which are specified by 169 targets (see Appendix 2). All the Goals are linked to each other; no one Goal can be achieved without the other. The cross-cutting idea of the 2030 Agenda is the interdependence of global challenges and the comprehensive nature of the solutions adopted. Consequently, the Agenda emphasises that promoting sustainable development calls for broad

commitment from various stakeholders and new forms of cooperation and partnerships between the public sector, civil society, industry and citizens.

Sustainable management of chemicals and waste is key to the implementation of the 2030 Agenda. Chemicals and waste are directly linked to the Sustainable Development Goals concerning sustainable consumption and production, health and wellbeing, and clean water and sanitation. Moreover, sustainable management of chemicals and waste is essential to many other Goals (incl. those concerning climate and biodiversity), supporting their implementation. The UN Strategic Approach to International Chemicals Management (SAICM) is expected to assume an active role in implementing the SDGs, which would enable better access to financing and tapping into the expertise of various UN organisations.

The progress made in implementation of the 2030 Agenda and the SDGs is being monitored and reviewed at international, regional and national levels. The UN High-Level Political Forum on Sustainable Development (HLPF) plays a key role in monitoring at the international level. Global indicators are being developed for monitoring the implementation of the Goals and targets in a process led by the UN Statistical Commission. In 2016, its expert group published a proposal for over 200 indicators, which will be supplemented over the years. In addition, complementary national indicators are also required due to the general nature of the international indicators.

Finland is committed to implementing the 2030 Agenda and its Sustainable Development Goals. The Finnish government has submitted to Parliament a report on its plans to implement the UN Sustainable Development Agenda. Its aim is a carbon-neutral, resource-wise and competent Finland where non-discrimination and equality is secured by 2030. The National Programme on Hazardous Chemicals is carrying out the Goals with regard to sustainable chemicals management.

Chemicals are directly referred to in targets 3.9, 6.3 and 12.4. Furthermore, chemical risk management supports the achievement of several other Goals (see Appendix 2).

Goal 3. Ensure healthy lives and promote wellbeing for all at all ages

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

Goal 6. Ensure availability and sustainable management of water and sanitation for all

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

Goal 12. Ensure sustainable consumption and production patterns

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 minimise their adverse impacts on human health and the environment.

3.4 Safer and healthier work for all

The EU occupational safety and health policy is contributing to the objective of improving the safety and health of workers in the EU. The Commission conducted a detailed ex-post evaluation of the EU occupational safety and health acquis, which comprised Framework Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work and 23 related Directives. As a result of the evaluation, outdated rules will be updated while also refocusing efforts on ensuring better and broader protection and compliance in other respects.

Following its evaluation, the Commission adopted Communication COM(2017) 12 final, outlining its view on the modernisation of the EU occupational safety and health legislation and policy in the years to come. All measures will be carried out in cooperation with the Member States and social partners.

Efforts will be made to find effective ways to address new risks. Legislative proposals to set or revise binding limit values for carcinogenic substances will be used to step up the fight against occupational cancer. Likewise, efforts will be made to revise existing or establish further occupational indicative exposure limit values and biological limit values in 2017 and 2018.

In order to achieve effective implementation of legislation, the European Agency for Safety and Health at Work will stage a Healthy Workplaces Campaign on dangerous substances in 2018–2019, which will be carried out at the national level.

In addition to the occupational safety and health Directives, dangerous chemicals used at work are regulated within the EU by virtue of the REACH Regulation. The Commission has undertaken to remove any uncertainties and overlaps between the occupational safety and health Directives regulating chemical agents and the REACH Regulation governing dangerous chemicals and to agree on a common approach in 2017.

The theme of safer and healthier work for all will also be promoted through non-legislative measures. Based on the HazChem@Work study, a database on occupational exposure for

some hazardous chemicals is being established to centrally pool data on occupational exposure to priority dangerous chemicals within the European Union. The European Human Biomonitoring Initiative aims to pool EU-wide biomonitoring data on exposure of the population and workers. There are plans to relaunch data collection on European Occupational Diseases Statistics.

The Commission also aims to help industry, in particular micro-enterprises and SMEs, comply with occupational safety and health legislation.

Comprehensive efforts to develop workplace procedures and cooperation and workers' wellbeing at work are an effective way to boost productivity and innovation in businesses. In its own occupational safety and health policy guidelines, Finland has pointed out that simply eliminating risks is not enough on its own; it is also necessary to promote good concrete solutions. The National Chemicals Programme contributes to responding to these needs.

3.5 Other key changes

Sustainable chemistry helps to enhance the sustainable use of natural resources when developing chemicals and chemical services and to promote the design, manufacturing and use of chemicals that are safer for human health and the environment. 'Sustainable chemistry' refers to safer, more efficient and more environmentally friendly design, manufacturing and use of chemicals and processes. Putting sustainable chemistry innovations into use calls for cooperation between industry, public authorities and the scientific community. An example of chemical services and a new type of business model is chemical leasing, where profit is generated by providing services relating to the use of chemicals instead of selling large amounts of chemicals. At the same time, this increases the efficiency of chemical use, reduces exposure risk and improves the financial and environmental performance of businesses and their access to new markets. Industry could put the abundant chemical data produced under the REACH Regulation to broader use in order to identify the risks posed by the chemicals that they are using and manufacturing, to develop solutions in keeping with sustainable chemistry, and to assess the recyclability of materials and products. Sustainable chemistry can contribute to achieving Finland's bioeconomy and circular economy objectives. Furthermore, Finland's sustainable chemistry expertise provides a good springboard for building a stronger brand and promoting exports. This calls for close public-private cooperation and adequate investment in research and development in the field of sustainable chemistry.

The National Communications Plan for Dangerous Chemicals 2014–2020 was drawn up in 2013 in broad cooperation between various public authorities. As part of the previous revision of the Chemicals Programme, the working group set up for this purpose proposed that the key parties draw up an action plan for communicating about chemical risks by the end of 2013. The plan creates guidelines for communications carried out in cooperation between the authorities, outlining the main target groups, key messages and principles, and means and channels of communication. The primary goal is to ensure that consumers use chemicals safely and to increase people's awareness of chemicals, while also helping SMEs, in particular, deal with their statutory duties effectively. The plan takes the key recommendations for measures set out in the Chemicals Programme into account from the perspective of communications and, like the Chemicals Programme, it extends to 2020. The plan's objectives and contents will be updated, while a chemicals-related communications network set up to implement the plan will draw up annual action plans for chemicals communications. The theme of chemicals communications defined for 2016–2017 was construction chemicals.

http://www.tukes.fi/en/Branches/Chemicals-biocides-plant-protection-products/The-National-Communications-Plan-for-Dangerous-Chemicals-20142020/

With regard to digitalisation, the **KemiDigi** project for digital chemical data management coordinated by Tukes is building a national chemical data repository, enabling enterprises to deal with their chemicals-related obligations through a single centralised service. The authorities can then access each operator's information through their own service view in a format suited to their own purposes. The aim is to enter data into the electronic system only once, allowing industrial operators and authorities to make use of the same service. This reduces the need for both industry and authorities to maintain their own registers. The usability of chemical data will improve, as will its validity and reliability. Companies' up-to-date chemical data and extracts will serve a wide variety of purposes, such as fire and rescue operations, supervision of the storage and use of dangerous chemicals, process safety, chemicals safety work, environmental protection, worker protection, consumer safety, and research activities. The service also allows the authorities to provide operators with guidance and counselling.

In keeping with one of the recommendations for measures set out in the Chemicals Programme, international influencing efforts were addressed in 2014 by drawing up **Finland's strategic framework for international chemicals management** in consultation with various stakeholders, with a view to achieving the best possible impact in terms of chemicals management. According to this framework, moving forward, Finland will increase high-level influencing efforts in international processes concerning chemicals. Finland has solid expertise in chemical risk management, and it wants to further consolidate this expertise profile. In order to develop international chemicals management, Finland will

continue to work towards promoting interaction between the Strategic Approach to International Chemicals Management (SAICM) and international chemicals agreements. Other key aspects include supporting action, strengthening institutions and increasing education in developing countries. Further objectives cover paying attention to geographical conditions, developing risk assessment and management, as well as highlighting significant topical issues relating to chemicals. The strategic framework also calls for national dialogue and cooperation between administrative authorities, the scientific community and the private sector in international chemical issues. Moving forward, various Finnish parties aim to work towards promoting the objectives in keeping with the framework.

3.6 Key authorities and research institutes in the field

The general steering, monitoring and development of activities in accordance with the Chemicals Act[2] and the highest management and control of the supervision of compliance with the Act and the provisions issued under the Act are the responsibility of the **Ministry of Social Affairs and Health** as concerns the prevention of physical hazards and harm caused by chemicals to human health and the **Ministry of the Environment** as concerns the prevention of hazards and harm caused by chemicals to the environment.

In addition to the duties laid down in the Chemicals Act, the **Ministry of Social Affairs and Health** is responsible for legislation governing cosmetic products and medicines, which is also harmonised under EU legislation. In particular, there are clear links between the EU cosmetics and chemicals legislation, which require nationally coordinated implementation. Furthermore, the Ministry of Social Affairs and Health is responsible for occupational safety and health legislation.

In addition to the duties laid down in the Chemicals Act, the **Ministry of the Environment** is responsible for environmental protection, waste, water protection, and land use and building legislation, which has links to chemicals legislation.

The Ministry of Economic Affairs and Employment is responsible for the Act concerning the safe handling and storage of dangerous chemicals and explosives[3], also known as the Chemicals Safety Act, among others.

2 Kemikaalilaki (599/2013)

3 Laki vaarallisten kemikaalien ja räjähteiden käsittelyn turvallisuudesta (390/2005)

The Ministry of Agriculture and Forestry is responsible for the Plant Protection Act[4], the Food Act[5], the Fertiliser Product Act[6] and the Feed Act[7], among others.

The Finnish Safety and Chemicals Agency (Tukes) began operations on 1 January 2011 under the guidance of several ministries. Its administrative steering and supervision falls within the purview of the Ministry of Economic Affairs and Employment (TEM). In addition, Tukes is collaboratively steered by the TEM, the Ministry of Transport and Communications (LVM), the Ministry of Agriculture and Forestry (MMM), the Ministry of the Interior (SM), the Ministry of Social Affairs and Health (STM) and the Ministry of the Environment (YM) within their respective sectors. With a staff of more than 200 people, Tukes is currently an agency that oversees and promotes technical safety and conformity in a variety of branches as well as performing consumer and chemicals safety duties.

As a result of its recent organisational reform, Tukes was also tasked with official duties relating to surveillance of industrial and consumer chemicals, biocides and plant protection products, as well as maintenance of the Chemical Products Register. In other words, the official duties relating to chemical products surveillance previously assigned to the Finnish Food Safety Authority Evira, the National Supervisory Authority for Welfare and Health (Valvira) and the Finnish Environment Institute (SYKE) were gathered within a single agency, which covers the health and environmental effects of different groups of chemicals. At present, Tukes is the competent national authority responsible for chemical products surveillance. It is also an important partner of the Helsinki-based European Chemicals Agency (ECHA), in particular regarding the implementation of the European Union's REACH and CLP Regulations. Furthermore, Tukes is the supervisory authority under the Consumer Protection Act[8], which entered into force on 1 January 2012. This Act also applies to surveillance of toys. Tukes is also the National Contact Point for the EU Rapid Alert System for dangerous non-food products (RAPEX). These organisational changes made it possible to enhance Finland's national chemicals administration and monitoring of compliance with legislation. Tukes also acts as the market surveillance authority for construction products. Market surveillance is targeted at construction products to be CE-marked under the Construction Products Regulation (EU) No 305/2011, construction products within the scope of the Act on the Type Approval of Certain Construction Products[9], and other construction products to be permanently affixed to a construction object where the product may have a bearing on the fulfilment of the construction project's essential technical requirements.

4 Laki kasvinsuojeluaineista (1563/2011)

5 Elintarvikelaki (23/2006)

6 Lannoitevalmistelaki (539/2006)

7 Rehulaki (86/2008)

8 Kuluttajaturvallisuuslaki (920/2011)

9 Laki eräiden rakennustuotteiden tuotehyväksynnästä (954/2012)

Tukes is also the key licensing authority under the Chemicals Safety Act, responsible for large-scale establishments and for supervision of explosives. Local rescue authorities supervise compliance with the Chemicals Safety Act with regard to small-scale industrial handling and storage of chemicals, as well as release of fireworks for private consumption, etc.

The Finnish Environment Institute (SYKE) focuses its work in the field of chemicals and harmful substances on research, environmental monitoring and related analytics and assessments. SYKE carries out chemicals-related expert work on waste, product and production management, life-cycle analyses and contaminated areas, etc. Its chemicals-related official and expert duties are related to international environmental agreements, including the Stockholm Convention on Persistent Organic Pollutants (the 'Stockholm POPs Convention') and the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (the 'Rotterdam PIC Convention').

SYKE is part of **the Finnish Partnership for Research on Natural Resources and the Environment (Lynet)**, which has operated since 2008 and also includes the Natural Resources Institute Finland (Luke), the Finnish Meteorological Institute (IL), the Finnish Food Safety Authority Evira, VTT Technical Research Centre of Finland Ltd, the Geological Survey of Finland (GTK), and the National Land Survey of Finland (MML). With the exception of the last-mentioned one, all Lynet partners are involved in operations relating to chemicals and harmful substances. Within the framework of the Lynet partnership, SYKE contributes to environmental monitoring and residue level reports, while also partnering with other research institutes in studies on the presence and effects of contaminants on wildlife and ecosystems.

The Natural Resources Institute Finland (Luke) is a research and expert organisation operating in the administrative sector of the Ministry of Agriculture and Forestry. It was established on 1 January 2015 by merging MTT Agrifood Research Finland, the Finnish Forest Research Institute (Metla), the Finnish Game and Fisheries Research Institute (RKTL), and the Information Centre of the Ministry of Agriculture and Forestry (Tike). Luke is responsible for testing the efficacy and usability of plant protection products and certain biocides used in plant production in different applications. Luke is also involved in the implementation of the National Action Plan on the Sustainable Use of Plant Protection Products by contributing to research and development in the field of integrated plant protection and by participating in counselling and training users of plant protection products. Under Pesticide Statistics Regulation (EC) No 1185/2009, Luke has a statutory duty to collect information on the agricultural use of plant protection products once every five years. Luke also cooperates closely with Tukes in issues relating to the safe use of plant protection products.

The Finnish Food Safety Authority Evira ensures food safety and quality as well as plant and animal health through research and monitoring. While duties relating to plant protection products were reassigned to Tukes, Evira is still discharging chemicals-related duties

focusing on controlling pesticide residues, food contaminants, feedstuffs and fertilisers, use of veterinary medicinal products, and residues of veterinary medicinal products and contaminants in animal-based foodstuffs.

The National Institute for Health and Welfare (THL) is an independent expert agency operating within the administrative sector of the Ministry of Social Affairs and Health. THL serves central and local government decision-makers, parties operating in the social welfare and health sector, organisations, the research community and the public. Its aim is to promote the Finnish population's health and wellbeing. Its Department of Health Security consists of units providing decision-makers with information on key risks to environmental health and assessing the efficacy of various alternative prevention methods.

Finnish Customs controls chemical imports, as well as exports and imports of dangerous chemicals. Customs plays a role in surveillance of consumer goods, such as toys and cosmetics, also including chemicals contained in these. In addition, the role of Customs in surveillance operations has been influenced by the Accreditation and Market Surveillance Regulation (EC) No 765/2008 (the 'NLF Regulation'), one of the instruments included in the New Legislative Framework (NLF) that entered into force on 1 January 2010. The NLF Regulation aims to prevent the entry into the market of any products that are non-compliant or dangerous to health, safety or the environment. Examples of other restrictions supervised by Finnish Customs include import controls of medicinal, veterinary medicinal and feed products in cooperation with Evira.

The Finnish Institute of Occupational Health (TTL) supports workplaces, occupational health service units and public authorities in chemical risk management at workplaces through research and expert services.

The National Supervisory Authority for Welfare and Health (Valvira) is the central environmental health authority, contributing to management of the living environment's health risks through guidance and supervision, among other things. Valvira's supervisory duties cover adverse health effects caused by waste, health issues relating to domestic water, swimming pool water and beaches, as well as indoor air problems. These have links to chemicals safety.

The Consortium of Expert Institutions on Health and Welfare (SOTERKO) comprises the following partners: the National Institute for Health and Welfare (THL), the Finnish Institute of Occupational Health (TTL), the Radiation and Nuclear Safety Authority (STUK), the Finnish Meteorological Institute (IL), the Finnish Environment Institute (SYKE), the Finnish Food Safety Authority Evira, VTT Technical Research Centre of Finland Ltd, and VATT Institute for Economic Research. The consortium promotes the quality and efficiency of the partners' R&D activities by building cooperation between the parties by means of expert

networks, R&D programmes and cooperation in individual projects or other functions. The consortium's risk management programme aims to improve the population's health and wellbeing by increasing awareness of various risks relating to working and living environments. The consortium aims to enhance the social impact of health and welfare research, increase know-how in the healthcare and social welfare sector, improve productivity, and consolidate international competitiveness. A further objective is to support the provision of healthcare and social welfare services and professional practices in the sector with the aid of R&D, expert services and innovation.

Finland has responded to increasing serious chemicals-related threats by establishing **the Centre of Excellence for Serious Chemical Threats (COSK)** in 2004. Its on-call duties are shared by the National Institute for Health and Welfare (THL) and the Finnish Institute of Occupational Health (TTL), and its steering group has representatives from all administrative sectors and expert bodies relevant to chemicals safety.

The Finnish Medicines Agency Fimea started operations in November 2009 as its predecessor, the National Agency for Medicines, was closed down. Fimea is in charge of the safety of medicinal products for human and veterinary use.

The Centres for Economic Development, Transport and the Environment (ELY Centres) contribute to regional development by dealing with the central government's implementation and development duties in their respective regions. Their Environment and Natural Resources Departments promote environmental protection. In addition to general promotion of environmental protection, ELY Centres have permit and supervisory duties under the Environmental Protection Act[10], the Water Act[11] and the Waste Act[12], as well as supervisory duties under the Chemicals Act. By way of example, ELY Centres process notifications of contaminated soil. ELY Centres supervise adherence to the environmental and water permits granted by Regional State Administrative Agencies (AVIs) and ensure that public interest is taken into account in environmental and water issues. They also supervise the use and trade of plant protection products. In their capacity as oil spill response authorities, ELY Centres work to prevent and combat environmental pollution and damage. They also act as contact authorities in impact assessments carried out in accordance with the Act on Environmental Impact Assessment Procedures[13] and issue opinions in environmental impact assessments of plans and programmes. Their Economic Development, Employment, Competence and Culture Departments promote matters relating to business, the labour force and employment, as well as competence and culture. In addition, **the Southeast Finland ELY Centre**

10 Ympäristönsuojelulaki (527/2014)

11 Vesilaki (587/2011)

12 Jätelaki (646/2011

13 Laki ympäristövaikutusten arviointimenettelystä (252/2017)

specialises in chemical issues, and its tasks include providing the other ELY Centres with advice on chemicals control.

There are six **Regional State Administrative Agencies in Finland**, promoting implementation of basic rights and legal protection, access to basic public services, environmental protection, environmental sustainability, public safety, and safe and healthy living and working environments in the regions. They make decisions on licences and permits pursuant to the Environmental Protection Act and the Water Act, which used to be handled by former Regional Environment Centres and Environmental Permit Authorities.

Compliance with occupational safety and health legislation is supervised by five AVI Occupational Safety and Health Divisions. In addition to provisions on working conditions, their supervisory duties cover legislation governing working hours and, to a certain extent, other terms and conditions of employment, as well as non-discrimination in the world of work. Each employer is responsible for ensuring that the working environment does not endanger the health of their employees. For this purpose, employers are required to identify and assess workplace hazards and manage risks, with occupational healthcare services acting as their expert assistants. In their supervisory duties, the occupational safety and health inspectors of the Occupational Safety and Health Administration assess the adequacy of employers' actions and the compliance of the measures that they have carried out. Cooperation between employers and occupational healthcare services aims to prevent and deter workplace health hazards and problems due to chemical agents. The Occupational Safety and Health Administration supports this work through its operations.

Workplace risk assessments concerning chemical agents and chemicals aim to ensure that the extent and nature of exposure of all employees is known, so as to prevent any health-endangering exposure by means of risk management. The order of risk management measures proceeds from a general to an individual level, such that plans for workplace procedures to reduce and eliminate exposure and structural protection measures to combat risk at source, including minimising the number of employees exposed, are in place, whenever possible, before providing employees with personal protective equipment. Estimating the number of workplace safety and health risks relating to chemical agents is based on existing information as well as other exposure data, such as the results of occupational hygiene and biological exposure measurements. Managing risks posed by chemical agents also involves training and guiding employees in their safe use, appropriate package labelling and safety data sheets of chemicals, and use of personal protective equipment as required. As part of its supervision of workplace conditions, the Occupational Safety and Health Administration supervises risk assessment and management of chemical agents. Its duties also cover various supervisory projects and extensive cooperation with stakeholders.

There is an ongoing **regional government reform** based on the policy concerning the reform of regional administration outlined by the Government in April 2016. The allocation of responsibilities in the new structure will be examined once the reform has entered into force. As in the past, this second revision of the programme refers to the Regional State Administrative Agencies and ELY Centres as the parties responsible for certain recommendations for measures, but they will be replaced with **the Government Agency for Permits and Supervision** as of 1 January 2019.

There are also supervisory authorities operating at a local level in areas such as environmental protection and food control. In addition, the police supervise the use of explosives, among other things.

3.7 Key sectoral legislation

Chemicals are regulated by several different statutes. The following sections outline the most significant amendments to legislation made since the original National Programme on Hazardous Chemicals was adopted.

Chemicals legislation

The current Chemicals Act[14] (599/2013) entered into force in 2013. This law is quite a limited supervision act, because provisions on operators' obligations are mostly laid down by European Union Regulations. The Chemicals Act includes provisions on supervisory authorities and their tasks, rights and responsibilities. The law consolidated chemicals market surveillance duties by reassigning the existing duties from local authorities to the Finnish Safety and Chemicals Agency (Tukes). The occupational safety and health authority's duties, in turn, focus on supervision of the conditions of chemical use and the obligations of employers. The regional Centres for Economic Development, Transport and the Environment (ELY Centres) and municipal environmental protection authorities are still involved in supervising the conditions of chemical use. The Finnish Environment Institute (SYKE) oversees compliance with certain EU Regulations and international agreements. Fulfilment of import and export conditions and compliance with good laboratory practice are supervised by Finnish Customs and the Finnish Medicines Agency Fimea, respectively. In addition to supervisory duties, the Chemicals Act includes the necessary substantive provisions on the duties of operators, registries of the Finnish Safety and Chemicals Agency, the retail trade of chemicals, language requirements for safety data sheets, marketing, na-

14 Kemikaalilaki (599/2013)

tional authorisation of biocidal products, and non-disclosure. The Act also includes provisions on administrative means available to supervisory authorities, other duties of authorities, as well as penalties resulting from violation of the obligations imposed on operators. Furthermore, the Act lays down the national provisions required under the EU Regulations concerning biocidal products, persistent organic pollutants, and the export and import of hazardous chemicals.

The REACH Regulation

The 'REACH Regulation' refers to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH stands for *Registration, Evaluation, Authorisation and restriction of CHemicals*). The Regulation entered into force on 1 June 2007, replacing about 40 different European Union acts. The Regulation is a piece of legislation directly binding on the Member States. The Regulation aims to ensure a high level of protection of human health and the environment; enhance the competitiveness of the European Union's chemicals industry; promote the development of alternative methods to animal testing for the assessment of hazards of substances; and ensure the free movement of goods in the EU's internal market. The Regulation imposes an obligation on operators to register the substances they manufacture and import with the European Chemicals Agency (ECHA). Furthermore, the Regulation lays down provisions on substance evaluation, an authorisation procedure for the most hazardous substances, and restrictions on the manufacture, placing on the market and use of chemicals. The Regulation also includes provisions concerning safety data sheets, information in the supply chain, and risk management guidelines. The Commission is currently preparing its second review on the functioning of the REACH Regulation as required in the Regulation. The Commission is expected to publish the results of the review by 1 June 2017.[15]

The CLP Regulation

The 'CLP Regulation' refers to Regulation (EC) No 1272/2008 of the European Parliament and of the Council on the classification, labelling and packaging of substances and mixtures (CLP stands for *Classification, Labelling and Packaging*). The Regulation entered into force on 20 January 2009. The CLP Regulation replaces the previous EU acts concerning the classification, labelling and packaging of chemicals. The CLP Regulation implements within the European Union the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals, which was adopted under the auspices of the UN. The CLP Reg-

15 The 2nd REACH review (COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL AND THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE Commission General Report on the operation of REACH and review of certain elements Conclusions and Actions) was published 8 March 2018.

ulation covers both the key parts of the GHS and some parts of the superseded legislation concerning the classification and labelling of chemicals, which were not harmonised under the UN. The GHS is being updated and developed on a continuous basis, and any changes will be introduced into the CLP Regulation.

The Biocidal Products Regulation

The 'Biocidal Products Regulation' refers to Regulation (EU) No 528/2012 of the European Parliament and of the Council concerning the making available on the market and use of biocidal products. 'Making available on the market' means any supply for distribution or use in the course of a commercial activity, whether in return for payment or free of charge. In Finland, provisions governing biocides are included in chemicals legislation. Biocidal products are authorised separately in each Member State, whereas the active substances contained in such products are authorised at EU level. The Commission keeps the lists of authorised and prohibited active substances up to date. The list of products authorised in Finland in accordance with the Biocidal Products Directive and Regulation is available at Tukes. Under the national legislation in force in Finland, national authorisation must be sought for products intended for preservation of wood, slimicides used in the pulp and paper industries, insecticides and insect repellents, and anti-fouling products intended for treatment of vessels, prior to placing these on the Finnish market.

The Detergent Regulation

Regulation (EC) No 648/2004 of the European Parliament and of the Council on detergents contains provisions on biodegradability of surfactants in detergents, restrictions and bans on such substances, the labelling of detergents, and the information that manufacturers must hold at the disposal of the competent authorities and medical personnel. The Regulation aims to safeguard the free movement of detergents in the internal market while, at the same time, ensuring a high degree of protection of the environment and human health. The Detergent Regulation repealed previous Directives restricting the placing on the market and use of detergents containing slowly biodegradable substances. Regulation (EU) No 259/2012 amending the Detergent Regulation limited the phosphorous content in laundry and dishwasher detergents.

The POP Regulation

Regulation (EC) No 850/2004 of the European Parliament and of the Council on persistent organic pollutants, also known as the 'POP Regulation', aims to reduce, minimise and eventually eliminate releases of certain persistent organic pollutants (POPs). The POP Regulation implemented within the European Union the Stockholm Convention and the Aarhus Protocol on Persistent Organic Pollutants to the Convention of the UN Economic Commis-

sion for Europe (UNECE) on Long-Range Transboundary Air Pollution. The Annexes to the Regulation have been amended several times to correspond to amendments made to the Convention and its Protocol.

The PIC Regulation

The Rotterdam Convention lays down provisions on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade, also known as the 'PIC procedure' (for *Prior Informed Consent*). The Convention Parties undertake not to export chemicals covered by the Convention to countries that have banned such imports. The Parties also undertake to notify the country of destination of any exports of chemicals that are banned or severely restricted at a national level. Provisions on the implementation of the Convention within the European Union are laid down in Regulation (EU) No 649/2012 of the European Parliament and of the Council concerning the export and import of hazardous chemicals (the 'PIC Regulation'). Annex I to the Regulation lists the chemicals that are currently subject to the procedure. An up-to-date list of chemicals included in Annex I is available on the website of the European Chemicals Agency (ECHA).

Mercury Regulation

In December 2016, the EU Member States agreed on a Regulation to reduce the environmental and health effects of mercury. The provisions included in the Mercury Regulation are necessary for the European Union and its Member States to accede to the Minamata Convention on Mercury, signed in October 2013. Due to enter into force at the beginning of 2018, the new Regulation is based on Mercury Export Ban Regulation (EC) No 1102/2008. The new EU Mercury Regulation covers the entire life cycle of mercury from extraction of ore to disposal of mercury waste. The Regulation includes provisions on the export, import and manufacturing of mercury and mercury-added products and on the use of mercury in certain manufacturing processes, in artisanal and small-scale gold mining and in dental amalgam. Furthermore, the Regulation revises obligations concerning the storage and treatment of mercury waste, while also requiring exchange of information concerning sites contaminated by mercury. In order to enter into force, the Regulation still needs to be formally adopted by the Council and Parliament, which is expected to take place in early 2017. The measures arising from the Proposal for the Regulation will remain relatively small in Finland, where mercury is not used to any significant extent.

Cosmetics legislation

Legislation concerning cosmetic products has been harmonised across the European Union. Cosmetics are regulated by the EU Cosmetics Regulation (EC) No 1223/2009. Similar to

the Chemicals Act, Finland's national Act on Cosmetic Products[16] is a limited supervision act, mainly laying down provisions on the powers of national authorities. The manufacturer/importer ('responsible person') of a cosmetic product must produce a safety report specified in the Cosmetics Regulation, in order to demonstrate that the cosmetic product does not present a danger to consumer health under reasonably foreseeable conditions of use. The Regulation also defines the ways in which consumers should be informed of the proper use of the product and its ingredients. The raw ingredients of cosmetic products fall within the scope of application of the REACH and CLP Regulations. Under the Consumer Protection Act[17], service providers using cosmetic products as part of their services (such as hairdressers) are responsible for the safety of the services that they are selling (such as hair dyeing). The environmental effects of cosmetic products and their ingredients fall within the scope of application of, not cosmetics legislation, but chemicals legislation. Consequently, it is possible to specify limitations on cosmetic products under the REACH Regulation if the chemicals used as ingredients in cosmetics constitute an unacceptable risk to the environment.

Plant protection legislation

A new Act on Plant Protection Products[18] entered into force at the beginning of 2012. The Act aims to ensure the proper and sustainable use of plant protection products and implements Directive 2009/128/EC of the European Parliament and of the Council establishing a framework for Community action to achieve the sustainable use of pesticides (the 'Framework Directive'). In addition, the Act includes national provisions on competent authorities, supervision, administrative enforcement measures and sanctions, and fees and appeals to complement Regulation (EC) No 1107/2009 of the European Parliament and of the Council concerning the placing of plant protection products on the market (the 'Plant Protection Products Regulation').

The Framework Directive is based on the 2006 Commission Communication entitled 'A Thematic Strategy on the Sustainable Use of Pesticides'. The measures proposed in the Thematic Strategy were intended to be included in part in new acts and in part in existing acts. In addition to the above-mentioned Framework Directive and the Plant Protection Products Regulation, the new acts include Regulation (EC) No 1185/2009 of the European Parliament and of the Council concerning statistics on pesticides (the 'Pesticide Statistics Regulation'). The Machinery Directive was amended with regard to application equipment used for plant protection products by Directive 2009/127/EC of the European Parliament

16 Laki kosmeettisista valmisteista (492/2013)

17 Kuluttajaturvallisuuslaki (920/2011)

18 Laki kasvinsuojeluaineista (1563/2011)

and of the Council amending Directive 2006/42/EC with regard to machinery for pesticide application.

The Framework Directive establishes a framework for the sustainable use of pesticides by reducing the risks to human health and the environment resulting from the use of pesticides and by promoting the use of integrated pest management and alternative pest control measures. Each Member State is required to prepare a National Action Plan (NAP) on the sustainable use of plant protection products, aimed at setting quantitative objectives, targets, measures, timetables and indicators to reduce risks and impacts of pesticide use on human health and the environment. Finland's National Action Plan was prepared by a working group operating under the Ministry of Agriculture and Forestry. The implementation of the National Action Plan on the Sustainable Use of Plant Protection Products has been assigned to Tukes in cooperation with other parties operating in the field.

Occupational safety and health legislation

Key provisions concerning chemical agents are included in the Occupational Safety and Health Act[19] and the Government Decree on Chemical Agents at Work[20] issued by virtue of the Act. Other statutes relating to safe management of chemical agents include the Decree of the Ministry of Social Affairs and Health on Concentrations Known to be Harmful[21] , the Government Decree on the Prevention of Work-Related Cancer Risks[22], the Decision of the Ministry of Labour concerning factors that cause a risk of cancer[23] , the Government Decree concerning agents causing a risk to reproductive health at work and preventing the risk[24], and Act concerning the register for workers at risk of exposure to carcinogenic substances and processes[25] . Chemical agents at work are also governed by other Government Decrees and Decisions. Supervision of occupational safety and health is regulated by a supervision act, i.e. the Act on Occupational Safety and Health Enforcement and Cooperation on Occupational Safety and Health at Workplaces.[26]

19 Työturvallisuuslaki (738/2002)

20 Valtioneuvoston asetus kemiallisista tekijöistä työssä (715/2001)

21 Sosiaali- ja terveysministeriön asetus haitallisiksi tunnetuista pitoisuuksista (1214/2016)

22 Valtioneuvoston asetus työhän liittyvän syöpävaaran torjunnasta (716/2000)

23 Työministeriön päätös syöpäsairauden vaaraa aiheuttavista tekijöistä (838/1993)

24 Valtioneuvoston asetus lisääntymisterveydelle työssä vaaraa aiheuttavista tekijöistä ja vaaran torjunnasta (603/2015)

25 Laki syöpäsairauden vaaraa aiheuttaville aineille ja menetelmille ammatissaan altistuvien rekisteristä (717/2001)

26 Laki työsuojelun valvonnasta ja työpaikan työsuojeluyhteistoiminnasta (44/2006)

Key statutes relating to occupational healthcare cooperation at workplaces include the Occupational Health Care Act[27] and the Government Decree concerning medical examinations in work that presents a special risk of illness.[28]

Environmental legislation

The Environmental Protection Act[29] was completely reformed in 2014. It is a general act aiming to prevent the pollution of the environment and to repair and reduce damage caused by pollution; to safeguard a healthy, pleasant, ecologically diverse and sustainable environment; to prevent the generation and the harmful effects of waste; to improve and integrate assessment of the impact of activities that pollute the environment; to improve citizens' opportunities to influence decisions concerning the environment; to promote sustainable use of natural resources; and to combat climate change and otherwise support sustainable development. Its key instrument consists of permit and notification procedures used to ensure an acceptable level of functions posing risks to the environment and the minimisation of pollution loads.

The key environmental objectives relating to improving the status of waters and seas have been set in the Water Framework Directive (2000/60/EC) and in the Marine Strategy Framework Directive (2008/56/EC), which were implemented in Finland by the Act on the Organisation of River Basin Management and the Marine Strategy[30]. The part of the Water Framework Directive concerning priority substances was implemented nationally by issuing the Government Decree on Substances Dangerous and Harmful to the Aquatic Environment[31]. Regulation relating to priority substances is developing constantly, and the Commission proposes new lists of environmental quality standards at regular intervals. The Government Decree on the Assessment of Soil Contamination and Remediation Needs[32], in turn, specified the criteria for assessment and outlined the threshold and guideline values of harmful substances used in support of assessment. Further provisions on soil pollution prohibition and responsibilities for the assessment of soil contamination and remediation needs and for the remediation of contaminated soil are laid down in the Environmental Protection Act.

Waste legislation aims to prevent the hazard and harm to human health and the environment caused by waste and waste management, to reduce the amount and harmfulness of

27 Työterveyshuoltolaki (1383/2001)

28 Valtioneuvoston asetus terveystarkastuksista erityistä sairastumisen vaaraa aiheuttavissa töissä (1485/2001)

29 Ympäristönsuojelulaki (527/2014)

30 Laki vesienhoidon ja merenhoidon järjestämisestä (1299/2004)

31 Valtioneuvoston asetus vesiympäristölle vaarallisista ja haitallisista aineista (1022/2006)

32 Valtioneuvoston asetus maaperän pilaantuneisuuden ja puhdistustarpeen arvioinnista (214/2007)

waste, to promote the sustainable use of natural resources, to ensure functioning waste management, and to prevent littering. The previous Waste Act[33] and key waste management decrees were reformed between 2011 and 2016, while a wide-ranging comprehensive reform of waste legislation mostly entered into force on 1 January 2012. The reform was based on the 2008 Waste Framework Directive (2008/98/EC), which is currently being reformed again. The new Waste Act[34] imposed more stringent obligations concerning hazardous waste and linked the classification of hazardous waste to the CLP Regulation. To make it easier to interpret the definition of 'waste', it also includes criteria for by-products and 'no longer waste'. Provisions on the latter may be issued by type of waste through Commission Regulations, etc. When waste stops being waste, it is subject to the provisions of chemicals legislation, among other provisions. At present, producer responsibility covers recycled paper, packaging, electrical and electronic equipment, vehicles and tyres, as well as batteries and accumulators.

The Restriction of Hazardous Substances Directive 2011/65/EU (the 'RoHS Directive') restricts the use of certain hazardous substances in electrical and electronic equipment. The purpose of the Directive is to protect human health and the environment and to reduce the negative impact of waste. It also aims to contribute to the environmentally sound recovery and disposal of waste electrical and electronic equipment. After the transitional periods, the Directive's requirements will apply to any electrical and electronic equipment that is not specifically excluded from its scope of application. The requirements cover equipment such as household appliances, IT and telecommunications equipment, consumer electronics, lighting equipment, electrical and electronic tools, toys, leisure and sports equipment, and automatic dispensers. Finland transposed the Directive into national law in June 2013 by publishing the Act on Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment[35] and Decree 419/2013 of the Ministry of the Environment, laying down further provisions on restrictions on use and certain exceptions.

Commission Delegated Directive (EU) 2015/863, published in 2015, also restricts the use of bis(2-ethylhexyl) phthalate (DEHP), butyl benzyl phthalate (BBP), dibutyl phthalate (DBP) and diisobutyl phthalate (DIBP) in electrical and electronic equipment placed on the market. The Directive was transposed into national law by Decree 419/2013 of the Ministry of the Environment.

33 Jätelaki (1072/1993)

34 Jätelaki (646/2011)

35 Laki vaarallisten aineiden käytön rajoittamisesta sähkö- ja elektroniikkalaitteissa (387/2013)

The requirements of the Battery Directive (2006/66/EC) apply to batteries and accumulators placed on the EU market, including those incorporated into electrical and electronic equipment, vehicles and other products. The Directive sets out requirements concerning the labelling of batteries and accumulators and restriction of the use of hazardous substances. It also specifies the responsibilities applicable to producers of batteries and accumulators for the waste management of their products, i.e. producer responsibility. Finland has implemented the Directive by the Government Decree concerning batteries and accumulators.[36]

Chemicals safety legislation

The Act concerning the safe handling and storage of dangerous chemicals and explosives[37], hereinafter referred to as the 'Chemicals Safety Act', is a general act governing the safe handling of dangerous chemicals and explosives. Its wide scope of application has several links to other pieces of legislation promoting chemicals safety, such as the EU chemicals legislation and national occupational safety and health, environmental protection, and land use and building legislation. The purpose of the Act is to prevent and deter personal, environmental and property damage arising from the manufacture, use, transfer, storage and any other handling of dangerous chemicals and explosives, and to promote public safety and security. The Chemicals Safety Act and the Decrees issued by virtue of the Act implement certain EU acts, including the Seveso III Directive (2012/18/EU), specifying obligations to prevent major accidents and minimise their effects within and outside establishments where chemicals are present. The obligations apply to establishments handling chemicals causing physical, health and environmental hazards.

Consumer protection legislation

The purpose of the Consumer Protection Act[38] is to prevent health and property hazards. According to the Act, operators must ensure that consumer goods or services do not endanger health or property with due diligence and professionalism required under the circumstances. The Act does not include provisions regarding liability for damages. Other aspects falling outside the scope of consumer protection legislation include environmental damage, potential customer dissatisfaction with goods or services, and quality issues to the extent that they do not also pertain to product safety.

The Consumer Protection Act is a general act, which is not, as a general rule, applicable when the safety of certain consumer goods or services is provided elsewhere in law. However, if the provisions concerning safety laid down in such special legislation do not cover

36 Valtioneuvoston asetus paristoista ja akuista (520/2014)

37 Laki vaarallisten kemikaalien ja räjähteiden käsittelyn turvallisuudesta (390/2005)

38 Kuluttajaturvallisuuslaki (920/2011)

all safety issues, or if it does not require at least the same level of safety, or if its administrative enforcement measures are not as comprehensive as those specified in a general act, the general act may be applied to the safety aspects of consumer goods and services, where an adequate level of safety is not provided by such special legislation.

Consumer protection legislation is also linked to the Act on Notifying the European Commission of Information Relating to the Market Surveillance of Certain Products Presenting a Risk[39], laying down provisions on the notification obligations set out in the European Accreditation and Market Surveillance Regulation (the 'NLF Regulation') and in the General Product Safety Directive (2001/95/EC).

The Consumer Protection Act also applies to surveillance of toys. The safety of toys is also governed by the Act on the Safety of Toys[40] and subordinate statutes issued by virtue of the Act.

Food legislation

The Food Act[41] lays down provisions on the general requirements concerning food and on the organisation of controls. Its scope of application essentially includes all the food production, processing and distribution stages, with the exception of a private household's primary production or handling of food for its own use.

Certain maximum levels have been set for contaminants in foodstuffs, which are controlled by public authorities. Provisions on the maximum levels of certain contaminants in foodstuffs are laid down in Commission Regulation (EC) No 1881/2006. Provisions on the maximum residue levels of pesticides in or on food and feed of plant and animal origin are included in Commission Regulation (EC) No 396/2005. 'Contaminants' refers to substances other than food ingredients or additives, including residues of plant protection products used in plant production and residues of medicinal products used in the treatment of diseases in food-producing animals, etc. The presence of contaminants such as heavy metals or polychlorinated biphenyls (PCBs) in foodstuffs may be due to environmental pollution. Spoilage of foodstuffs or their ingredients may result in the formation of mycotoxins. Contaminants such as polycyclic aromatic hydrocarbons (PAHs) may also be generated during food manufacturing processes. Food contaminants are controlled by virtue of the Food Act.

39 Laki eräiden riskin aiheuttavien tuotteiden markkinavalvontaan liittyvien tietojen ilmoittamisesta Euroopan komissiolle (1197/2009)

40 Laki lelujen turvallisuudesta (1154/2011)

41 Elintarvikelaki (23/2006)

In addition, any materials and articles intended to come into contact with food are controlled by virtue of the Food Act. Provisions on materials and articles intended to come into contact with food are laid down in European Parliament and Council Regulation (EC) No 1935/2004. All business operators are also subject to Commission Regulation (EC) No 2023/2006 on good manufacturing practice, which requires all operators to have in place documented quality assurance and quality control systems and records relevant to compliance and safety of the finished material or article. Provisions on plastic materials and articles intended to come into contact with food were reformed by Commission Regulation (EU) No 10/2011, while the heavy metal requirements concerning ceramic articles are being reformed at EU level.

Medicines legislation

Provisions on the safety and use of medicinal products for human and veterinary use are included in the Medicines Act[42]. Its most recent amendments involved further specification of provisions concerning pharmacy services, contract manufacturing of medicinal products, delivery of pharmaceuticals from pharmaceutical plants, support provided for associations and patient organisations by parties involved in pharmaceutical marketing, etc.

Fertiliser product legislation

The objective of the Fertiliser Product Act[43] is, with the aim to ensure the quality of plant protection, foodstuffs and the environment, to promote the supply of safe fertiliser products that are of good quality and suitable for plant production and utilisation of by-products suitable for use as such. This Act also applies to the Fertiliser Regulation (EC) No 2003/2003, which currently only covers inorganic fertilisers and some liming material and does not set any maximum levels for harmful substances. The European Union has launched a comprehensive reform of its fertiliser legislation to incorporate all categories of fertilising products into the scope of such legislation, while also introducing safety requirements for these.

Feed legislation

The objective of the Feed Act[44] is to ensure the quality, safety and traceability of feeds and provision of appropriate information on feeds in order to safeguard the health of animals and good quality of foods of animal origin. More detailed provisions on feed business op-

42 Lääkelaki (395/1987)

43 Lannoitevalmistelaki (539/2006)

44 Rehulaki (86/2008)

erations have been given by virtue of the Feed Act in various Decrees of the Ministry of Agriculture and Forestry. As feed legislation has been harmonised to a large extent within the European Union, the relevant EU Regulations are applied as such without transposition into national law.

Provisions on feed additives are laid down in European Parliament and Council Regulation (EC) No 1831/2003. Feed additives are intentionally added to feed and they may be chemical compounds, substances, preparations, enzymes or micro-organisms. Only those additives approved in the European Union may be placed on the EU market, used and processed. The presence of undesirable substances and products in feed has been restricted by setting limit values for their levels. Provisions on such maximum levels are included in Commission implementing acts amending Annex I to Directive 2002/32/EC of the European Parliament and of the Council on undesirable substances in animal feed. Undesirable substances and products include heavy metals and certain other inorganic substances, mycotoxins, residues of plant protection products, organic environmental toxins (such as dioxins), and botanical impurities (such as toxic plants and seeds and their processing derivatives). Both additives and undesirable substances are controlled by virtue of the Feed Act.

Construction products legislation

The European Union's new Construction Products Regulation was adopted in 2011. The Regulation replaced the Construction Products Directive and entered into force without transposition into national law. As a result of the Regulation, the CE marking has been mandatory in construction products since July 2013, whenever such marking is possible in accordance with the harmonised standards. The product standards for construction products will provide harmonised methods to define the EU-regulated hazardous substances (such as certain hazardous organic substances and carcinogens). The Land Use and Building Act[45] further provides that the products used for construction may not cause emissions that are considered unacceptable into indoor air, domestic water or the environment during their design lives. Further provisions on the health-related physical, chemical and microbiological conditions required for buildings, technical building systems and equipment, as well as construction products may be issued by Decree of the Ministry of the Environment. Provisions on methods of ascertaining whether the essential technical requirements are met are laid down in the Act on the Type Approval of Certain Construction Products.[46]

45 Maankäyttö- ja rakennuslaki (132/1999, as amended by Act 958/2012)

46 Laki eräiden rakennustuotteiden tuotehyväksynnästä (954/2012)

European Accreditation and Market Surveillance Regulation

European Accreditation and Market Surveillance Regulation (EC) No 765/2008 (the 'NLF Regulation') establishes an overall framework for the market surveillance of products within the European Union. In addition to market surveillance, the Regulation includes provisions on accreditation, controls of products from third countries and the CE marking. The Regulation aims to complement and strengthen existing legislation. More detailed provisions on market surveillance are included in sectoral Directives and the national laws enacted to implement these.

4 Programme recommendations for action

In order to reduce the harmful effects of chemicals on human health and the environment, the working group proposes measures in the following five **impact areas**, which are the same as in the 2012 revised programme:

1. Achieving the objectives laid down in the REACH and CLP Regulations and making use of new information;
2. Exposure data and monitoring;
3. Chemical risk assessment and risk management among industrial and other operators;
4. Reducing chemical risks posed by products and preparations; and
5. International influencing.

This newly revised programme includes 27 recommendations for measures, four of which are completely new.

The recommendations for measures are presented below by impact area. Each impact area is provided with an intended impact and rationale for the proposed recommendations. The Rationale section includes a brief overview of the background for each recommendation for measures and a description of the differences between the objective and the current status. The completely new recommendations are marked with '**(N)**'. The **objectives** of the recommendations for measures and the concrete **measures, responsible parties and impacts** involved are outlined under each recommendation. The source of the necessary R&D funding is not identified, because it may vary depending on the project in question. **The parties in boldface have the primary responsibility for launching or coordinating the measures concerned.**

Furthermore, the working group highlighted the importance of communication to chemical risk management and its cross-cutting role in support of implementing the Chemicals Programme. Communication is linked to all the recommendations for measures. The group stressed that all public authorities need to be involved in communication efforts. It is important to target communications and make use of stakeholders and their contacts

in communication. Plenty of information already exists, but it should be made easier to access or use. Clear national priorities and focus areas will support and facilitate communication. The working group took note of the fact that the National Communications Plan for Dangerous Chemicals 2014–2020 was published in 2013, as proposed in the previous programme revision.

1. Achieving the objectives laid down in the REACH and CLP Regulations and making use of new information

INTENDED IMPACT

The obligations imposed by the EU's REACH and CLP Regulations concerning the registration, evaluation, authorisation and restriction of chemicals, as well as the classification, labelling and packaging of chemicals will have been effectively implemented, including the achievement of the objectives set by these Regulations for ensuring a high level of protection of human health and the environment, as well as the widespread application of information obtained through implementing these Regulations.

RATIONALE

The REACH and CLP Regulations have introduced new duties and roles for operators and authorities. Shifting the responsibility for demonstrating and managing risks to operators, cooperation relating to registration, the role of public authorities as advisory and supervisory bodies and the increasing duties of Customs in chemicals control call for development of both information and methodological competence. It is necessary to further increase operators' awareness of their obligations and to support them in fulfilling their obligations. More expertise in registration, authorisation procedures and business consultancy is required both in companies and in the public sector. All substances manufactured or imported in quantities of one tonne or more are registered in a database maintained by the European Chemicals Agency (ECHA). To date, companies have registered information on the properties and safe use of about 15,000 substances with ECHA. The final registration phase will end on 31 May 2018. Companies have also submitted information on the hazard classification of about 120,000 substances.

The role of public authorities is to monitor and facilitate the implementation of the REACH Regulation. Their duties include determining substances relevant to Finland that should be specifically evaluated or restricted at EU level. Public authorities are required to inves-

tigate the applications and presence of any substances that may be subject to the authorisation procedure, in order to promote the achievement of the REACH objectives, paying special attention to substances of very high concern (SVHCs); carcinogenic, mutagenic and/or reproductive toxicants (CMR substances) of category 1 and 2; persistent, bioaccumulative and toxic substances (PBT substances); very persistent and very bioaccumulative substances (vPvB substances); and any possible endocrine-disrupting substances.

REACH data can be put to use when developing the operations of public authorities and providing guidance for companies, in areas falling outside the scope of the Regulation, in testing and assessment as part of R&D activities, and when communicating about the chemical content of products. The REACH Regulation also plays a role in the development of chemicals management outside the European Union.

In order to replace harmful chemicals, public authorities and other expert bodies should also increase communication measures to support operators. In this respect, they should also pay attention to the obligations to assess substitute substances and methods introduced by the procedures set out in the REACH Regulation. Information produced under the REACH Regulation may also be used in communications, in particular when providing workers and consumers with information about the safe use of chemicals.

The implementation of the CLP Regulation also requires versatile competence and further actions from both operators and authorities.

RECOMMENDATIONS FOR MEASURES

1.1 Promoting the flow of chemical information obtained from procedures under the REACH and CLP Regulations in the supply chain to manufacturers of end products, workers and consumers in a format suitable for each target group

Objective and measures: Different parties will have access to the necessary information on chemicals and their safe use and disposal. The harmful effects of chemicals on human health and the environment will be reduced.

- The quality of safety data sheets will be further improved.
- Moving forward, particular efforts will be focused on helping SMEs to implement the REACH and CLP Regulations and make use of information produced under the Regulations. Making use of exposure scenarios will also require support and guidance from public authorities. The Tukes helpdesk required under the REACH and CLP Regulations and training provided by authorities and expert bodies will play an essential role in this respect.

- Efforts will be made to promote the use of tools created to communicate information on chemicals safety.
- Efforts will be made to promote consumer communications in keeping with the National Communications Plan for Dangerous Chemicals.

Responsible parties: Operators, Tukes, TTL, business organisations, supervisory authorities under the Chemicals Act

Impacts: The objective set out in the REACH and CLP Regulations of ensuring a high level of protection of human health and the environment will be achieved through effective implementation of legislation. The operating conditions of SMEs will improve as a result of advisory services provided by public authorities.

1.2 Supporting substitution of harmful chemicals

Objective and measures: The harmful effects of chemicals on human health and the environment will be reduced.

- The REACH Regulation's authorisation procedure and identification of substances of very high concern will effectively drive substitution of the most harmful substances or transition into alternative methods, whenever possible.
- Active and multi-directional communication will be developed, while creating tools, materials and training to promote proactive substitution of harmful chemicals.
- Business organisations will communicate on new substances of very high concern (SVHCs) in their networks.
- Public authorities and business organisations will share information about the databases of different countries and organisations offering information about alternatives to the most harmful chemicals.
- Contributions will be made to the work carried out by ECHA concerning substitution of harmful substances and alternative substances.

Responsible parties: Operators, business organisations, Tukes, AVIs, ELY Centres, SYKE, THL, TTL

Impacts: Conditions for new business opportunities will be created in the manufacture and development of substitutes, while improving the readiness of companies for regulation of substances of very high concern. The sustainable use of natural resources will be enhanced in the long term, while reducing the incidence of occupational diseases caused by chemicals.

2. Exposure data and monitoring

INTENDED IMPACT

Adequate information, covering emissions and exposure to substances hazardous to human health and the environment, will have been made available for risk assessment and risk management purposes, as well as for assessing the impact of the measures taken.

RATIONALE

Human exposure

While people are exposed to various chemicals at work, at home and in leisure through indoor and outdoor air, food and drinking water, as well as consumer products – such as cosmetics – there is no systematically collected and sufficiently comprehensive information on chemical exposure. Determining the levels of human exposure to chemicals requires both environmental status data (presence and concentrations of chemicals in the environment) and human exposure data (intake of chemicals, human concentrations). By systematically exploring environmental and occupational chemical exposure, it is possible to identify the most significant exposure risks, develop efficient control measures to reduce exposure and target these at the relevant exposures and the right chemicals, while also estimating the relative risks of different exposure agents.

Based on occupational disease statistics, chemicals and other chemical agents are still causing work-related diseases indemnified under the Workers' Compensation Act[47]. Occupational hygiene measurements and biomonitoring yield reliable information for targeting decision-making and control measures. In order to prevent adverse health effects, special attention should be paid to sectors which are known to involve a higher health risk when compared with other sectors, or which are suspected to pose a significant health risk. It should be noted that significant chemical exposure agents in workplaces are not only limited to chemical products falling within the scope of REACH, but also cover other chemical agents, such as various types of dust and fumes generated in processes.

In Finland, information on occupational exposure to various chemicals (including chemical agents) is accumulated, in particular, in the different registries of the Finnish Institute of Occupational Health (TTL). Research also produces information on occupational exposure

47 Työtapaturma- ja ammattitautilaki (459/2015)

to chemicals in the form of research reports. This registration and research information includes data on applications, numbers of people exposed, and concentrations in the air and in biological samples. By pooling this information, it is possible to form an overview of occupational chemical exposure in different sectors and occupations in Finland.

The administrative chemical risk assessments (such as those under REACH) are based on exposure data concerning individual chemicals when used for a specific purpose. However, reliable population-level risk assessment requires data on actual human exposure levels, i.e. the doses ending up in the body. Through better knowledge of exposure levels and high-exposure occupations, tasks and products, control measures can be targeted effectively.

Environmental exposure

We do not have an adequate idea of environmental burden caused by harmful substances. In addition to monitoring of the effects of risk management and measures, a specific starting point for stepping up environmental monitoring and environmental surveys is sufficiently comprehensive monitoring of environmental concentrations of harmful substances that meets the quality standards, as required by several EU acts and international environmental agreements.

Municipal wastewater treatment plants measure heavy-metal concentrations from treated wastewater and, in particular, sludge. However, municipal sewer networks also take in plenty of various chemicals and microplastics from households, healthcare services and SMEs, etc. By determining the risks posed by these releases, it is possible to assess monitoring needs, while chemical surveys improve our knowledge of the chemicals and microplastics in sludge in order to assess its usability.

Information on chemical releases into the environment is especially required to implement the POPs Protocol concerning persistent organic pollutants to the UNECE Long-range Transboundary Air Pollution Convention and the Stockholm POPs Convention. More information is also required on emissions of substances identified as having hormonal activity and their effects. The Water Framework Directive imposes an obligation to identify substances that may pose a risk of pollution, while also requiring prior regulation of point source discharges liable to cause pollution. The concentrations of harmful and hazardous substances in the aquatic environment are also used to determine the chemical and ecological status of waters in keeping with the Water Framework Directive.

There is not enough information on microplastic emissions into the environment to determine risks. Information is required on the presence of microplastics in aquatic environments and any harmful substances contained or bound in these, the sources of microplastics and their effects on aquatic organisms.

RECOMMENDATIONS FOR MEASURES

2.1 Studying the population's chemical exposure

Objective and measures: More will be known about the population's chemical exposure.

Information on chemical exposure is required in order to target health promotion measures correctly and to offer research-based information on chemical exposure in support of decisions on measures.

- Efforts will be made to identify information needs – especially those relevant to the prioritised implementation of chemicals legislation – and means to produce exposure data.
- A project will be carried out to identify and prioritise the most significant exposure agents and to target communications about risks. The possibility to include spatial information in exposure studies will be taken into account in the future.
- Qualitative and quantitative changes in air pollution exposure will be monitored over time, especially with regard to urban populations, while analysing reasons for such change and estimating future developments and public health consequences.
- Chemical exposure through recreational activities will be studied, in order to increase participants' awareness of exposure and provide facility users with guidance on the significance of adequate ventilation, the necessary local extraction systems and personal protection.
- Studies will be conducted on exposure to chemicals identified or suspected as endocrine disruptors found in products such as cosmetics.

Responsible parties: STM, THL, TTL, Tukes

Impacts: More reliable assessments of health risks, more accurate targeting of risk management measures, as well as reduction in exposure and related risks. Collecting exposure data will also make it possible to assess the effectiveness of administrative decisions made with regard to substitution of substances, for example.

2.2 Studying workplace exposure

Objective and measures: More will be known about chemical exposure at work, enabling the development of better and more efficient management methods to reduce chemical exposure causing health risks at work.

In order to form an overview of occupational exposure:

- registration and research data on occupational exposure to chemical agents in different fields/tasks will be collected, analysed and compiled, while assessing the relevance of exposure to health and publishing exposure information on a website to be set up for this purpose;
- chemical exposure and its health risks will be studied as part of the bioeconomy and the circular economy.

Responsible parties: STM, TTL, operators

Impacts: A better understanding of occupational chemical exposure in Finland will be achieved. This knowledge will be put to use when targeting various measures aiming at risk management and implementing chemicals legislation.

2.3 Stepping up environmental monitoring and surveying of harmful substances

Objective and measures: Enhanced environmental monitoring and surveying will ensure the ability to fulfil all the statutory obligations imposed on the environmental monitoring of harmful substances.

- Monitoring of harmful substances will be further developed as required in the national strategy for monitoring the state of the environment, the Water Framework Directive and the Government Decree on Substances Dangerous and Harmful to the Aquatic Environment, in keeping with the policies periodically outlined in the monitoring programme. Lynet partner institutions and Tukes will work together to step up planning of monitoring efforts, while joint environmental surveys will be carried out as required to support monitoring measures. Microplastics will be added to environmental survey programmes.
- Monitoring of plant protection products will be ensured as part of the National Action Plan (NAP) on the Sustainable Use of Plant Protection Products. Special attention will be dedicated to the analysis and publication of monitoring data on plant protection products to establish long-term trends. Monitoring results will be put to use in authorisation, risk assessment and risk management procedures concerning plant protection products.

- Data on the use of substances will be taken more effectively into account in planning environmental monitoring measures and utilisation of monitoring results.
- Studies will be conducted on the presence of microplastics in aquatic environments and any harmful substances contained in these, the sources of microplastics and their effects on aquatic organisms, while also assessing any possible human exposure through this route.
- Efforts will be made to determine the need and possibility to organise groundwater monitoring measures covering pharmaceuticals, perfluoroalkylated substances (PFASs), DEET-containing biocides, explosives, etc.

Responsible parties: Lynet partner institutions (SYKE, Luke, Evira), **YM**, MMM, THL, Tukes

Impacts: The information may be used to plan measures to reduce emissions of harmful substances and microplastics into the environment and to assess the impact of measures already implemented on environmental concentrations. Stepping up the activities by means such as cooperation will yield savings, making it possible to implement new/prioritised areas of environmental monitoring (new substances or methods, wider sampling, etc.). The information may also be used when deciding on risk management methods.

2.4 Stepping up monitoring of harmful emissions and their effects

a) Stepping up monitoring of harmful emissions and their effects in industrial and comparable sources based on risks posed by emissions

Objective and measures: Targeting the monitoring activities based on risks posed by emissions will reduce negative environmental effects caused by chemicals.

- The environmental permit procedure and its guidance will be developed so as to take harmful substances (incl. SVHCs and substances under the Water Framework Directive) into account more effectively. Contributions will be made to ensuring that the above-mentioned substances are considered in the EU's best available techniques (BAT) reference documents for individual industrial sectors.
- Local background concentrations of metals will be studied, particularly in river basins in the vicinity of metal and extractive industry installations and acid soil areas. Separate nationally coordinated survey-type studies of harmful substances will be continued in order to develop observation and monitoring activities.

- The transfer and utilisation of observation data will be enhanced by joint use of databases and registers and by developing the systems.

Responsible parties: AVIs, ELY Centres, SYKE, operators, YM

Impacts: The knowledge base on the environmental concentrations and effects of harmful substances will increase and cost-efficient measures will contribute to reducing negative environmental effects of operations.

b) Studying harmful substances in urban wastewater and sludge to assess monitoring needs

Objective and measures: The risks posed by harmful substances and microplastics in urban wastewater and sludge and the needs to step up monitoring measures will be identified.

- The presence of substances, especially PBTs and microplastics, in wastewater and sludge will be studied at wastewater treatment plants, while developing risk assessment of substances contained in sludge.
- The presence of substances such as consumer chemicals, pharmaceuticals and cosmetics in wastewater will be studied together with the applicability of whole effluent assessments (WEA) to monitoring and risk management of harmful substances.

Responsible parties: SYKE, Evira, **YM**, **MMM**, **Luke**, Association of Finnish Local and Regional Authorities (KL), Finnish Water Utilities Association (VVY), operators, ELY Centres, AVIs

Impacts: The studies will make it possible to assess various emission controls (incl. enhancing wastewater treatment and reducing hazardous chemical use in installations connected to the sewer networks of urban wastewater treatment plants) and their effects or to revise and specify requirements and guidance for urban wastewater treatment, with a view to reducing the negative environmental effects of chemicals and microplastics.

c) Studying harmful emissions into air, water and soil in waste treatment as part of waste treatment

Objective and measures: The types of harmful substances, including those in microplastics, released into the environment as part of recovery and disposal of waste will be known.

In order to target measures cost-efficiently, it is necessary to obtain better information about the ways and quantities in which chemicals used in products enter the environment.

- Chemical releases from wastewater treatment plants into the environment will be surveyed.
- The groups of substances to be studied will be prioritised (incl. substances under the Water Framework Directive, POPs, substances identified as endocrine disruptors), while taking account of microplastics and harmful substances bound in these.
- Attention will also be paid to the exposure of workers and any potential related health risks in waste treatment and, in particular, waste incineration.

Responsible parties: SYKE, TTL, AVIs, ELY Centres, Finnish Solid Waste Association (JLY), waste treatment and incineration plants, waste producers and product manufacturers

Impacts: The studies will increase knowledge of emissions from waste treatment and exposure of workers in waste incineration plants, making it possible to revise and specify guidance on establishing waste landfill sites, with a view to reducing the negative environmental effects of chemicals and influencing products on the basis of life-cycle thinking.

2.5 Studying harmful substances and risk management in waste pretreatment, recycling and recovery processes

Objective and measures: Recycling will be facilitated and wider uptake of secondary raw materials will be improved through promotion of non-toxic material cycles and better tracking of chemicals of concern in products.

Information is required to plan risk management with a view to improving recyclability and reducing the harmful effects of chemicals (especially SVHCs and POPs) on human health and the environment. Studies will also pay attention to occupational health risks in these processes.

- Efforts will be made to identify the waste types and waste recycling processes that substances of very high concern (SVHCs) and POPs may enter.
- Efforts will be made to discover treatment and separation methods to safely remove and dispose of harmful agents.
- Attention will be paid to any possible risks that may be posed by harmful substances as part of the overall health and environmental impact assessment when determining the product testing of waste in keeping with section 5 of the Waste Act (the 'end-of-waste procedure').

- Studies will be carried out to determine the primary chemical risks relating to recycling and reusing materials and the need and means to manage these.

Responsible parties: SYKE, **YM**, TTL, Tukes, Evira, ELY Centres, operators, relevant organisations

Impacts: Risks posed by harmful substances will be managed more effectively in waste pretreatment, recycling and recovery processes.

2.6 Stepping up environmental impact assessments of substances covered by legislation governing medicinal products for human and veterinary use by enhancing inter-agency cooperation

Objective and measures: Stepping up assessments will make it possible to obtain better information on the environmental effects of substances covered by legislation governing medicinal products for human and veterinary use. Based on this, it will be possible to identify potential measures that may be required to reduce environmental effects.

Efforts will be made to determine how to organise the environmental impact assessment of medicinal products for human and veterinary use efficiently by promoting inter-agency cooperation.

Responsible parties: STM, YM, MMM, Fimea, Tukes, SYKE, Evira

Impacts: The harmful effects of the substances covered by legislation governing medicinal products for human and veterinary use on the environment and, consequently, on human health will be reduced.

3. CHEMICAL RISK ASSESSMENT AND RISK MANAGEMENT AMONG INDUSTRIAL AND OTHER OPERATORS

INTENDED IMPACT

Operators will have adequate information on chemical risk management, including appropriate practices put in place, and such information is used to ensure a high level of protection of human health and the environment, irrespective of the size of the company or unit. Workplaces will have a good command of risk assessment, which is also put into action.

RATIONALE

One of the findings of a national evaluation study examining the impact of REACH legislation, carried out in 2014–2015, was that chemical industry were more aware of the fact that their operations were covered by the REACH Regulation, but the downstream users were yet to recognise their own obligations under the Regulation. The availability of safety data sheets had also improved in companies, but they were found difficult to use due to their complexity. A common wish expressed by companies was to receive clearer guidance for safe handling of chemicals in workplaces. In other words, workplaces still require further guidance and tools to fulfil their chemicals-related obligations. In particular, these should be provided for small enterprises using chemicals. One of the tools for workplace assessment and management of chemical risks specifically intended for SMEs is multilingual Stoffenmanager® freeware, which has more than 1,300 registered users in Finland. The recommendations for measures concerning occupational safety outlined in this impact area build on the data on the most significant workplace exposures collected under recommendation 2.2 and as part of a national chemical risk management project ('Kemikaaliriskien hallinta kuntoon'). Based on these, it is possible to target the support measures required for risk assessment and management at key sectors and tasks involving high chemical exposure risk.

Operators must also be aware of the environmental effects of their operations by virtue of the Environmental Protection Act. Providing support for workplace risk assessment and enhancing supervision will help workplaces identify and manage risks as required by the Occupational Safety and Health Act, the Chemicals Act, EU chemicals legislation, and the Environmental Protection Act.

Employers are required to take any concentrations known to be harmful ('HTP values') into account when identifying and assessing work-related risks and when assessing workplace air quality, employee exposure and the significance of measurement results as part of designing the working environment. HTP values constitute an important means of guidance on managing workplace chemical risks, but they need to be continuously maintained and updated. REACH legislation, in turn, sets derived no-effect levels (DNELs) for chemicals, which are communicated to downstream users in safety data sheets. The DNELs do not always correspond with occupational hygiene limit values (HTP values). It is necessary to clarify operations at the interfaces of these pieces of chemicals legislation, among others, in order to support risk assessment and risk management efforts, while also developing guidance for industry. Biomonitoring may be the most efficient way to monitor certain types of exposure. In terms of interpreting its results, it is essential to determine indicative limit values for biomonitoring.

At least 4,500 skin-sensitising chemicals are currently known to exist. New substances are constantly being introduced, while recent years have seen an increase in new jobs involving exposure to sensitisers, such as pipe renovations or nail salons. Indeed, sensitisers are

the cause of a significant number of occupational diseases every year, frequently resulting in career changes. Many substances may cause sensitisation even at quite low concentrations (below classification limits). The most problematic groups of chemicals in terms of skin sensitisation include various resin compounds, such as epoxy compounds, acrylates and isocyanates in polyurethanes, and preservatives, such as isothiazolinones and formaldehyde-releasing substances. Another problem is the fact that it is practically impossible to obtain reliable information on chemicals contained in products, because production chains are long and it is difficult to get information from manufacturers, especially if they are outside Europe. Attention should also be paid to products at interfaces between different pieces of legislation, such as false nails and eyelash adhesives.

The chemicals industry has its own programmes to increase chemicals safety, such as the Responsible Care (RC) programme. With 95 companies committed to the programme, it covers about 80% of the Finnish chemicals industry's output. The RC programme for distributors, focusing on chemicals trade, is coordinated at the national level by the Chemistry and Raw Materials Trade section of the Association of Finnish Technical Traders. Since 2012, commitment to the programme has been a mandatory requirement for membership of the section. However, there are also plenty of companies handling chemicals, especially SMEs, which are neither members of any industrial umbrella organisations nor participants in any voluntary programmes.

Assessing the combined effects of chemicals poses a challenge both to authorities and to industry. Methodologies and guidance for assessing such combined effects are required both for making administrative decisions on the limit values and any possible bans or restrictions of chemicals with population health risks, on the one hand, and for assessing health risks of individual employees at workplaces and in occupational healthcare services, on the other. Of particular concern are the potential combined effects of several substances with hormonal effects. Assessment of risks posed by nanomaterials and substances identified as having hormonal activity should be developed, while the risks should also be reduced by means of communications. As a result of the increasing use and applications of nanomaterials, it is necessary to build up information about any possible health and environmental risks that these may pose. Finland has carried out world-class research in the field of nanosafety. Providing support for research and producing data and models for the risk assessment and safe use of nanomaterials will enable ensuring a high level of protection of human health and the environment.

Sustainable chemistry helps to enhance the sustainable use of natural resources when developing chemicals and chemical services and to promote the design, manufacturing and use of chemicals that are safer for health and the environment. 'Sustainable chemistry' refers to safer, more efficient and more environmentally friendly design, manufacturing and use of chemicals and chemical processes.

RECOMMENDATIONS FOR MEASURES

3.1 Supporting risk assessment and management in small and medium-sized enterprises in particular

Objective and measures: Chemicals safety will reach a good level in companies manufacturing, using and distributing chemicals, irrespective of size.

- SMEs will be supported in their efforts to comply with statutes concerning chemicals safety, while promoting the use of safety data sheets and exposure scenarios as part of chemical risk management at workplaces.
- Attention will be paid to the use of substances of very high concern (SVHCs).
- Materials (model solutions, best practices), training and easy-to-use tools will be produced for assessing and managing the health and environmental risks of chemicals, in particular with SMEs in mind.
- Information measures and stakeholder events targeted on the basis of risks will be organised on topical themes in chemical risk management, taking note of the 2018–2019 EU-OSHA campaign on dangerous substances, etc.
- Data collected on the most significant workplace exposures will be put to use. Chemicals safety in SMEs will be supported as part of the chemicals industry's own environmental, health and safety (EHS) projects, with voluntary help from business networks.
- Efforts will be made to identify the sectors of the circular economy that require improvements in chemicals management and to support risk management and compliance with legislation in SMEs operating within these sectors.

Responsible parties: STM, YM, TTL, Tukes, AVIs, ELY Centres, occupational healthcare services, operators, business organisations, Centre for Occupational Safety (TTK)

Impacts: Public healthcare, occupational healthcare and environmental management costs will potentially decrease as a result of improved risk assessment and management. Support for industry will involve costs, the level of which will depend on the methods used for this purpose. Support for the SME sector will require resources from authorities.

3.2 Improving cooperation between supervisory authorities in occupational safety and health and environmental protection, while targeting supervision based on risks to identify and solve chemicals-related problems in companies

Objective and measures: Supervision of chemicals legislation will be competent, comprehensive and consistent in national and sectoral terms.

Risk-based targeting of supervision will free up resources, improving identification and resolution of problems in higher-risk companies (e.g. with more frequent supervisory visits).

- Efforts will be made to step up inter-agency cooperation in supervision and to develop supervision methods to ensure equal treatment of companies.
- Efforts will be made to identify common topical priorities for supervisory activities.

Responsible parties: STM, YM, Tukes, AVIs, ELY Centres

Impacts: In the long term, responsible businesses will have an opportunity to gain a competitive edge, while it will also be possible to make savings in occupational healthcare and environmental protection costs.

3.3 Clarifying operations at the interfaces between different pieces of chemicals legislation

Objective and measures: Industry and authorities will share the same interpretations of the statutory requirements.

- Special efforts will be made to clarify the application of the EU occupational safety and health legislation and the REACH Regulation.
- Information sharing and cooperation will also be promoted in the development of BAT reference documents and REACH procedures (exposure scenarios, restrictions, authorisation requirements).
- Efforts will be made to support and follow EU-level activities, while making active contributions to identifying solutions and clarifying legislative interfaces (incl. the REACH Regulation, occupational safety and health, the product-waste interface) and applying these EU-level coordination solutions at the national level.
- Information sharing between different administrative sectors will be improved by means such as digitalisation.

Responsible parties: STM, YM, **MMM**, Tukes, SYKE, THL, TTL, ELY Centres

Impacts: Clear application of legislation will support its implementation, creating savings for both industry and the public sector in the long term. The circular economy objectives will be achieved more effectively.

3.4 Promoting research into the combined effects of chemicals and developing risk assessment and management methods

Objective and measures: The negative environmental impact of the combined effects of chemicals and the health-endangering exposure of workers and the population to such effects will be reduced in the long term.

- The combined effects of substances on human health and the environment will be studied to support risk assessment, while participating in development of risk assessment methods at EU level.
- The combined effects of harmful chemicals will be taken into account in risk management, using available methods.

Responsible parties: SYKE, THL, Tukes, TTL, Finnish Centre for Alternative Methods (FICAM)

Impacts: The knowledge base on the combined effects of chemicals on human health and the environment will increase, while risk assessment and management will become more effective. Introduction of new risk management methods will create costs for industry. Potential cost savings will be achieved in the long term, as the risks of combined effects will become easier to manage and will be analysed comprehensively. Occupational healthcare costs arising from combined effects will decrease in the long term as a result of reduced exposure levels.

3.5 Promoting research into the health and environmental effects of nanomaterials and their risk assessment and management

Objective and measures: The effects of nanomaterials on human health and the environment will be better known, while efforts will be made to reduce the environmental effects and exposure posing population health risks caused by nanomaterials identified as harmful.

- Contributions will be made to research into the health and environmental effects of nanomaterials and development of risk assessment methods through EU and OECD cooperation, with a particular view to improving the applicability of the REACH and CLP Regulations.

- Risk assessment and management will be promoted at different stages of the life cycle (manufacturing, use and waste treatment), including consumer products.
- Risk management systems and procedures will be developed.
- Instructions and guides on the safe use and risk assessment of nanomaterials will be produced for workplaces, for example, in keeping with the precautionary principle.
- Guidance will be prepared, in particular for Regional State Administrative Agencies (AVIs) and ELY Centres, on how to take nanomaterials into account in environmental permits and their supervision.
- Contributions will be made to encouraging operators to pay attention to the risks posed by nanomaterials in product composition and production, using communications.

Responsible parties: Tukes, TTL, **YM**, **SYKE**, THL, STM, FICAM, operators

Impacts: The knowledge base on the effects of nanomaterials on human health and the environment will increase, while risk assessment will become more effective and risks posed by nanomaterials will be reduced. Easier risk assessments will result in cost savings for industry.

3.6 Promoting research into the health and environmental effects of substances identified as having hormonal activity and their risk assessment and management

Objective and measures: Knowledge of the effects of substances identified as having hormonal activity (sc. endocrine disrupters) on human health and the environment will increase, while the risks involved in these substances will become easier to assess and manage, making it possible to reduce their negative environmental effects and exposure posing population health risks.

- Studies will be conducted on the effects of substances identified as having hormonal activity on human health and the environment. Risk assessment and management will be promoted at different stages of the life cycle (manufacturing, use and waste treatment), including consumer products.
- Contributions will be made to developing risk assessment methods and to improving the applicability of legislation (incl. REACH) within the EU and the OECD.

Responsible parties: Tukes, TTL, THL, SYKE, STM, YM, operators, FICAM

Impacts: The knowledge base on the effects of substances identified as having hormonal activity on human health and the environment will increase, while risk assessment will become more effective and risks posed by these substances will be reduced. Easier risk assessments will result in cost savings for industry.

3.7 Promoting sustainable chemistry (N)

Objective and measures: Sustainable chemistry helps to enhance the sustainable use of natural resources when developing chemicals and chemical services (such as chemical leasing) and to promote the design, manufacturing and use of chemicals that are safer for human health and the environment.

- Sustainable chemistry will offer an opportunity to reinforce measures to minimise the harmful effects of chemicals and waste.
- Industry will be encouraged to make wider use of the chemical information produced under the REACH Regulation in order to identify the risks posed by the chemicals that they use and manufacture, to develop new solutions in keeping with sustainable chemistry, and to assess the recyclability of materials and products.
- Cooperation between industry, the authorities and the scientific community will be increased in order to put sustainable chemistry innovations into use.
- Innovation and product development aiming at sustainable chemistry will be supported by means such as rewarding pioneers in sustainable chemistry.
- Information will be shared on sustainable chemistry solutions.
- The principles of sustainable chemistry will be added to education and training programmes at different levels.

Responsible parties: Operators, business organisations, authorities, scientific community

Impacts: Sustainable chemistry will help reduce the risks posed by chemicals to human health and the environment, use natural resources more cost-efficiently and promote circular economy objectives.

3.8 Developing occupational hygiene limit values and biomonitoring reference values to guide operators' risk assessments and risk management

Objective and measures: More precisely targeted risk assessment and management efforts will help reduce chemical exposure posing health risks to workers.

- The criteria for the indicative limit values of concentrations known to be harmful (HTP values) will be reviewed and updated, while setting values for new exposure agents as required.
- New indicative limit values will be set for biological exposure indicators.

Responsible parties: STM, TTL, social partners

Impacts: Worker protection will improve as a result of more effective risk management.

3.9 Reducing exposure to sensitisers (N)

Objective and measures: Exposure to sensitisers and cases of disease due to the professional and recreational use of such substances will be reduced. Awareness of the adverse effects of sensitisers and their safe uses will increase.

- Efforts will be made to promote the identification of sensitisers in products in which their concentrations fall below classification limits.
- Efforts will be made to promote the inclusion of chemicals safety in professional qualifications requirements (such as vocational institutions), including sensitising chemicals and the safe use of epoxy chemicals, etc.
- Workplaces will be provided with training and information on the adverse effects and safe use of sensitising substances.
- The operating conditions of Regional State Administrative Agencies (AVIs) for promoting the safe use of sensitising exposure agents will also be improved by means such as training.
- Attention will be paid to sensitising chemicals in products at the interfaces between different pieces of legislation, while studying exposure and its management methods, in particular in the beauty sector.

Responsible parties: STM, TTL, Tukes, Finnish National Agency for Education (OPH), educational institutions, operators

Impacts: Exposure to sensitisers and the resulting cases of sensitisation will be reduced. Awareness of the adverse effects and safe use of sensitisers will increase among workers and the population as a whole.

4. Reducing chemical risks posed by producTs and preparations

INTENDED IMPACT

Adequate information will have been made available on chemicals contained in products and preparations, and the risks posed by these will be controlled throughout their life cycles.

RATIONALE

The available statistics, studies and inspections have shown that products do not always satisfy statutory requirements, while operators and consumers are not aware of the chemicals contained in products. Moreover, the current product safety legislation does not cover environmental effects. Neither are chemicals and their effects throughout the entire product life cycle taken sufficiently into account in product development. There is EU-level regulation for products such as electrical and electronic equipment and toys.

Under the General Product Safety Directive (2001/95/EC) and European Accreditation and Market Surveillance Regulation (EC) No 765/2008 (the 'NFL Regulation'), notifications of dangerous products and relevant measures will be submitted to the EU's Rapid Alert System (RAPEX), where the national contact point for Finland is Tukes. In 2016, the highest number of chemicals-related notifications concerned toys, textiles and fashion products, as well as cosmetics. Public procurement processes should also assess any health and environmental risks that may be posed by chemicals. There are still deficiencies in the implementation of legislation and guidelines. The REACH Regulation has improved the situation to some extent, but not enough in terms of products (incl. the articles referred to in REACH). Efforts relating to the application of legislation and procedures and their expansion to cover chemicals in products are currently ongoing both in Europe (Commission, ECHA) and worldwide (OECD, SAICM).

The use of cosmetic products is continuously increasing. Exposure to chemicals contained in cosmetics is also direct and often continuous in many workplaces, such as hairdressing shops. Risk assessments of cosmetic products do not cover risks to workers or environmental effects, which fall within the scope of other legislation instead.

One of the objectives of Biocidal Product Regulation (EU) No 528/2012 is to contribute to the sustainable use of biocidal products. The Regulation requires proper use of biocidal products, which involves the rational application of a combination of physical, biological, chemical or other measures as appropriate, whereby the use of biocidal products is limited to the minimum necessary and appropriate precautionary steps are taken. In 2015, the

Finnish Safety and Chemicals Agency (Tukes) carried out a study on the sustainable use of biocides. The report described the current status of biocide use in Finland, including challenges and best practices, and considered potential further action at the national level. The report identified that it would be necessary for the subsequent revision of the National Programme on Hazardous Chemicals to discuss and outline national objectives for the sustainable and proper use of biocides.

RECOMMENDATIONS FOR MEASURES

4.1 Designing products and preparations with due consideration of the effects of chemicals contained in these on the collection, treatment and recovery of waste products

Objective and measures: Harmful substances will be used less frequently when full life-cycle impacts on the environment, natural resources and human health are taken into account in design (incl. ecodesign), while reducing the quantities of chemicals contained in products and preparations that will become waste. The negative environmental effects of chemicals contained in products and preparations will be reduced (in particular at the waste stage). Chemical exposure posing health risks to workers will decrease, in particular in waste management.

- The voluntary product liability commitments made by trade and industry will be reinforced to improve the safety of products and preparations on the market. The environmental risks posed by chemical emissions from products could be minimised at the product development stage by choosing the chemical option posing the least risk.
- Products and preparations will be designed with due consideration of the effects of the chemicals contained in these on the collection, treatment and recovery of waste products.
- The possibility of covering the risk assessment of harmful substances and their impact on life-cycle management in the reform of the Ecodesign Directive (2009/125/EC) and in the related product Regulations or by other means will be explored, with a view to taking the chemicals most harmful to the environment and human health, such as SVHCs and POPs, into account alongside energy efficiency when developing the methodology.

Responsible parties: Operators, business organisations, waste management companies and organisations, TEM, YM, SYKE, Tukes

Impacts: The collection, treatment and recovery of waste products will become more profitable (and possible and/or easier) when the effects of chemicals have already been taken into account at the product design stage. A lower chemical load on the environment will reduce chemical exposure with adverse effects on a population's health. The safety of products and preparations on the market will improve.

4.2 Making efforts to minimise health and environmental risks posed by chemicals in public procurement

Objective and measures: The negative environmental effects of chemicals and chemical exposure posing health risks to workers and facility users will be reduced.

- Tools required for health and environmental impact assessments will be developed in public procurement.
- Chemicals harmful to human health and the environment will be taken into account in procurement guidelines and criteria for different product groups. Ecolabel criteria will also be used in procurement procedures (including Nordic and EU Ecolabels).
- Public organisations will be encouraged to set sustainable development objectives for procurement (incl. minimising risks posed by the use of hazardous chemicals) and to monitor the achievement of these objectives.
- Efforts will be made to develop a 'one-stop shop' model for advisory services and support procurers' competence in including a chemicals perspective in public procurement procedures.

Responsible parties: Public procurers, Sustainable Public Procurement Advisory Service (Motiva), YM, STM, SYKE, KL

Impacts: Lower exposure to harmful chemicals will produce savings in areas such as (occupational) healthcare costs. Clear guidelines will enable faster and easier procurement decisions, resulting in savings. Procurement guidelines covering chemicals will create business opportunities for operators offering products/provision with lower health and environmental risks.

4.3 Promoting reduction and harmonised testing of hazardous substance releases from construction products

Objective and measures: The harmful effects of chemicals used in construction products on human health and the environment will be reduced. Exposure to chemicals in construction products posing health risks to workers will be reduced in the construction sector. Testing of hazardous substance releases will become harmonised.

- Drafting of national decrees concerning the essential technical requirements of construction products, such as products in contact with water intended for human consumption and national type approval decrees will be continued, while participating in international cooperation in the sector.
- Active contributions will be made at EU level to developing the classifications of hazardous substances in construction products, while following the standardisation work concerning hazardous substances in construction products carried out by the European Committee for Standardisation (CEN).

Responsible parties: YM, STM, construction product industries, construction businesses, VTT, TTL, THL, Tukes

Impacts: Exposure to chemical releases from construction products posing health risks will be reduced. The chemical load on the environment caused by construction products and processes will be reduced throughout their life cycles. European markets for responsibly manufactured low-emission construction products will grow.

4.4 Promoting the safe professional use of cosmetics

Objective and measures: Exposure to chemicals in cosmetics posing health risks to workers will be reduced in workplaces.

- Guidelines on the safe use of cosmetics will be prepared for professional users (such as hairdressers).
- Appropriate measures will be taken at the national level concerning the European Framework Agreement on the protection of occupational health and safety in the hairdressing sector signed by the European social partner organisations representing the sector in 2012.

Responsible parties: STM, TTL, Tukes, operators

Impacts: Occupational exposure and cases of related occupational diseases will decrease.

4.5 Promoting the proper and sustainable use of biocidal products (N)

Objective and measures: The proper and sustainable use of biocidal products will be promoted in order to reduce the environmental and health risks that they pose. Efforts will be made to ensure the availability of biocidal products essential to the functioning of society and less harmful to human health and the environment by means of an effective permit system and effective advisory services.

- The necessary risk reduction measures will be identified and determined as part of product approvals as the authorisation scheme for biocidal products expands to cover new product-types.
- The product-types to be targeted with measures will be selected on the basis of risks.
- Efforts will be made to promote the use and monitoring of and research into integrated pest management methods through targeted measures, while developing education, training and qualifications.
- Efforts will be made to intensify cooperation between stakeholders in development of best practices and communications. In communications, special attention will be paid to the proper and sustainable use of biocidal products.
- Efforts will be made to identify the biocidal product applications that are essential to the functioning of society.

Responsible parties: Tukes, YM, STM, MMM, TTL, THL, Luke, Evira, operators

Impacts: The harmful effects of biocidal products on human health and the environment will be reduced. Risk management measures will target the biocidal products that may cause the most harm to human health or the environment. More comprehensive monitoring data and targeted research will provide better information for risk management purposes. The products necessary to society will be available on the market.

5. INTERNATIONAL INFLUENCING

INTENDED IMPACT

Finland will have actively contributed to the goal of minimising the most significant harmful effects of chemicals on a global scale by 2020, in order to achieve the targets set in the Johannesburg Plan. Finland will be an active participant in international collaboration on chemical risk management and exchange of information.

RATIONALE

The global 2030 Agenda for Sustainable Development (the '2030 Agenda') and its Sustainable Development Goals will guide progress in sustainable development up until 2030. Sustainable management of chemicals and waste is also key to the implementation of the 2030 Agenda and its Sustainable Development Goals. In keeping with the Chemicals Programme, Finland's strategic framework for international chemicals management was drawn up in 2014 in consultation with various parties, with a view to achieving the best possible impact in terms of chemicals management. Moving forward, various Finnish parties aim to work towards promoting the objectives in keeping with the framework.

Global chemical problems have been addressed by adopting international agreements, such as the Stockholm Convention on Persistent Organic Pollutants (the 'Stockholm POPs Convention'), the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (the 'Rotterdam PIC Convention'), the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (the 'Basel Waste Convention'), and the Montreal Protocol on Substances that Deplete the Ozone Layer to the Vienna Convention for the Protection of the Ozone Layer (the 'Montreal Protocol'). In recent years, cooperation and synergies have been developed between the Stockholm, Rotterdam and Basel Conventions, in particular, in order to enhance their implementation especially at the national level. A further objective is to create synergies by also integrating the work of the Convention Secretariats where appropriate. In addition, the Minamata Convention on Mercury was signed in Japan in the autumn of 2013 to reduce the adverse effects of mercury. The Convention will enter into force once it has been ratified by 50 countries, which is tentatively estimated to take place in 2018.[48] Once in force, the Convention will prohibit the export and import of key products containing mercury as of 2020, among other things. The Convention also restricts international mercury trade and mercury production and imposes obligations concerning sustainable waste management and safe storage of mercury. The Convention is

48 The Minamata Convention entered into force 16 August 2017.

of particular importance to Finland and other Arctic countries, because mercury migrates across borders and accumulates in the polar regions.

The UN Strategic Approach to International Chemicals Management (SAICM) aims to improve chemicals safety worldwide. In addition to environmental risks, the Strategic Approach also covers consumer health and workers' occupational health issues, as well as all the relevant work areas and different sectors. Its further objectives are to prioritise chemical risk management measures of international and regional importance, to agree on the necessary financing and development measures, and to ensure that chemicals safety is included as part of development cooperation. In particular, the strategy aims to promote implementation of existing international instruments and mechanisms concerning chemicals management and to build capacities and raise awareness in different areas of chemicals management in developing countries. The work to develop a Beyond-2020 Framework for chemicals management following the SAICM has already started. The 2030 Agenda and its Sustainable Development Goals support consideration and prioritisation of chemical and waste issues at the national level.

The OECD has broad and diverse chemical cooperation, which has also benefited Finland. The OECD Chemicals Programme covers areas such as chemical risk assessment and management, test guidelines, classification and labelling of chemicals, good laboratory practice (GLP), pollutant release and transfer registers (PRTRs), pesticides, biocides and safety of nanomaterials.

Finland is chairing the Arctic Council from 2017 to 2019. This offers the country an opportunity to promote consideration of the special characteristics and vulnerability of the Arctic region in international processes concerning chemicals. As persistent organic pollutants (POPs) pose a threat to Arctic nature and indigenous people, the Arctic Council has considered it important to restrict the use and releases of POPs.

Another topical environmental problem that has received ever-growing attention is marine plastic litter, as plastics production has been increasing rapidly over the last few decades. It is estimated that plastics account for as much as 80–90% of marine litter. Marine plastic litter degrades into microparticles and nanoparticles, and it may contain harmful substances and function as a carrier of harmful substances present in the aquatic environment.

RECOMMENDATIONS FOR MEASURES

5.1 Promoting prompt ratification and effective implementation of the international Mercury Convention

Objective and measures: The harmful effects of mercury on the environment and the exposure of workers and the population to mercury will be reduced.

- Efforts will be made to ensure the effective implementation of the Minamata Mercury Convention.

Responsible parties: YM, STM, SYKE

Impacts: Mercury emissions to Finland will be reduced.

5.2 Participating in OECD chemicals cooperation, particularly in priority areas

Objective and measures: OECD chemicals cooperation will provide diverse benefits for managing the health and environmental risks of chemicals.

- Contributions will be made to the work carried out by the OECD Chemicals Committee and Chemicals Group and its subsidiary Working Groups (incl. test guidelines, safety of nanomaterials, good laboratory practice, biocides, pollutant release and transfer registers, and alternatives to animal testing).

Responsible parties: YM, STM, Tukes, SYKE, Fimea, FICAM

Impacts: The best efficiency ratio will be achieved by targeting OECD cooperation at the selected priorities. OECD countries will use harmonised test guidelines, risk assessment methods and a mutual acceptance of data (MAD) system, which will generate cost benefits for the administration and businesses.

5.3 Continuing work towards achieving the SAICM objectives in synergy with implementation of chemicals and waste agreements

Objective and measures: Chemical risk management will be improved and enhanced globally.

- Cooperation between international chemicals and waste agreements will be reinforced, consequently enhancing the joint implementation of the agreements and achieving savings in resources and costs.
- Efforts will be made to promote a permanent basis for financing in order to implement the agreements and the SAICM.
- Efforts will be made to promote broad cooperation between different sectors and stakeholders, including international organisations, operators, non-governmental organisations (NGOs) and the scientific community.
- There will be cooperation with bodies such as the World Health Organisation (WHO) in spreading chemical information globally and promoting risk assessment methodology.
- Contributions will be made to the development of the Beyond-2020 Framework for chemicals management to ensure that it will function more effectively than its predecessor (SAICM), include strong links to the Basel, Rotterdam, Stockholm and Minamata (BRSM) Conventions concerning chemicals and waste, and support achievement of the Agenda 2030 Goals.

Responsible parties: YM, STM, Ministry for Foreign Affairs (UM), SYKE, TTL, Tukes, other concerned parties

Impacts: In the long term, chemical risk management will improve globally on the current level.

5.4 Contributing to strengthening chemical risk management in the Arctic and neighbouring regions

Objective and measures: Consideration of the special characteristics and vulnerability of the Arctic region in international processes concerning chemicals will be promoted to strengthen chemical risk management and prevent health and environmental hazards. Chemical risk management in the neighbouring regions will be improved, which will also contribute to reduction of environmental effects caused by harmful emissions in Finland.

- Efforts will be made to identify the needs and opportunities to strengthen the Arctic dimension at the conferences of parties to international chemicals and waste agreements, as part of the SAICM and other key international processes during Finland's Arctic Council Chairmanship (2017–2019). Action will be taken through the Arctic Council Working Groups (ACAP, AMAP), wherever possible.

Responsible parties: YM, SYKE, UM, STM

Impacts: In the long term, chemical risk management will become stronger and adverse health and environmental effects will be reduced in the Arctic region. Releases of harmful chemicals used by Russian industries and agriculture will decrease in the long term. The quantities of harmful substances migrating to Finland will probably decline. Solving and reducing chemical risks in the neighbouring regions may create business opportunities for Finnish enterprises.

5.5 Promoting reduction of marine plastic litter and harmful substances contained and bound in litter at an international level (N)

Objective and measures: Contributions will be made to reducing marine plastic litter, in particular from land-based sources, both regionally and globally, by promoting changes in consumer behaviour and production methods, making use of life-cycle thinking.

- Efforts will be made to promote global action on and research into reduction of marine plastic litter and prevention of releases and to strengthen the knowledge base in support of decision-making processes in international and regional cooperation frameworks, including the United Nations Environment Programme (UNEP), the Baltic Marine Environment Protection Commission (HELCOM), the Nordic Council of Ministers (NCM), the Arctic Council (AC), the OECD chemicals cooperation and the European Union's work on marine litter.

Responsible parties: YM, STM, UM, SYKE

Impacts: The introduction and dissemination of plastics into the environment, biota and, consequently, into the human diet, especially as a result of land-based activities, will be prevented and reduced.

5 Implementation and monitoring of the programme

The programme's recommendations will be implemented in line with the principle of sectoral responsibility. The organisations participating in implementation are listed under each recommendation for measures. The party/parties responsible for initiating and coordinating a measure is/are shown in boldface under each measure. It is necessary for the Advisory Committee on Chemicals to monitor the implementation of the recommended measures on an annual basis.

The programming period will end in 2020, by which time the need and methods to conduct a review of the programme's implementation will be established in cooperation between the Ministry of the Environment and the Ministry of Social Affairs and Health. At the same time, they will explore the need to prepare a new National Programme on Hazardous Chemicals and its potential drafting procedure.

6 Impact assessment of the recommendations for measures

As part of drawing up the 2012 interim review and revision, the working group conducted a questionnaire survey to assess the impacts of the recommendations for measures. An overview was given of each recommendation's desired impacts on the environment, human health, public finances and companies. The recommendations will also have side effects, which may be positive or negative, as well as desired or other impacts. In addition to desired impacts and side effects, the assessment also examined costs, with a view to ensuring a balance between the necessary resources and targeted outcomes. The proposed measures will require resources from the private sector or public authorities, but the resource requirements were considered to be reasonable relative to the achievable benefits.

The assessment also paid attention to the dispersion of the responses to the survey and any conflicts of interests involved.

As a result of the working group's impact assessment and discussions, no recommendations for measures were identified that would lead to significantly conflicting impacts. Many recommendations will be further specified during implementation, at which point it will be possible to assess their impacts in more detail, where required.

Based on the present interim review, the working group proposes six new recommendations for measures, two of which build on the recommendations adopted in the previous programme revision. The completely new recommendations for measures are as follows: **1) Promoting sustainable chemistry; 2) Reducing exposure to sensitisers; 3) Promoting the proper and sustainable use of biocidal products; and 4) Promoting reduction of marine plastic litter and harmful substances contained and bound in litter at an international level.**

As this newly conducted revision of the National Programme on Hazardous Chemicals mostly puts forward further specifications aiming to support the implementation of the recommended measures extending through to 2020, it was not considered necessary to

conduct a completely new impact assessment. In this context, only the impacts of the completely new recommendations were assessed in cooperation within a SYKE expert group.

Environmental and health impacts and other impacts

All the new recommendations for measures aim to reduce the environmental and health effects of chemicals and manage the risks involved. The new recommendations complement the existing set of measures, so as to improve the coverage of the programme's overall objective.

The new measures proposed here will mainly have positive impacts on society, but their implementation will require targeting resources appropriately. Monitoring the measures and assessing their impacts will entail ensuring that information is collected systematically.

In practical terms, the measures included under *Promoting sustainable chemistry* focus on increasing knowledge and awareness, which usually has positive impacts. The measures will require allocating resources to new R&D activities, which will create conditions for new sustainable chemistry innovations. If successful, these measures will increase resource efficiency and boost the competitiveness of the national economy.

In practical terms, he measures under *Reducing exposure to sensitisers* focus on increasing knowledge and awareness of sensitisers and means to avoid sensitisation. The measures are expected to lead to changes in working methods and practices. If successful, these measures will reduce absences from work and boost productivity. As a side effect, the use of less sensitising methods and substitute products may increase.

The measures under *Promoting the proper and sustainable use of biocidal products* are based on developing administrative systems and enhancing implementation. Enhanced permit and advisory practices are expected to reduce the risks involved in the use of biocidal products to people and the environment. As a side effect, the use of some biocidal products may decline, or they may be replaced with less harmful products.

The measures under *Promoting reduction of marine plastic litter and harmful substances contained and bound in litter at an international level* are based on increasing knowledge, which is expected to lead to concrete action to reduce the releases and migration of plastic litter over a period of time. As a side effect, plastic products may be collected more effectively or abandoned to some extent. These operations will promote the circular economy and closed loops.

7 Summary

The National Programme on Hazardous Chemicals has now gone through its second interim review, and the programme has been revised accordingly. The interim review and revision were carried out by a broad-based working group and a workshop, which included participants from key ministries, government agencies, research and expert institutes, and organisations operating in the field. The work draws on the programme's previous interim review and revision (2012) and the annual monitoring summaries of the Advisory Committee on Chemicals on the implementation of the programme's recommended measures.

The overall objective of the National Programme on Hazardous Chemicals is to ensure that chemicals cause no significant harm to human health and the environment in Finland in 2020. The programme covers the effects of chemicals on consumers, public health, occupational health and the environment throughout the life cycles of chemicals and products.

The revision of the Chemicals Programme included an analysis of key changes in the operating environment. The analysis paid attention to changes in the operating environment relevant to chemicals management, including the circular economy, the EU's Seventh Environment Action Programme, the 2030 Agenda for Sustainable Development and its Sustainable Development Goals, and the modernisation of the EU occupational safety and health legislation and policy. The analysis also explored the ways in which the programme could contribute to the sustainable use of biocides and application of the principles of sustainable chemistry and enhance the knowledge base on microplastics, while also considering workplace exposure to sensitisers. The key changes in the operating environment relevant to the programme help highlight the necessity of revising the programme.

The programme's impact areas and intended impacts remained unchanged from its 2012 interim review and revision. The revised programme puts forward reasoned recommendations for measures covering the following impact areas: 1) Achieving the objectives laid down in the EU's REACH and CLP Regulations and making use of new information; 2) Exposure data and monitoring; 3) Chemical risk assessment and risk management among industrial and other operators; 4) Reducing chemical risks posed by products and preparations; and 5) International influencing. The previous recommendations for measures

have been further specified and updated in all impact areas. Furthermore, some recommendations for measures were removed from the revised programme, because they were assessed to be complete in the interim review or could no longer be implemented for resource-related or other reasons.

In addition, the following four completely new recommendations for measures are proposed:

1. Promoting sustainable chemistry;
2. Reducing exposure to sensitisers;
3. Promoting the proper and sustainable use of biocidal products; and
4. Promoting reduction of marine plastic litter and harmful substances contained and bound in litter at an international level.

Proposals have also been made for the division of responsibilities for and cooperation in implementing the recommendations, while their impacts have been analysed diversely in terms of the primary objectives of protecting human health and the environment. General guidelines and concrete proposals have been put forward for implementation and monitoring of the programme. The programme's impacts on human health, the environment and society have also been assessed as a whole.

Appendix 1: Abbreviations

7th EAP	European Union Seventh Environment Action Programme
AC	Arctic Council
ACAP	Arctic Contaminants Action Programme
AMAP	Arctic Monitoring and Assessment Programme
AVI	Regional State Administrative Agency
BAT	Best available techniques or technologies
BBP	butyl benzyl phthalate
BRSM	Basel, Rotterdam, Stockholm and Minamata Conventions
CAD	Risks related to chemical agents at work (Directive 98/24/EC)
CE	The *Conformité Européenne* (European Conformity) marking for a product conforming to the requirements of the relevant Directives
CEN	European Committee for Standardisation
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, mutagenic and/or reproductive toxicants
COSK	Centre of Excellence for Serious Chemical Threats
DBP	dibutyl phthalate
DEET	N,N-diethyl-m-toluamide
DEHP	bis(2-ethylhexyl) phthalate
DIBP	diisobutyl phthalate
DNELs	derived no-effect levels
EC	European Community
ECHA	European Chemicals Agency
EEC	European Economic Community
EK	Confederation of Finnish Industries
ELY	Centre for Economic Development, Transport and the Environment
EU	European Union
Evira	Finnish Food Safety Authority
FICAM	Finnish Centre for Alternative Methods
Fimea	Finnish Medicines Agency
GHS	The UN's Globally Harmonised System of Classification and Labelling of Chemicals
GLP	Good Laboratory Practice
GMOs	genetically modified organisms
GTK	Geological Survey of Finland
HELCOM	Baltic Marine Environment Protection Commission (the 'Helsinki Commission')
HLPF	UN High-Level Political Forum on Sustainable Development
HTP	Concentrations known to be harmful (HTP values)
JLY	Finnish Solid Waste Association

KENK	Advisory Committee on Chemicals
KL	Association of Finnish Local and Regional Authorities
Luke	Natural Resources Institute Finland Luke
LVM	Ministry of Transport and Communications
Lynet	Finnish Partnership for Research on Natural Resources and the Environment
MAD	The OECD's mutual acceptance of data system
Metla	Finnish Forest Research Institute
MML	National Land Survey of Finland
MMM	Ministry of Agriculture and Forestry
MTT	MTT Agrifood Research Finland
NAP	National Action Plan
NCM	Nordic Council of Ministers
NGOs	non-governmental organisations
NLF	European Accreditation and Market Surveillance Regulation (EC) No 765/2008
OECD	Organisation for Economic Co-operation and Development
OPH	Finnish National Agency for Education
PAHs	polycyclic aromatic hydrocarbons
PBT	Persistent, bioaccumulative and toxic substance
PCBs	polychlorinated biphenyls
PFASs	perfluoroalkylated substances
PIC	Prior Informed Consent Procedure
POPs	Persistent organic pollutants
PRTRs	The OECD's pollutant release and transfer registers
RAPEX	The EU's Rapid Alert System for dangerous non-food products
RC	Responsible Care programme
REACH	Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
RKTL	Finnish Game and Fisheries Research Institute
RoHS	Restriction of Hazardous Substances Directive 2011/65/EU
SAICM	UN Strategic Approach to International Chemicals Management
SDGs	Sustainable Development Goals
SM	Ministry of the Interior
SME	Small or medium-sized enterprise
SOTERKO	Consortium of Expert Institutions on Health and Welfare
STM	Ministry of Social Affairs and Health
STUK	Radiation and Nuclear Safety Authority
SVHCs	substances of very high concern
SYKE	Finnish Environment Centre
TEM	Ministry of Employment and the Economy
THL	National Institute for Health and Welfare

Tike	Information Centre of the Ministry of Agriculture and Forestry
TTK	Centre for Occupational Safety
TTL	Finnish Institute of Occupational Health
Tukes	Finnish Safety and Chemicals Agency
UM	Ministry for Foreign Affairs
UN	United Nations
UNECE	UN Economic Commission for Europe
UNEP	United Nations Environment Programme
Valvira	National Supervisory Authority for Welfare and Health
vPvB	Very persistent and very bioaccumulative substance
VTT	VTT Technical Research Centre of Finland Ltd
VVY	Finnish Water Utilities Association
WEA	whole effluent assessment
WHO	World Health Organisation
YM	Ministry of the Environment

Definitions used in the programme

Exposure means a measurable quantity, a certain concentration or amount of chemical that can enter a target (an animal, an ecosystem, a human being, a population) over a certain period of time.

Chemical is a general term for a substance or mixture. 'Chemicals' refers to chemical elements and their chemical compounds as they occur in the natural state or as produced industrially (*substances*) and mixtures of two or more substances (*preparations*, such as paints, detergents, adhesives).

Chemical agent means any chemical element or compound, on its own or admixed, as it occurs in the natural state or as produced, used or released, including release as waste, by any work activity, whether or not produced intentionally and whether or not placed on the market.

Risk refers to a risk posed by a chemical; a measurable quantity, which depends on the dose levels that cause adverse effects and on the dosages to which the target is exposed. In other words, 'risk' means the probability of occurrence of harm; the significance of risk also depends on the severity of that harm.

Risk assessment means the identification of hazard and exposure as well as the characterisation of risk.

Risk management refers to implementation of measures to reduce the risks posed by chemicals. Selection of methods is preceded by comparison of the usability, efficacy and costs of different alternative solutions, among other things.

Product means an article composed of one or more substances or mixtures which has a specific shape, surface or design determining its end use function to a greater degree than its chemical composition does.

Hazard means a qualitative property of a chemical, i.e. that it has the potential to cause harm, such as liver damage, foetal damage or cancer. A hazardous property does not necessarily lead to any occurrence of harm, i.e. risk. Whether a chemical's hazardous property also poses any actual risk depends on the dose levels that elicit adverse effects and on the dosages to which the target is exposed.

Appendix 2: Sustainable Development Goals and targets

The Sustainable Development Goals are as follows:

1. End poverty in all its forms everywhere
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3. Ensure healthy lives and promote wellbeing for all at all ages
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5. Achieve gender equality and empower all women and girls
6. Ensure availability and sustainable management of water and sanitation for all
7. Ensure access to affordable, reliable, sustainable and modern energy for all
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9. Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation
10. Reduce inequality within and among countries
11. Make cities and human settlements inclusive, safe, resilient and sustainable
12. Ensure sustainable consumption and production patterns
13. Take urgent action to combat climate change and its impacts
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17. Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development

Targets supporting chemical risk management include:

2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.

6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead.

11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.

12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species.

Finland's National Programme on Hazardous Chemicals has now gone through its second interim review, and the programme has been revised accordingly. The programme puts forward recommendations that help reduce the adverse effects of chemicals on human health and the environment. However, more information is still required on exposure of the population and workforce to chemicals and the environmental load caused by hazardous substances. As part of promoting the circular economy, it is also necessary to consider the risks of hazardous substances contained in the materials and possibilities to use non-harmful alternatives instead.

The programme puts forward the following new recommendations for measures: promoting sustainable chemistry, reducing exposure to sensitisers in workplaces, preparation of instructions for sustainable use of biocides, and taking international action to reduce marine plastic litter and harmful substances contained and bound in these. The recommendations pay attention to communication, practical dissemination of chemical information and cooperation between authorities.

The objective of the National Programme on Hazardous Chemicals is to ensure that chemicals cause no significant harm to human health and the environment in Finland in 2020. Its intended impacts include achieving the objectives laid down in the EU's REACH and CLP Regulations and making use of new information; developing exposure data and monitoring as well as chemical risk assessment and risk management among industrial and other operators; reducing chemical risks posed by products; and international influencing.

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