Criteria for elevation of obligations to progress SAICM Issues of Concerns (IoCs) in the post 2020 multilateral regime: The case of Chemicals in Products (CiP)

Introduction and current context

The Second International Conference on Chemicals Management (ICCM2) in 2009 adopted Chemicals in Products (CiP) as one of four emerging policy issues (EPI) within SAICM[1]. According to Resolution II/4, the Conference agreed (1) "to consider further the need to improve availability and access to information on chemicals in products in the supply chain and throughout their life cycle..." and (2) "to establish a working group ... with a mandate ... to review existing initiatives and other relevant information and *to develop a proposal for an information system or framework of systems and actions, where appropriate, to meet the need to improve availability and access of information on chemicals in products*" (emphasis added).

The resolution was adopted with a view to promoting implementation of paragraph 15(b) of the Overarching Policy Strategy. Toys, furniture, jewellery, cars, clothes and electronics were mentioned as relevant products.

The United Nations Environment Programme (UNEP) was assigned to lead and coordinate the work on CIP.[2] A process of stakeholder consultation led to the development of the Chemicals in Products Programme, adopted at the ICCM4 as the means for all stakeholders to advance on this complex issue.[3] The *Guidance on exchanging chemicals in products information*[4] was approved at that time as a practical means of implementing the CiP programme. The ICCM4 recognized the Guidance as a living document that was to evolve, under the review of the Steering Group, to address the needs of the SAICM stakeholders[5]

The ICCM4 also adopted the Overall Orientation and Guidance for Achieving the 2020 Goal of Sound Management of Chemicals (OOG)[6]. Among the 11 core elements for sound management of chemicals and waste are two that call for " … *systems for the transparent sharing of relevant data and information among all relevant stakeholders using a lifecycle approach*" and " … *development and promotion of environmentally sound and safer alternatives*". Transparency is a prerequisite for knowing whether hazardous chemicals are present in a product, and which chemicals could and should be substituted.

Only a few chemicals relevant to CiP are globally regulated by the chemical conventions. While some of the chemicals of concern defined in the CiP Programme[7] may partially fulfil the Stockholm Convention criteria, they do not meet the criteria for global transport through the environment. However, if used in products, these chemicals can quickly spread globally due to international trade. This may lead to acute or chronic health effects for those who come in contact with the products during the product life cycles, as well as for organisms exposed in the environment.

To be able to address the spread of chemicals of concern in international supply chains efficiently, we must first identify where they are found, and in which concentrations, which is why information disclosure about their presence in products and their constituent components is crucial. But since the ICCM4 in 2015, little has

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[1] SAICM/ICCM.2/10 http://www.saicm.org/Portals/12/documents/meetings/ICCM2/doc/ICCM2%2010%20emerging%20issues%20E.pdf. The other EPI were nanotechnology and manufactured nanomaterials, electronic waste and lead in paint.
[2] SAICM/ICCM.2/10, Add 1, Annex II
[3] SAICM/ICCM.4/10
[4] http://www.saicm.org/Portals/12/documents/meetings/ICCM4/doc/K1502355%20SAICM-ICCM4-11-e.pdf
[5] Ibid
[6] SAICM/ICCM.4/6 (http://www.saicm.org/Portals/12/documents/meetings/ICCM4/doc/K1501995%20SAICM-ICCM4-6-e.doc)
[7] See the definition in the CiP Programme document, SAICM/ICCM.4/ (http://www.saicm.org/Portals/12/documents/meetings/ICCM4/doc/K1502319%20SAICM-ICCM4-10-e.pdf)

happened within SAICM to meet the need for improved availability and access of information on chemicals in products.

This paper shows how the issue of Chemicals in Products meets the criteria proposed in the IP3 information document for moving IoCs to an increased level of obligation if progress so far has been insufficient[8]. It concludes by highlighting the need for a global system for sharing data and information concerning the chemicals of concern found in international supply chains.

The criteria applied to Chemicals in Products (CiP)

1. Failure to reduce acute poisoning and/or chronic effects by chemicals in products

Exposure of humans and the environment to a number of chemicals of concern via products clearly continues.

Brominated and chlorinated flame retardants are just one example of a group of chemicals often found in upholstered furniture, electronic goods and even in children's toys made from recycled e-waste. These chemicals are semi-volatile; they will migrate out of the products to which they have been added into household dust. Young children are especially vulnerable because of hand-to-mouth and crawling behaviour.

Brominated flame retardants are among the most hazardous chemicals on the planet because of their persistency in the environment. They have been found in the casings and wire insulation of old electronics and appeared in polystyrene foams and plastics for electronics and cars. The global report *Toxic Loophole: Recycling Hazardous Wastes into New Products*[9] shows that consumer products, including toys, made from recycled electronic waste are contaminated with "flame retardant chemicals, which are found in electronic waste and are restricted on health and environmental grounds." BFRs including PBDEs, HBCDs and TBBP-A have induced endocrine-, reproductive- and behavior effects in laboratory animals. Furthermore, recent human epidemiological data demonstrated association between exposure to BFRs and similar adverse effects as observed in animal studies[10]. While some brominated flame retardants are regulated under the Stockholm Convention, in a number of cases they have been substituted by closely related chemical compounds also found to harm human health and the environment.

Another group of chemicals of concern found in many consumer products are the bisphenols, including bisphenol A and its structural analogues. Bisphenols are found in canned food liners, plastic containers, and teething toys, to name a few of their uses. A recent study found a growing body of human epidemiological studies, including evidence streams indicating links to diabetes, obesity and oxidative stress, as well as suspected impacts on the reproductive system, neurological development and cancer[11].

Some phthalates found in personal care products, toys, flexible polyvinyl chloride (PVC) pipes and flooring, and more, are also considered endocrine-disrupting substances[12]. They are not chemically bound to plastic polymers and therefore easily migrate from products, particularly when such products are exposed to high temperatures.

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[8] Information document for IP3 (http://www.saicm.org/Portals/12/documents/meetings/IP3/stakeholders/NGO-Information-doc-on-IoC-criteria.pdf).

[9] Toxic Loophole: Recycling Hazardous Waste into New Products (https://ipen.org/sites/default/files/documents/TL_brochure_web_final.pdf)

[10] Lyche, J.L., Rosseland, C., Berge, G., Polder, A., 2015. Human health risk associated with brominated flame retardants (BFRs). Environment International 74, 170-180

[11] Pelch K., Wignall, J.A., Goldstone, A.E., Ross, P.K., Blain, R.B., Shapiro, A.J., Holmgren, S.D., Hsieh, J.-H., Svoboda, D., Auerbach, S.S., Parnham, F.M., Walker, V., Rooney, A., Thayer, K.A., 2019. A scoping review of and toxicological activity of bisphenol A (BPA) structural analogous and functional alternatives. Toxicology 424, 152235.

[12] Endocrine disrupting properties to be added for four phthalates in the Authorisation List (https://www.echa.europa.eu/-/endocrine-disrupting-properties-to-be-added-for-four-phthalates-in-the-authorisation-list)

Some phthalates may cause infertility and have been connected to childhood obesity, asthma, cardiovascular diseases and even cancer[13, 14, 15, 16].

Globally banned short-chain chlorinated paraffins (SCCPs), industrial chemicals used in metalworking and as flame retardants and softeners in plastics, including as a PVC additive, can be found in PVC wallpaper, rain boots, slippers, baby bibs, beach balls, gym balls, plastic toys, and jump ropes[17]. These chemicals persist in the environment, are toxic to humans and wildlife, and are transported to remote areas far from the initial source[18].

2. Failure to reduce the levels of chemicals of concern found in products as measured in human and environmental samples

The leakage of BFRs from consumer products leads to exposure of humans from fetus to adulthood. The levels of BFRs in the general North American populations are higher than those in Europe and Japan and the highest levels are detected in infants and toddlers[19] .

Clinical data showed that over a dozen phthalates and their metabolites are ingested passively by people from the general environment, foods, and consumer products[20]. Phthalates can cross the placenta, have been measured in amniotic fluid in human studies, are present in breast milk, and can be measured in urine at all ages[21].

A recent review of the occurrence of bisphenol S showed that this substitute for bisphenol A is now ubiquitous in environmental samples, particularly in aquatic environments[22]. Like bisphenol A, bisphenol S has endocrine disruptive qualities.

These are just a few examples of chemicals of concern that increase or do not decrease in human and environmental samples.

3 Failure to reduce the volume of the production, use and disposal of substances of very high concern relevant to an IoC

The Global Chemicals Outlook II: From Legacies to Innovative Solutions – Implementing the 2030 Agenda for Sustainable Development presents projections that global consumption and production of chemicals and

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[13] Xia, B., Zhou, Q., Zhao, Y., Ge, W., Zhao, Y.,Sho, H., Song, Q., Zhou, Y., Shi, H., Zhang, Y., 2018. Phthalate exposure and childhood overweight and obesity: urinary metabolonic evidence. Environment International 121, 159-168.

[14] Franken, C. Lambrechts, N., Govarts, E., Koppen, G., Den Hond, E., ooms, D., Voorspoels, S., Bruckers, L., Loots, I., Nelen, V., Sioen, I., Nawrot, T.S., Baeyens, W., Van Larbeke, N., Shoeters, G., 2017. Phthalate-induced oxidative stress and association with asthma-related airway inflammation in adolescents. International Journal of Hygiene and Environmental Health 220, 468-477.

[15] Li, M.-C., Chen, C.-H., Guo, Y.L., 2018. Phthalate esters and childhood asthma: a systematic review and conger-specific meta-analysis. Environmental Pollution 229. 655-660.

[16] Scsukova, S., Rollerova, E., Bujnakova Mlynarickova. A., 2016. Impact of endocrine disrupting chemicals on onset and development of female reproductive disorders and hormone-related cancer. Reproductive Biology 16, 243-254.

[17] Toxic industrial chemical recommended for global prohibition contaminates children's toys (https://ipen.org/sites/default/files/documents/ipen-sccps-report-v1_5-en.pdf)

[18] Wang, X., Zhu, J., Xue, Z., Jin, X., Jin, Y., Fu, Z., 2019. The environmental distribution and toxicity of short-chain chlorinated paraffins and underlying mechanisms: implications for further toxicological investigation. Science of the total environment 695, 133834.

[19] Lyche, J.L., Rosseland, C., Berge, G., Polder, A., 2015. Human health risk associated with brominated flame retardants (BFRs). Environment International 74, 170-180.

[20] Benjamin, S., Masai, E., Kamimura, N., Takahashi, H., Anderson, R.C., Faila, P.A., 2017. Phthalates impact human health: epidemiological evidences and plausible mechanism of action. Journal of hazardous materials 340, 360-383.

[21] Ibid

[22] Wu, L.-H., Zhang, X.-M., Wang, F., Gao. C.-J.. Palumbo, J.R., Guo, Y., Zeng, E.Y., 2018. Occurrence of bisphenol S in the environment and implications for human exposure: a short review. Science of the total environment 615, 87-98.

chemicals in products, many of which are hazardous, will continue to grow in all UN regions[23]. For example production and consumption of plastics and electronics are according to this report expected to increase exponentially, and these are product categories that often contain many substances of very high concern.

A complicating factor is that, hazardous chemicals so far on a number of occasions have been substituted with structural analogues that have later proved to have similar health and environmental effects as the substituted chemical. Flame retardants and bisphenols are examples of this. This again underlines that information disclosure of the chemicals used in products is of outmost importance, for proper management of the products, development of appropriate regulatory responses, if necessary, and/or development of new chemical and non-chemical substitutes.

4 Insufficient monitoring of human and environmental impacts by Chemicals in Products

Monitoring of the presence and impacts of a number chemicals of concern relevant to the work of CiP is missing or is not conducted regularly, as also pointed out in some of the peer-reviewed papers quoted for criteria 1 and 2. Sufficient monitoring budgets are missing in most countries.

5 Significant costs for society in the absence of action to address an IoC, including healthcare costs for individuals and the state; loss of IQ and productivity; loss of pollinators, natural biological control of pests, and other ecosystem services; loss of biodiversity; and costs of chemical contamination of natural resources, such as air, soil and water including but not limited to large-scale environmental clean-up and remediation costs

Very few cost analyses with respect to health and environmental impacts are available for chemicals of relevance to the work on CiP, but those that are indicate substantial costs. For example, the aggregated costs to society, in terms of loss of IQ, fertility issues, autism, ADHD, obesity, diabetes, some tumours and premature deaths, due to exposure of the general population to a limited number of classes of EDCs in the European Union (EU) has been estimated to the order of 160 billion Euros annually (the estimate also includes organophosphate pesticides, but this component is not the biggest cost)[24]. When it comes to health impacts associated with exposure to per- and polyfluoroalkyl substances (PFAS), the annual costs in the European Economic Area are estimated to be 52-84 billion Euros[25]. The general lack of impact-cost information for chemicals calls for the precautionary principle, as well as more funds to perform such studies.

6 National regulations have failed to achieve sufficient improvement in the IoC[26]

National regulations form the base for sound chemicals and waste management and need to include systems for the collection and transparent sharing of data among all stakeholders in the life cycle of products, as stated in

[23] Global Chemicals Outlook Report II (https://wedocs.unep.org/bitstream/handle/20.500.11822/27651/GCOII_synth.pdf?sequence=1&isAllowed=y)
[24] Trasande, L., Zoeller, R.T., Hass, U., Kortenkamp. A., Grandjean, P., Myers, J.P., DiGangi, J., Hunt, P.M., Rudel, R., Sathayanarayana, S., Bellanger, M., Hauser, R., Legler, J., Sakkebaek, N.E., Heindel, J.J., 2016. Burden of disease and cost of exposure to endocrine disrupting chemicals in the European Union: and updated analysis. Andrology 4, 565-572.
[25] The cost of inaction: A socioeconomic analysis of environmental and health impacts linked to exposure to PFAS. (http://norden.diva-portal.org/smash/get/diva2:1295959/FULLTEXT01.pdf)
[26] IoC is not part of the national implementation plans; IoC is not included in national budgets; no national regulations developed to address particular IoC; no control measures are applied to monitor results on addressing IoC; the IoC has global dimensions and cannot be addressed efficiently by regulative measures in a single country, e.g. due to globalized trade.

the SAICM OGG.[27] But most countries still lack legislation to regulate transparency for chemicals within and outside supply chains. This should urgently be addressed.

However, national initiatives alone cannot address the full scope of the issue of CiP. The economy is globalized, usually with supply chains for materials and components of products involving many countries, with different chemicals regulated in the various national legislations, degrees of law enforcement and compliance controls. Banned and restricted chemicals are regularly found in imported products, as attested by numerous surveys around the world. For example, a 2014 EU survey showed that around 10% of the sampled imported textiles were non-compliant with EU legislation, with respect to banned and restricted chemicals[28]. Even chemicals banned under the Stockholm Convention were found in consumer products.[29] This report also demonstrated the dilemma of non-disclosure of information on chemicals in products and recycling.

In summary, it is clear that national, and even regional, legislation is insufficient to secure that products are free from hazardous chemicals, and that information on their presence is properly disclosed.

7 Regional regulations for addressing an IoC are in place, or under development[30]

An important regional initiative is under development in Europe to address information about chemicals in products, since the voluntary SAICM approach to information disclosure in the CiP Programme is insufficient. The EU is in the process of transforming its economy into a circular one[31], and circularity is also increasingly recognized beyond the EU as an important strategy to address the Agenda 2030. Circularity and the need to prevent or minimize hazardous chemicals in material cycles were emphasized as important in the UNEA4 resolution UNEP/EA.4/L.9[32].

Consequently, disclosure of chemical contents in products will become increasingly important. In this context, a particular priority for EU is the so called substances of very high concern (SVHC). These are chemicals classified as carcinogenic, mutagenic, toxic to reproduction, persistent, bioaccummulative, and toxic according the Globally Harmonized System for Classification and Labelling of Chemicals (GHS), or chemicals of equivalent concern, such as EDCs, i.e. basically corresponding to chemicals of concern, as defined in the CiP Programme[33].

Currently, 201 SVHCs are listed in the EU Chemicals Regulation REACH[34]. In 2018, the World Health Organization (WHO) pointed out in a report that recycling materials with SVHCs will have serious health consequences[35]. A publicly available product database with disclosure of SVHC content is planned to be launched by the EU at the end of 2019, and be fully operational by 2021[36]. This will be an important tool to support informed decision

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[27] First of the 11 core elements listed in the Overall guidance and orientation document for achieving the 2020 goal of sound management of chemicals (http://www.saicm.org/Portals/12/documents/meetings/ICCM4/doc/K1501995%20SAICM-ICCM4-6-e.pdf)

[28] European Chemicals Agency (ECHA) newsletter (https://newsletter.echa.europa.eu/home/-/newsletter/entry/3_15_rapex-keeping-european-consumers-safe-from-chemical-risks)

[29] Toxic Loophole: Recycling Hazardous Waste into New Products (https://ipen.org/documents/toxic-loophole-recycling-hazardous-waste-new-products)

[30] Regulations in one or two regions proved the effectiveness of advancing the IoC beyond SAICM and moving it to the next level with increased obligations at the regional level, for example, the EDCs regulation in the EU. Such regional regulation is an acknowledgement of the necessity of an obligatory approach. This criteria is necessary to create a level playing field for all countries, so that those that are proactive in protecting human health and the environment from chemical threats are not disadvantaged on the global market. It reflects the Rotterdam Convention where regulatory action in two UN regions stimulates the listing of a chemical or pesticide under the Convention.

[31] EU and circular economy (https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/towards-circular-economy_en)

[32] UNEA4 resolution UNEP/EA.4/L.9 on the sound management of chemicals and waste (https://papersmart.unon.org/resolution/uploads/k1900787.pdf).

[33] See the definition in the CiP Programme document, SAICM/ICCM.4/ (http://www.saicm.org/Portals/12/documents/meetings/ICCM4/doc/K1502319%20SAICM-ICCM4-10-e.pdf)

[34] Candidate List, REACH (https://www.echa.europa.eu/candidate-list-table)

[35] Circular economy and health: opportunities and risks (http://www.euro.who.int/en/publications/abstracts/circular-economy-and-health-opportunities-and-risks-2018)

[36] SVHC database (https://echa.europa.eu/sv/-/new-database-on-candidate-list-substances-in-articles-by-2021)

making by manufacturers and consumers, support substitution work, and protect the circular economy from recycling of improper materials.

8 Failure to establish an effective, transparent multi-stakeholder working platform on an IoC

Although a multi-stakeholder Steering Group is in place for the CiP work, relevant stakeholders downstream of chemical manufacturers in the supply chains of products, such as recyclers and waste managers, are not represented, and may have been insufficiently consulted in the process of developing the CiP Programme, so that the programme is not properly reflecting their needs. Delegates at ICCM4 recommended to include representation from the recycling sector into the Steering Group. However this has not yet been done.

Progress in the programme is hampered by product manufacturers repeatedly referring to confidential business information, even though the programme clearly states that "information on chemicals relating to the health and safety of humans and the environment should not be regarded as confidential". This deadlock is a serious obstacle for the realization of a safe circular economy.

9 Failure to make available the information necessary for addressing an IoC[37]

The three CiP Programme information objectives (see below) have largely not been fulfilled[38].

Box 4: Information objectives of the CiP Programme
1. Within supply chains, to know and exchange information on chemicals in products, associated hazards and sound management practices.
2. To disclose information of relevance to stakeholders outside the supply chainto enableinformed decision-making and actions about chemicals in products.
3. To ensure that, through due diligence, information is accurate, current and accessible.

Transparency from chemical manufacturers is still not sufficient to allow downstream stakeholders in the supply chain of products, consumers, recyclers and waste dealers, to know that they handle products and associated waste properly throughout the product life cycles. There are some sector specific examples of information disclosure schemes for supply chains of products, developed independently of the CiP Programme, but they have no or limited transparency to stakeholders outside the sector, and may cover priority chemicals in sector specific standards that are not as comprehensive as desirable to stakeholders outside the sector. Thus, they may be of limited use to consumers, waste dealers and recyclers. Furthermore, there are multiple parallel standards created by the sector specific initiatives, which complicates the context, while one objective of the CiP work was to scientifically define which chemicals are of global concern in products. The CiP Programme, if properly

[37] Confidential business information currently takes precedence over transparency, despite the clear message in SAICM that information on chemicals relating to the health and safety of humans and the environment should not be regarded as confidential.
[38] SAICM/ICCM.4/10 (http://www.saicm.org/Portals/12/documents/meetings/ICCM4/doc/K1502319%20SAICM-ICCM4-10-e.pdf)

implemented to disclose information on hazardous chemicals, could support the development of a safer circular economy, but now fails to do so.

Waste handling and recycling operations in low and middle income countries often take place in informal sectors. Informal sectors will most likely remain important for an unforeseeable time, and have the potential to create jobs in a circular economy. Workers of all genders and ages in informal sectors are often marginalized, poor and thus particularly vulnerable to injury and illness from hazardous chemicals, and associated costs for treatment of medical issues, or loss of income. The only way to efficiently protect them is at source elimination of hazardous chemicals in the materials of products by the manufacturers, which first requires information disclosure for hazardous chemicals.

The importance of availability and access to information as the way forward

According to the SAICM CiP Programme, access to information on chemicals in products to all stakeholders "within the supply chain" and "outside the supply chain" is important to meet their needs. Access to information is often linked to the role stakeholders have in ensuring that their products and services are safe to health and the environment.

Access to information throughout the life cycles of products is a prerequisite for:

- Safe handling of materials and associated waste during product manufacturing and recycling within the supply chains. This has a direct link to the UN Guiding Principles on Business and Human Rights, which, inter alia, clarifies: "States have an obligation to protect against human rights abuses due to business activities, including abuses arising from toxic chemicals and wastes"[39, 40].
- Safe handling of products during their lifespan and disposal of them as waste. This has implications for stakeholders outside the supply chain, including consumers. Their purchasing decisions can be affected by the information about chemicals in products.
- Safe circular economy, in which materials are toxic free, based on informed choices between reuse, recycling and other means of disposal/destruction of waste.

Challenges that urgently must be addressed include:

- Lack of or insufficient understanding among product manufacturers that transparency is a core prerequisite for a life cycle responsibility, and the establishment of a safe circular economy. Indiscriminate recycling of materials of unknown chemical composition may put human health and the environment at risk, while undermining consumer trust in circularity, which could be a very important strategy to advance the work with the SDGs. The CiP Programme fails to support a circular economy, as many manufacturers refer to confidential business information (CBI).
- Chemicals of concern, as defined by SAICM criteria, should be listed and covered by one global minimum standard of disclosure, valid for all business, instead of having several parallel business specific standards. This will create an even global playing field for industry and save costs. Per se, chemicals of concern cannot be covered by confidential business claims, in line with the CiP Programme. Companies/businesses that need more extensive or detailed disclosure can set up additional systems.

[39] Guiding Principles on Business and Human Rights (https://www.ohchr.org/Documents/Publications/GuidingPrinciplesBusinessHR_EN.pdf)
[40] Office of the High Commissioner for Human Rights (OHCHR) introductory training on the Guiding Principles on Business and Human Rights (https://www.ohchr.org/Documents/Issues/Business/ForumSession2/guidingprinciples_en.pdf)

- Lack of information about chemicals in products results in difficulties and unnecessary costs for countries/regions to enforce the laws within their own jurisdictions, without putting in place expensive control systems for imported products on their external borders, to check that chemicals banned or severely restricted in the own jurisdiction is not in imported products. This is a particular problem for low- and middle-income countries with limited resources.
- Lack of information about chemicals in products potentially results in widespread circulation of/perpetuates already globally banned or severely restricted chemicals in material cycles. There are examples of Stockholm Convention listed chemicals in material flows for recycling.

The work on CiP partly overlaps with the work on other current EPIs and IoCs, including Nanotechnology and Manufactured Nanomaterials, Hazardous Substances Within the Life Cycle of Electrical and Electronic Products, Endocrine Disrupting Chemicals (EDCs), and Perfluorinated Chemicals. As noted in ICCM 4 Report[41], "some emerging policy issues are expected to benefit from improving the availability of information on chemicals in products".

No global instrument is in place to account for, or regulate, chemicals of concern that are not covered by the chemicals conventions but are spread globally in international supply chains for products. Until the missing regulatory instrument is in place, 'SAICM 2[42]' is the only global process that we have to address this complex issue.

Consequently, , the 'SAICM 2' needs to support and secure substantial improvements in the work with CiP, as CiP is of such cross-cutting importance to many aspects of the work with chemicals and waste.

We believe it is urgent for the global community to elevate the work with CiP to the next level of increased obligations to stakeholders.

We recommend to set up a multi-stakeholder group to develop a strategy/action plan with concrete targets and obligations on stakeholders that will result in a global information system or framework of systems to meet the need to improve availability and access of information on chemicals in products, as foreseen already in 2009, and in line with the recommendation in resolution II/4 adopted at ICCM2.

For further information contact:

Andreas Prevodnik, SSNC: andreas.prevodnik@ssnc.se

Olga Speranskaya, HEJSupport: olga.speranskaya@hej-support.org

Alex Caterbow, HEJSupport: alexandra.caterbow@hej-support.org

Gretta Goldenman, Milieu: g.goldenman@milieu.be

[41] Toxic loophole: recycling hazardous waste into new products (https://ipen.org/documents/toxic-loophole-recycling-hazardous-waste-new-products)
[42] The successor to SAICM is here referred to as 'SAICM 2'.