



A HEALTHY PLANET FOR HEALTHY CHILDREN

Policies for a Future without Toxics

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Dear Reader,

Chemical pollution has crossed one of the “planetary boundaries”.¹ There are an estimated 350,000 chemicals and chemical mixtures on the global market.² These include plastics, pesticides, industrial chemicals, chemicals in consumer products, and pharmaceuticals. Many chemicals are usually found in products we live with and use daily. Currently, about six per cent of the world’s disease burden and eight per cent of deaths can be attributed to chemicals.³ This is expected to drastically increase as “the toxification of planet Earth is intensifying”⁴ and global production is projected to double by 2030,⁵ whilst at the same time only few toxic substances have been phased out. Moreover, with the melting of arctic ice and the thawing of permafrost due to global warming, toxics released by past generations that are captured in the ice will now enter water supplies and food chains,⁶ further underlining the global and mobile nature of the problems.

Toxic exposure in children is a significant concern; children are particularly vulnerable to the effects of hazardous chemicals due to their smaller size and hence greater relative exposure and because of their developing internal organs. As such, chemical safety plays an important role in protecting children’s health and calls for the sound management of chemicals and waste throughout their life cycles. Regulating and reducing exposure to hazardous chemicals is also essential to achieving the Sustainable Development Goals (SDGs), in particular SDG 3 (good health and well-being), SDG 5 (gender equality), SDG 6 (clean water and sanitation), SDG 8 (decent work and economic growth) and SDG 12 (responsible production and consumption).

In this policy report, the World Future Council (WFC) and United Nations Institute for Training and Research (UNITAR) aim to draw attention to the “silent pandemic” of disability and disease associated with exposure to hazardous chemicals and pollution during childhood. Let us break the silence! We encourage policy makers and key stakeholders to take effective action urgently. On the following pages you will find facts on selected hazardous chemicals and their impact on children’s health, insights into award-winning policy solutions that have been honoured with the Future Policy Award 2021, as well as a set of useful policy recommendations to advance the protection from hazardous chemicals.

The World Future Council would like to sincerely thank our partners and donors for their generous support.

Enjoy reading and do visit our website to find out more about the Future Policy Award – the “Oscar for Best Policies”.⁷

Yours faithfully,

The Future Policy Award Team

TOWARDS A FUTURE WITHOUT TOXICS

CONFRONTING THE SILENT PANDEMIC

Worldwide, children are surrounded by toxic chemicals that can enter their bodies. These chemicals can come from toys, personal care products, furniture, clothes, and food containers, amongst others. Children are more susceptible to adverse health effects from exposure to pollution and toxic chemicals. These adverse effects constrain the rights of children, unborn children, and future generations to a healthy environment and healthy development. The higher impacts of pollutants in children are due to the ratio between body weight and levels of exposure, as well as the faster development rate of children's tissues, organs, and biological systems, which make them unable to process and effectively excrete some toxic substances⁸. Hormone-disrupting chemicals in particular, also called endocrine-disrupting chemicals (EDCs), such as bisphenol A, phthalates, brominated flame retardants, certain pesticides, and heavy metals, can trigger diseases. These include, for example, certain child cancers, diabetes, obesity, neurological disorders, and cardiovascular diseases. Of particular concern are new findings on the impact of pollutants on fertility leading to a global decline in fertility by more than 50 per cent over the past 50 years⁹. Nowadays, most children are born "pre-polluted"¹⁰ in utero with numerous contaminants that impact several of their rights. Ensuring a safe environment for children to grow up healthily is therefore not only an ethical imperative, but a human right.

Children and vulnerable groups, especially in low and middle-income nations, are at risk because their elevated exposure, poor working conditions, limited knowledge about chemical risks, and lack of access to healthcare and safe housing exacerbate this environmental injustice. Moreover, millions of children are employed in potentially hazardous sectors, including agriculture, mining, and tanning.

Although there are national, regional, and global efforts in place to meet the goals set at the World Summit on Sustainable Development in 2002¹¹ of "minimizing the adverse effects of chemicals and waste in 2020", this goal has not yet been reached.¹² Therefore, achieving chemical safety remains a global priority to ensure the safety of children's health and the environment and to make a toxic-free future possible.

Prevention must be the paramount principle for achieving a non-toxic environment.¹³ Some components towards protecting human health include: applying the precautionary principle and the polluter-pays principle, developing and implementing measures to achieve zero pollution and zero waste, and enforcing laws. Two measures, for example, are the implementation of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) and encouraging the development of coherent and integrated information on chemicals, such as through national pollutant release and transfer registers. Furthermore, achieving chemical safety can have global economic benefits.



A SPOTLIGHT ON CHILDREN AND CHEMICALS



Annually, more than 1.7 million **PREMATURE DEATHS** among children under the age of 5 are caused by pollution and toxic substances.¹⁴



More than 90 per cent of the world's children breathe **TOXIC AIR** every day. In 2016, 600,000 children died from acute lower respiratory infections caused by polluted air.¹⁵



PESTICIDE POISONINGS have increased worldwide, from 25 million in 1990 to 385 million today.¹⁶



Rates of childhood **LEUKAEMIA AND BRAIN TUMOURS** have risen by more than 40 per cent in the last fifty years¹⁷ with approximately 400,000 children developing cancer annually.¹⁸



Exposure to **LEAD** causes 143,000 cases of deaths and 600,000 cases of intellectual disability in children every year.¹⁹



80
Hg

A reduction of global **MERCURY** emissions by 50 per cent – which would prevent the exposure of pregnant women and children – would result in global economic benefits of USD 2.2 billion.²⁰



One million children aged 5 to 17 are engaged in small-scale **MINES AND QUARRIES**, among them gold mining using mercury.²¹



Levels of arsenic, lead, and cadmium in **BABY FOODS** were found to be 5 to 177 times higher than permitted in the US.²²

33
As

Excessive levels of **ARSENIC** in some parts of the European region have been associated with adverse health outcomes, such as cardiovascular diseases, cancer, and diabetes with emerging evidence of negative impacts on foetal and infant development.²³



Between 30 per cent and 80 per cent of children could be overly exposed to **PHthalATES**.²⁴



ENDOCRINE DISRUPTING CHEMICALS represent an emerging global health problem and impact the endocrine system health in children, including effects in growth, metabolism, sexual development, and reproduction.²⁵ Early prenatal exposure to 26 suspected endocrine disruptors was related to lower IQ in children.²⁶



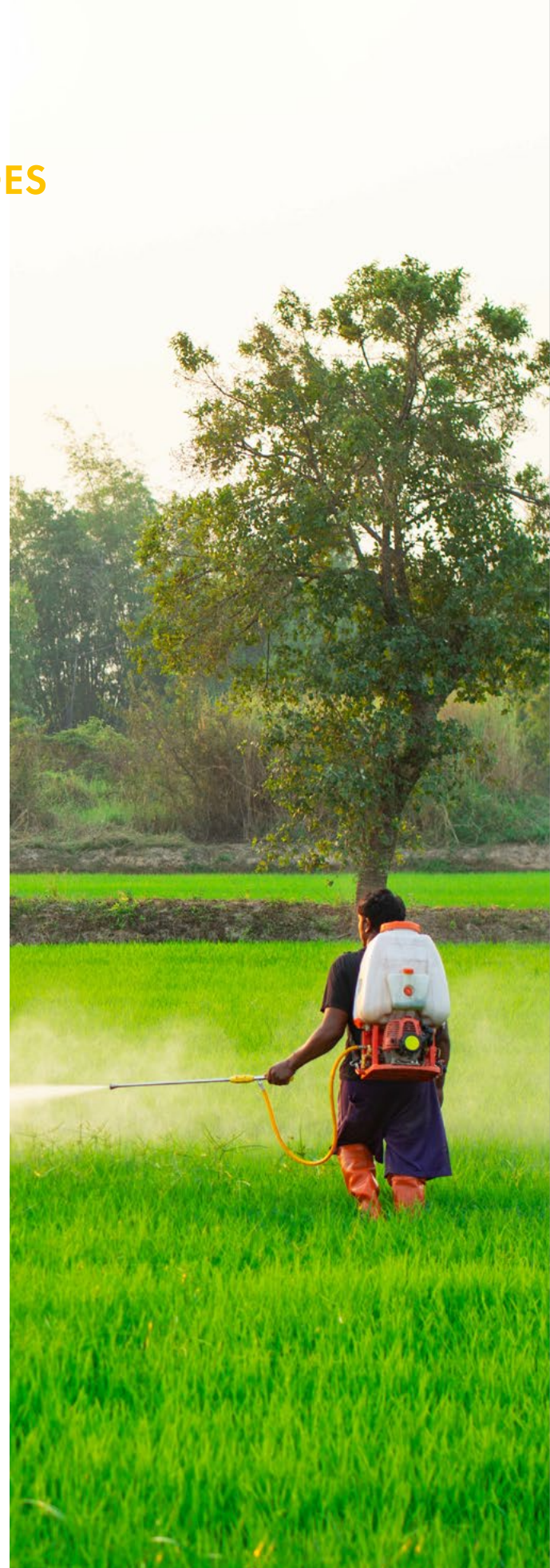
Over 4,000 **ACTIVE PHARMACEUTICAL INGREDIENTS**²⁷ are being used worldwide. Some may have unintended adverse effects on neonates²⁸ and humans via exposure through food and drinking water.²⁹

THE DANGEROUS ASSISTANTS

HIGHLY HAZARDOUS PESTICIDES

Pesticides are biologically active toxic compounds used in the control of parasites and target organisms and are deliberately released into the environment in large quantities. Nowadays, with about 4 million tons being applied annually – some with well-known, and many more others with unknown, health and ecological consequences – the use of pesticides is increasing worldwide.³⁰ Health risks associated with pesticide use include cancer, birth defects, damage to the nervous system, and dysfunctioning of the endocrine system. It is also associated with suicide mostly in low- and middle income countries³¹. Pesticide poisoning is a serious health problem that disproportionately affects children, mainly those working in the agriculture sector. Estimates assume that more than 70 per cent of all child labour (108 million children) are engaged in agricultural work.³² They regularly work in the fields during, or following, the spraying season when levels of pesticide residues are high.³³ While a number of pesticides are banned in the EU and some other countries, they are still in use in many low and middle-income countries.

Pesticides continue to represent a hazard in many countries, in particular if the storage of obsolete pesticides or disposal is inadequate, or when agricultural-strength pesticides are used at home. Pesticide residues in food can be harmful to health,³⁴ especially for children. In 2012, a study revealed that almost 67 per cent of manufactured baby foods contain pesticide residues.³⁵ Highly hazardous pesticides (HHPs) have been recognised as an issue of international concern and an UN-resolution adopted in 2015 calls for concerted action to address HHPs.³⁶ Many organisations have requested a progressive phaseout and ban of HHPs.³⁷ There is an urgent need for action to reduce dependency on pesticides worldwide³⁸ and to promote policies advocating healthy and sustainable food systems and agricultural production, including agroecological practices and other innovative approaches.³⁹



INSPIRING POLICIES

India: Sikkim's State Policy on Organic Farming (2004) and Sikkim Organic Mission (2010)⁴⁰ contributed to achieving the state's vision to become the first organic state in the world. The small northeast Indian state has succeeded in phasing out chemical pesticides and fertilisers gradually but resolutely and has converted the entire state to organic agriculture. This ambitious vision began in 2003 by adopting policies on organic farming in 2004 and implementing an action plan, "Organic Mission", in 2010. This is the result of strong political will and policy coherence, along with well-defined targets and implementation plans. The comprehensive policy combines mandatory requirements, such as gradually phasing out chemical fertilizers and pesticides, with the use of support and incentives. These policies were honoured with the Future Policy Gold Award in 2018, which highlighted policies scaling up agroecology (World Future Council, UN FAO and IFOAM – Organics International).

Sri Lanka's Control of Pesticides Act (1980, amended in 1994, 2011, and 2020) and its National Policy and Action Plan on Prevention of Suicide (1997)⁴¹ have been developed to address high pesticide poisoning suicide rates, mainly from easy access to HHPs. The pesticide regulations ensure that only pesticides that are the least hazardous to human health and the environment are available. The low-cost policies set up governing bodies to licence pesticides and regulate imports, labelling, and use, resulting in a ban on 36 HHPs. Since the implementation of the regulations, the country's suicide rate has been reduced by 70 per cent, particularly in rural villages and in children and young people aged 17 to 25 years. Together, these policies won the Future Policy Special Award 2021 in the category Highly Hazardous Pesticides.

Denmark's Action Plans on Pesticides (PAP, 2013–2021) and Organic Action Plan to Promote Organic Production (OAP, 2011–2020)⁴² today impact 100 per cent of the country's agricultural area, resulting in 13 per cent of the agricultural area being farmed without pesticides and, to a large extent, the phasing out of HHPs. The conversion of a flat tax on land into a green tax on pesticide consumption, in combination with a restrictive authorisation procedure for the approval of pesticides, proved to be highly effective. Revenues from the pesticide tax fully fund the Danish PAP and help finance several organic initiatives, including the country's Organic Action Plan. Denmark's PAP was shortlisted for a Future Policy Special Award 2021 in the category Highly Hazardous Pesticides, whilst Denmark's OAP received a Future Policy Silver Award in 2018 as an exemplary policy scaling up agroecology (World Future Council, UN FAO and IFOAM – Organics International).

Cuba's Programme for Agroecological Pest Management (MAP, 1993) and National Plan for Food and Nutrition Security (Plan SAN, 2020)⁴³ support Cuba's transition towards ecological agriculture to sustainably increase self-sufficiency and food sovereignty. As a key result, around 30 per cent of Cuba's agricultural area is managed without the use of agrochemicals and there is increasing availability and access to more diversified, fresh, and pesticide-free foods. Between 1990 and 2005, Cuba's pesticide consumption decreased by 77 per cent. Similarly, annual imports of pesticides show a constant reduction from 23,900 tonnes (1986–1990) to 9,900 tonnes (2010–2018). In addition, 31 HHPs have been phased out. Together, the two policies were shortlisted for a Future Policy Special Award 2021 in the category Highly Hazardous Pesticides.

THE INVISIBLE ENEMY

TOXIC METALS

Toxic metals, including heavy metals, are individual metals and metal compounds that humans are exposed to through anthropogenic activity that negatively affect people's health.⁴⁴ They include arsenic, beryllium, cadmium, hexavalent chromium, lead, and mercury.⁴⁵ Heavy metals are common air pollutants and have extensive applications in industries, homes, and agriculture. Cadmium, lead and mercury⁴⁶ are highly toxic with harmful consequences for fetuses and children's health that include mental retardation, neurocognitive disorders, behavioural disorders, respiratory problems, cancer, and cardiovascular diseases.

For children, there are no safe levels of lead exposure.⁴⁷ Exposure to lead results in the impairment of neurodevelopment in children, especially through the ingestion of contaminated soil, dust, and old lead-based paint due to hand-to-mouth activities in infants and young children. One of the leading causes of lead exposure is lead in paint, such as lead-based paints used in homes, children's toys, and household furniture.⁴⁸ Methylmercury is one of the most poisonous metals humans are exposed to through food chains, where it is found mainly in fish, in occupational settings, or via contact with products containing mercury. The artisanal and small-scale gold mining (ASGM) sector is the largest human-caused source of mercury, with mercury used to separate the gold from the amalgam.⁴⁹ In developing countries, children are often forced to work on mining sites and are continuously chronically exposed to mercury over longer periods.



INSPIRING POLICIES

UNEP's Model Law and Guidance for Regulating Lead in Paint⁵⁰ is an inspiring resource and instrument for policymakers and originates from a global partnership of international agencies and institutions. It aims to establish lead paint limits worldwide at the low threshold of 90 parts per million (ppm), and to prohibit the manufacture, sale, distribution, or import of lead paint with higher lead contents. A total lead concentration limit of 90 ppm is recommended by the UN.⁵¹ The Model Law guides countries with no pre-existing limits on lead paint or supports countries to modify their existing laws by developing, writing, and implementing effective regulations on lead paint. The policy was nominated for a Future Policy Special Award 2021 in the category Lead in Paint.

The Philippines' Chemical Control Order for Lead and Lead Compounds CCO (2013–2024)⁵² is the first Southeast Asian legislation that is successfully implementing the use of lead-safe paint. The policy comprises a roadmap with clear definitions, phase-out plans, and decisive instruments with special attention to children along with awareness-raising activities. It demonstrates that it is entirely possible to restrict the use of lead in all paints, including “industrial” paints, through extensive cooperative efforts of the various stakeholders, especially the paint industry and civil society, during policy formulation. The CCO serves as an example of the UN Environment Programme's Model Law and Guidance for Regulating Lead in Paint in action. The Philippine policy won the Future Policy Special Award 2021 in the category Lead in Paint.



Ethiopia's Lead in Paint Control Regulation No. 429/2018⁵³ serves the purpose of banning the manufacture, import, export, wholesale, distribution, and sale of any paint with a total lead concentration above 90 ppm in Ethiopia. The regulation provides clear definitions, including of the responsibilities of the paint industry and relevant government organs, and contains recommendations for safety measures and disposal. The collaborative partnership between all stakeholders, namely civil societies, the paint industry, and the government, in the formulation of the policy and its implementation stands out. The regulation takes inspiration from UNEP's Model Law and Guidance. This policy was shortlisted for the Future Policy Special Award 2021 in the category Lead in Paint.

Minamata Convention on Mercury⁵⁴ is the most recent global agreement on environment and health, entering into force in 2013. The goal is to minimise mercury exposure worldwide. One hundred and thirty-seven countries have joined the Convention as of May 2022.⁵⁵ Moreover, the convention requires parties in the ASGM sector to develop a National Action Plan (NAP) to tackle the use of mercury in gold mining. The policy was nominated for the Future Policy Special Award 2021 in the category Mercury. Inspired by the convention, many countries have submitted NAPs or revised their existing policies, some of which were nominated for the Future Policy Award 2021.⁵⁶

AIRING THE CURTAIN

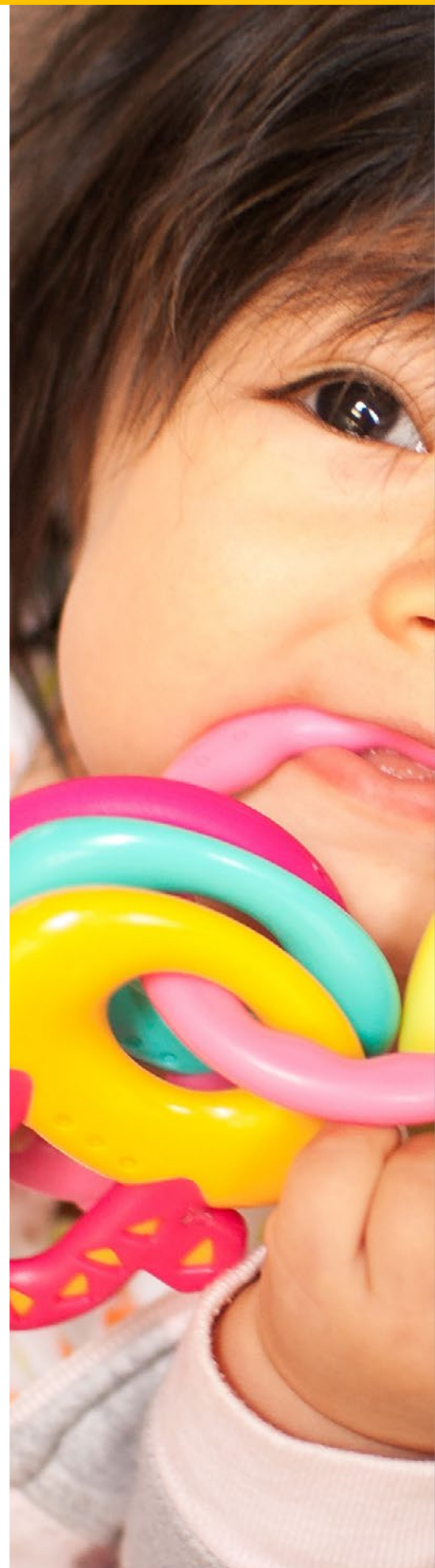
CHILDREN'S TOXIC CONSUMER PRODUCTS

Toys⁵⁷ and other products intended specifically for children are one category of a much larger set of consumer products that expose infants and children to toxic chemicals, such as personal care products, furniture, and food containers.⁵⁸ Alarming levels of some of the most toxic chemicals, including brominated dioxins and brominated flame retardants, were, for instance, recently found in consumer products made from recycled plastics (including children's toys).⁵⁹ These toxic chemicals can impact child health, development, and well-being, and some of them have severe effects on the hormone, reproductive, and immune systems, as well as on the liver and kidneys. Additionally, there is much that has, as of yet, not been researched at all. There are two major reasons why toys and other products contain toxic chemicals: lack of regulations and non-compliance with existing regulations.⁶⁰ One important step would be to strengthen national or regional chemical regulations, including making full ingredient disclosure and health warning labels on consumer products mandatory, in order to ensure product safety and protect consumers.



POLICY CASE STUDY

The Republic of Korea's⁶¹ Consumer Chemical Products and Biocides Safety Act⁶² (since 2019) is the government's response to the unprecedented chemical disaster caused by toxic humidifier disinfectants and sterilisers. With more than four million people exposed and thousands suffering health problems and death, the policy introduced precautionary measures to avoid future chemical disasters. This includes provisions to oversee the safety of chemical products, reduce blind spots, tighten safety standards, introduce a biocides approval system, and put strict follow-up management practices in place. Key features are safety and labelling standards, pre-market approval, voluntary agreements between civil society, government, and industry, where the latter voluntarily discloses all information about chemical substances in consumer products. The policy was shortlisted for the Future Policy Award 2021 in the category Chemicals Across the Life Cycle.





SUBSTANCES OF VERY HIGH CONCERN

Plasticisers⁶³ are used for shaping and softening products and phthalates are used as softeners in PVC plastic products and personal care products like shampoos and perfumes. These chemicals are not bound in the plastic substrate and can leach out, simply due to wear and aging as well as when children put teething products, toys or other products in their mouths, with research indicating this can cause problems including obesity and asthma.

Brominated flame retardants (BFRs)⁶⁴ are persistent toxic chemicals that contaminate, amongst other things, breast milk and umbilical cord blood⁶⁵. These chemicals are added to a wide variety of products to make them less flammable. They are commonly used in plastics, textiles, and electrical/electronic equipment including in toys, soft plastic teething products, sleep positioners, or mattress pads, footwear, bibs, baby changing mats, and pacifiers.

Poly and perfluoroalkyl substances (PFAS) are a vast group of man-made fluorinated compounds known as “forever chemicals”⁶⁶ because they do not break down in the environment and remain in soil and water for a long period of time. PFAS are used in stain and water-resistant coatings for fabrics and carpets, food packaging, stain-resistant furniture, and more. Whilst in the developed world, PFAS contamination has received significant scientific and political attention, this is not the case in less wealthy countries⁶⁷. Studies provide a link between exposure to some PFAS and numerous adverse health outcomes including cancer and elevated cholesterol⁶⁸, as well as effects on the hormone system⁶⁹.

Bisphenol A (BPA)⁷⁰ is used in combination with other chemicals to manufacture plastics and resins. It is mainly used in food contact materials present in food and liquid containers such as tableware (plates and mugs), microwave ovenware, cookware, in protective linings for food and beverage cans, as well as in toys. In the EU, the substance is listed as a substance of very high concern due to its endocrine disrupting properties regarding human health. Possible health effects of BPA are on the reproductive, nervous, immune and cardiovascular systems, and cancer.

THE UNRECOGNIZED DANGER

ENVIRONMENTALLY PERSISTENT PHARMACEUTICAL POLLUTANTS

In 2015, stakeholders formally adopted environmentally persistent pharmaceutical pollutants (EPPPs) as an emerging policy issue in the Strategic Approach to International Chemicals Management (SAICM) process.⁷¹ The increased use of pharmaceuticals,⁷² which escalated even more during the COVID-19 pandemic, the inadequate management of pharmaceutical residues, and unused/expired medicine endanger both the health of humans and the environment. About 4,000 active pharmaceutical ingredients are being administered worldwide and their active ingredients comprise a variety of synthetic chemicals produced at a rate of 100,000 tons per year.⁷³ Of particular concern is the increase in the reported detection of pharmaceuticals in various environments, particularly the water cycle.⁷⁴ For instance, high levels of antibiotics in drinking water are alarming because of the heightened risk of selective resistant bacteria. Furthermore, many low and middle-income countries face public health challenges regarding the improper management and disposal of medical waste, which is often mixed with general household waste, disposed of in municipal waste facilities, or dumped illegally. EPPPs may result in risks for children and foetuses via drinking water or food.

INSPIRING POLICIES

Colombia's Resolution 371 (2009)⁷⁵ regulates the collection and disposal of pharmaceutical residues and unused/expired medicine. The resolution's important feature is that it places the responsibilities and costs of implementation on the manufacturers and importers of pharmaceuticals and medicine, in line with the "polluter pays" principle. By 2018, a total of 680 manufacturers and importers participated in the policy, corresponding to 95 per cent of the market share. Moreover, a total of 2,593 take-back points had been established to collect medicine, covering 70



per cent of the population, and more than 930 tons of medicines had already been properly disposed of. As such, the resolution represents the first successful compulsory medicine disposal programme in Latin America, which is inspiring neighbouring countries to develop similar approaches. The policy won the Future Policy Special Award 2021 in the category EPPPs.

The Netherlands's Chain Approach Programme (2018-2022)⁷⁶ addresses concerns regarding both aquatic ecology and the production of safe drinking water. The Chain Approach Programme is preventive as it encompasses and implements measures across the entire life cycle of pharmaceutical products. This includes the phases of prevention, where possible, production, use, education, distribution, disposal, and wastewater treatment. It fosters a network of co-operation that did not exist previously by successfully bringing together actors from diverse sectors, such as public authorities and stakeholders from the health-care, pharmaceutical, and water industries. The Chain Approach Programme has informed the development of the EU's Strategic Approach to Pharmaceuticals in the Environment, which identifies strategies for improvements in action areas along the life cycle of pharmaceuticals. The policy was shortlisted for the Future Policy Award 2021 in the category EPPPs.

ACROSS THE LIFE CYCLE OF CHEMICALS

CHEMICAL SAFETY AND REGULATION

Chemical regulation is a very effective measure to reduce the use of harmful chemicals and related negative health effects.⁷⁷ Chemical regulations are crucial tools for countries to control chemicals produced, imported and used. Controlling chemicals in industrial processes, in consumer products (e.g., clothing, furniture) and chemicals used in everyday life (e.g., cleaning products or paints) must take place both in the early stages and at every stage of the life cycle of chemicals before and after entering the market.⁷⁸ As chemical safety includes all chemicals, both natural and manufactured, from their extraction, industrial production, transport use, and disposal across the life cycle, improved scientific, technical, and transparent knowledge is necessary to support global and national policies.⁷⁹ When developing chemical safety regulations, it is key to define the intentions and plans, including the roles and responsibilities of actors throughout the chemical supply chain (including importers), together with the regulations and implementation measures. The classification and labelling requirements based on the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), the dissemination of information on the safe handling of these chemicals, and bans and restrictions on the production and use of certain chemicals are preventive measures recommended by UNEP.⁸⁰ GHS regulations are essential for the sound management of chemicals and waste, including as a tool for the control and supervision of production, import, sale, use, and end-of-life management.



INSPIRING POLICY

Kyrgyzstan's Resolution No. 43 on Approval of the Chemical Hazard Classification System and Hazard Information Requirements (2015)⁸¹ established uniform requirements for the classification and labelling of chemicals, also facilitating international trade. Moreover, it set requirements for hazard communication to strengthen the effective management of chemicals. The drafting of the policy was conducted jointly by governmental agencies, representatives of chemical product manufacturers, retailers, and civil society organisations. The policy aims to better protect the health of the population and the environment as well as to ensure the free and safe trade in chemicals and chemical products. In addition, it supports the transition towards organic agriculture. The policy won the Gold Future Policy Award 2021 in the category of Chemicals Across the Life Cycle.

A USEFUL TOOL

PUBLIC PROCUREMENT

One important tool available to all levels of government to protect citizens and the environment from hazardous chemicals is public procurement. For a long time, its role has been underestimated. However, nowadays public procurement is seen as a strategic tool for achieving key policy objectives, such as tackling chemical pollution.⁸² Public procurement has enormous purchasing power, accounting for an average of 12 percent of the gross domestic product (GDP) and 29 percent of total government expenditure in OECD countries⁸³ and up to 30 percent of the GDP in many developing countries. Harnessing this purchasing power by promoting sustainable practices in public procurement can significantly support a nonpoisonous and more circular economy and therefore plays a key role in successfully inspiring change towards a healthy, toxic-free future.

INSPIRING POLICY

Region Stockholm (Sweden):⁸⁴ Phase-Out Lists for Chemicals Hazardous to the Environment and Human Health (2012–2016, revised for 2017–2021) identify and phase out toxic substances in stages in chemical products and goods in the procurement system. Region Stockholm has adapted two phase-out lists for chemicals hazardous to the environment and the health of citizens, employees, and patients. The lists comprise chemicals and chemical products used e.g., in healthcare, laboratories, dentistry, IT, cleaning, textiles, and allergy inducing fragrances or preservatives. The Region Stockholm lists are based on EU lists and prevent purchasing and procurement of chemicals and chemical products as well as articles and consumables containing toxic substances that fall within a large number of specified established categories, including that they may cause cancer; and may cause inheritable genetic damage. The lists are mandatory for all chemical



products procured by region Stockholm and are strictly applied. They are part of the Regions' environmental programme and vision of "a non-toxic Stockholm" by 2030⁸⁵ for the procurement of goods for the public sector. Since 2012 a significant proportion of hazardous chemicals have been phased out. The healthcare sector in particular saw a 90 percent reduction in the use of listed substances, decreasing volumes in weight from 1,100 kg to 115 kg. In terms of transparency, there is a five-year phase-out period to adapt to the new requirements and at the same time industry is encouraged to develop alternatives. The phase-out lists are updated every few years with increasingly higher requirements. They provide systematic procedures for district procurement units to monitor and comply with the council's environmental program. The phase-out lists won the Gold Future Policy Award 2021 in the category Chemicals Across the Life Cycle.

POLICY RECOMMENDATIONS

Seven Policy recommendations to protect children and unborns from the harm caused by hazardous chemicals⁸⁶

1 **Act as if millions of children's lives are at stake – because they are**

This precautionary principle calls for preventive action in the face of scientific uncertainty must be heeded to implement policies and programmes that effectively lower exposure to toxic chemicals and increase the chances for a child to lead a healthy life. National, state and local governments must invest more resources to raise awareness about the connection between children's health and toxic exposure. Countries should review and include a child rights-based approach in their environmental, climate, and health standards, policies, and programmes, reflecting their obligations under the UN Convention on the Rights of the Child, Agenda 2030 and other international agreements.

2 **Recognise that harm from chemicals crosses borders – and that solutions can too**

Testing methodologies, computer modelling, tools for grouping and classifying chemicals, and programmes that can quantify aggregate and cumulative exposures and perform rigorous hazard evaluations should be shared across countries and regions. The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) should be implemented universally in every country, which will also enable international trade. The inspiring policies in this report can be replicated by municipalities and countries around the world.

3 **Promulgate rules that recognise that every child is being exposed to more than one chemical at any given time**

Regulations must be designed to acknowledge aggregate and cumulative sources of exposure and to lessen the total health hazard by eliminating or controlling highly hazardous and high-exposure chemicals and identifying solutions like safer alternative methods and products. To effectively lessen the harm from aggregate and cumulative exposures, government agencies that regulate food, products, worker safety, and health and the environment must collaborate to lower exposures across the many sources. Exposure sources can be identified through biomonitoring and other exposure measurement efforts, particularly for those living in extreme poverty or in low-income, minority, indigenous, stateless, migrant, or refugee communities.

4 **Ensure that workers and communities that are being exposed to chemicals understand and can act on the dangers they are facing**

The promise of the ten-year UN process that resulted in the Globally Harmonized System of Classifying and Labelling Chemicals (GHS) needs to be fulfilled by ensuring that all users of all products containing hazardous chemicals have the information and the power they need to keep themselves, their families, their workplaces and their communities safe. To do this, safety data sheets (SDS) must contain comprehensive information. Both the SDS and information that appears on labels must be available and be fully understood by all of the product users. This requires education and training in a language that is designed and taught so it is understood and actionable. It also requires that the right of workers to organise and safeguard themselves on the job is fully protected. The education of health care providers and the public also needs to be expanded so the impact those hazardous chemicals have on the health of children and communities is more generally understood. Education should also be provided to vulnerable populations, including children, on the exposures they are facing and on what actions they can take to protect themselves. This awareness will be enhanced by requiring information and warnings about any potential chemical exposures on products that may not be included under national legislation implementing the GHS. Cooperation between manufacturers and retail businesses should be enhanced and policies to regulate imported products that contain hazardous chemicals and remove these products from store shelves must be implemented.

5 **Encourage corporate action for safer chemicals and products by using preferable procurement and other incentives as well as regulatory policies**

Responsible corporate leadership entails, for example, a chemical strategy that includes a list of chemicals of concern, which need to be identified and replaced in current products, as well as their supply chains, transparency and monitoring. Voluntary sustainable product certifications such as eco-labels that are reviewed by investors and other stakeholders, chemical footprinting, workplace standards and other corporate codes and/or other corporate codes of best practice that include chemical supply chain management and the transparent use of restricted substance lists all move us closer to a toxic-free future. The power of these tools is enhanced when governments use them in sustainable public procurement for goods and services and promote and encourage similar action from institutions and individuals.

Regulatory policies, such as REACH, the Cosmetics Directive, or the Public Procurement Directive in Europe, should apply the polluter pays principle, the precautionary principle and sustainable procurement and should be covering all areas of chemical management.

6 **Realise the power of effective regulations and cost recovery instruments that successfully drive down exposure**

Economics matter. The production, use, and disposal of highly hazardous chemicals must become less profitable than producing safer alternatives. Addressing chemicals doesn't stop with the adoption of legislation. At every level, effective regulation, including the principle of polluter pays, must be implemented and enforced (penalised, including financially) to limit the production and use of dangerous chemicals, reduce the risk of chemical facility disasters, clean up legacy sources of pollution, and require industry to internalise the externalised costs of contaminating water, air, land, and people, thus creating a level playing field for all market players globally. Enforcement is necessary to establish that the legislation can protect humans and the environment effectively. Policies should promote sustainable materials management and circular business models and support companies and start-ups that are introducing sustainable supply chain management, full material disclosure, risk reduction beyond compliance, and human rights policies. Transparency along the supply chain and access to information for all stakeholders is key for procurement and other decisions.

7 **Create the pathways to a toxic-free future by inspiring the evaluation and adoption of safer alternatives**

Motivate generations of chemical innovation by teaching young people green and sustainable chemistry principles throughout the formal and informal education system and include ethics in chemistry education.⁸⁷ Provide financial support for research and technology innovation and encourage investors to do the same. Bring together research institutions, governments, workers, communities, and other members of civil society to identify the most pressing problems and collectively craft solutions.

Encourage collaboration between academia, government, worker groups, and industry to integrate green and sustainable chemistry⁸⁸ in the chemical manufacturing process and support funding for research initiatives towards safer and healthier alternatives to existing hazardous chemicals.

Let us take action together!

A toxic-free future is possible!

ENDNOTES

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Children have the right to a clean, healthy and sustainable environment. This includes the right to be protected from exposure to toxic chemicals. This is an essential step in building the planet as a safe and equitable home for all. The policies and recommendations represented in this brochure demonstrate that real progress can be made toward a toxic-free future for all.

Dr Monika MacDevette

Chief of the Chemicals and Health Branch of the
UN Environment Programme (UNEP)



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Hazardous chemicals are a complex challenge and their management is a cross-cutting issue of the Agenda 2030. Failure in achieving chemical safety will cause a further setback to the achievement of the Sustainable Development Goals, which has already been hampered by the COVID-19 pandemic. Children's health and well-being are at stake. I truly applaud this publication for highlighting how policy can take action for the sake of children and future generations.

Nikhil Seth

UN Assistant Secretary General,
and Executive Director of the United Nations Institute
for Training and Research (UNITAR)



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With the COVID-19 pandemic, large numbers of children are now spending more time at home. Here, they might be exposed to harmful materials contained in toys and other items they are surrounded with. The policies and recommendations represented in this brochure are an important step towards a toxic-free future for all. We need to build back better now for a future for human and planetary health.

María Fernanda Espinosa Garcés

Co-Chair of the Rights of Children and Youth Commission,
World Future Council,
President of the 73rd General Assembly of the UN



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The World Future Council has dedicated its renowned Future Policy Award 2021 to the issue of protection against hazardous chemicals, with a special focus on children's health. With this brochure, we would like to draw attention to the particular dangers to which children are exposed through hazardous chemicals. At the same time, we present positive legislations that show that it is possible to protect children's health and have compiled recommendations for policy makers to advance the protection against hazardous chemicals.

Alexandra Wandel

Executive Director of the World Future Council