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**Fourth meeting of the intersessional process considering the Strategic Approach and the sound management of chemicals and waste beyond 2020**

Bucharest, Romania, 23-27 March 2020

Item 6 of the provisional agenda<sup>1</sup>

**Any other business**

**Update by the United Nations Environment Programme on relevant work undertaken in response to United Nations Environment Assembly (UNEA) Resolution 4/8**

**Note by the secretariat**

The secretariat has the honour to circulate, in the annex to the present note, an update from the United Nations Environment Programme (UNEP) on relevant work undertaken in response to United Nations Environment Assembly (UNEA) Resolution 4/8. The document presented in the annex has been developed and submitted by UNEP and has not been formally edited by the secretariat.

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<sup>1</sup> SAICM/IP.4/1

## Annex

### Update by the United Nations Environment Programme on relevant work undertaken in response to UNEA Resolution 4/8

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#### Introduction

At the fourth session of the United Nations Environment Assembly (UNEA-4) (Nairobi, Kenya, 11-15 March 2019), delegates adopted Resolution 4/8 on the sound management of chemicals and waste. Among others, the Resolution contains mandates for the United Nations Environment Programme (UNEP) to prepare:

1. manuals on green and sustainable chemistry (see page 3);
2. a report on relevant issues where emerging evidence indicates a risk to human health and the environment (see page 8).
3. an assessment of options for strengthening the science-policy interface at the international level for the sound management of chemicals and waste. This assessment is provided under the information document **SAICM/IP.4/4.**

The first two documents are being prepared in response to mandates received from UNEA, the topics are also being discussed in the context of the intersessional process considering the Strategic Approach and sound management of chemicals and waste beyond 2020. Specifically, the Resolution requested the Executive Director, subject to the availability of resources and, where appropriate, in cooperation with the member organizations of the Inter-Organization Programme for the Sound Management of Chemicals, to:

- Synthesize UNEP's analysis of best practices in sustainable chemistry into manuals on green and sustainable chemistry, in consultation with relevant stakeholders, by UNEA5, and to continue the work on a holistic approach for the sound management of chemicals and waste in the long term, taking into account both the importance of the sound management of chemicals and the potential benefits of chemicals for sustainable development;
- Prepare a report by 30 April 2020 on relevant issues where emerging evidence indicates a risk to human health and the environment identified by SAICM, the GCO and under sub-paragraph (e) above<sup>2</sup>, including an analysis of existing regulatory and policy frameworks and their ability to address these issues towards the achievement of the 2020 goal, in particular for lead and cadmium;

This information document therefore seeks to update stakeholders participating in the intersessional process on the documents' development addressing each of the two mandates. Draft reports are made available:

1. the outline of the framework manual on green and sustainable chemistry is available [here](#) and
2. the short outline of the assessment report on issues of international concern is available [here](#), and will be replaced by the most recent version of the draft report on Issues of International Concern, as of 30 April 2020

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<sup>2</sup> Subparagraph (e) reads as follows: Follow trends in the design, production, use and release of chemicals and the generation of waste in order to identify issues of concern for future editions of the Global Chemicals Outlook and the Global Waste Management Outlook and catalyse sound management actions;

## 1. Update on the preparation of manuals on green and sustainable chemistry

*Advancing the sustainability of chemistry and a long-term holistic approach for the sound management of chemicals and waste*

*In response to Resolution 4/8 on Sound Management of Chemicals and Waste, adopted at the fourth session of the United Nations Environment Assembly*

(March 2020)

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### Background

The manuals on green and sustainable chemistry are being developed in response to the Resolution 4/8 adopted by the UNEA 4 that welcomed the analysis of best practices in sustainable chemistry and recognized the value of developing a better understanding of sustainable chemistry opportunities globally. The resolution requested the Executive Director, subject to the availability of resources and, where appropriate, in cooperation with the member organizations of the Inter-Organization Programme for the Sound Management of Chemicals (IOMC), to synthesize UNEP's analysis of best practices in sustainable chemistry into manuals on green and sustainable chemistry, in consultation with relevant stakeholders, by UNEA5, and to continue the work on a holistic approach for the sound management of chemicals and waste in the long term, taking into account both the importance of the sound management of chemicals and the potential benefits of chemicals for sustainable development.

The manuals are building upon two documents:

In 2019, the United Nations Environment Programme (UNEP) prepared the 'Analysis of Stakeholder Submissions on Sustainable Chemistry Pursuant to UNEA Resolution 2/7'3, which was made available as an information document for the fourth session of the United Nations Environment Assembly (UNEA-4) (Nairobi, Kenya, 11-15 March 2019). The report finds that:

- the concept of sustainable chemistry is widely used by stakeholders around the world;
- sustainable chemistry cases submitted address various stages of the chemicals and waste life cycle and illustrate the role of sustainable chemistry in achieving the SDGs;
- stakeholders have a broad understanding and interpretation of sustainable chemistry and welcome further work to facilitate a common understanding; and
- further steps in the context of the intersessional process to prepare recommendations regarding the Strategic Approach and the sound management of chemicals and waste beyond 2020 could include development of practical guidance on sustainable chemistry.

The Global Chemicals Outlook II (GCO-II), published by UNEP in 2019, lists among the implementation of actions up to and beyond 2020 to integrate green and sustainable chemistry in education, research, and innovation policies and programmes. It finds that:

- "green chemistry" focuses on reducing or eliminating the use or generation of hazardous substances in the design, manufacturing and application of chemical products, guided by the well-known 12 green chemistry principle;

- “sustainable chemistry” is evolving as a more holistic complementary concept which embraces green chemistry;
- recent discussions have expanded the sustainable chemistry concept in a direction where chemistry is contributing to sustainable development across its three dimensions, i.e. environmental, social and economic;

A draft concept note of preparation of manuals on green and sustainable chemistry was provided for the third meeting of the intersessional process (IP3), held in Bangkok, Thailand in October 2019 ([SAICM/IP.3/INF/9](#)). This note provides an update of the key milestones and activities since IP3 and outlines activities envisaged for completing the manuals on green and sustainable chemistry by the end 2020 the conceptual framework manual. It further introduces the conceptual framework manual on Green and Sustainable Chemistry.

### Key Milestones in the preparation of manuals on green and sustainable chemistry

The framework manual and at least one specific manual on green and sustainable chemistry will inform the ongoing discussions on a holistic approach for the sound management of chemicals and waste in the context of the intersessional process as well as UNEA. The manuals will contribute towards ensuring that the benefits of chemistry are maximized, and risks prevented through innovative and sustainable solutions and forward thinking by providing a point of reference for policy-makers as well as entrepreneurs and innovators in the chemical industry and downstream sectors.

#### ***Activities since the third meeting of the intersessional process (IP3).***

An annotated outline of the framework manual on Green and Sustainable Chemistry was presented at an expert consultation workshop held on 05-06 December 2019 in Geneva, Switzerland, which brought together key stakeholders and experts from governments, civil society, industry/private sector, academia, and inter-governmental organizations to guide the development of the manuals and agree on the structure. The annotated outline was further revised to take comments of this advisory group into consideration.

The annotated outline of the framework manual is available [here](#).

#### ***Next milestones activities.***

During the coming months, the framework manual will be finalized, and at least one specific manual will be developed. The following types of specific manuals were suggested during the stakeholder consultation workshop in December 2019: a summary for decision makers, a manual focusing on education, and/or a manual focusing on a specific sector (e.g. textile, buildings...).

During the course of 2020, stakeholder consultations will be organized with a view to reviewing and gathering input to the final draft of the framework manual and the specific manual(s). The stakeholder consultation will provide an opportunity for participants to provide feedback on the draft manuals on green and sustainable chemistry.

A consolidated draft of the manuals will be made available towards the end of the year, around October 2020, and will inform the inter-sessional process. Taking into account input received as a result of the stakeholder consultation, the manuals will be finalized and made available as information/working document in time for UNEA5, scheduled for February 2021.

## Structure and Outline of the framework manual on green and sustainable chemistry

The framework manual currently features 8 chapters. Chapter II and Chapter III describe “Why green and sustainable chemistry is needed” and “What are the elements embedded in green and sustainable chemistry”. The remaining Chapters (IV, V, VI, VII) describe “How can green and sustainable chemistry be achieved”.

### **Chapter I- Introduction**

The first chapter of the framework manual provides the mandate and background information of the concept of the green and sustainable chemistry. This chapter will also highlight the purpose and target audiences of the framework manual and it will further elaborate the methodology and approach that was undertaken to develop the manuals.

### **Chapter II- Chemistry and sustainable development: challenges and opportunities**

This chapter contains the following sections:

- Why is enhanced systemic action on green and sustainable chemistry needed?
- The evolving understanding of green and sustainable chemistry
- Chemistry in the broader system of materials and products flow: a lifecycle approach
- Sustainable materials and product design as a driver for innovation
- Green and sustainable chemistry in a developing country context

### **Chapter III- A deeper dive: what does green and sustainable chemistry aim to achieve?**

Green and sustainable chemistry aims to advance sustainable consumption and production and to provide desirable functions of production processes, materials and products without causing harm to human health and the environment. This Chapter contains the following sections:

- Minimizing chemicals hazards: Designing of chemicals, products and processes that minimize or eliminate the use and generation of hazardous substances (“benign by design”)
- Avoiding regrettable substitutions: Developing alternatives for chemicals of concerns without creating negative trade-offs
- Using sustainable feedstocks
- Advancing sustainable production
- Creating sustainable products
- Minimizing pollution
- Maximizing social benefits
- Addressing sustainability challenges
- Protecting workers and vulnerable populations
- Creating decent jobs and employment

### **Chapter IV- Science and technology innovations to advance green and sustainable chemistry**

This chapter contains the following sections:

- Resources and feedstocks
- Catalysis
- Solvents
- Process and engineering innovations
- Using traditional knowledge

### **Chapter V- Assessment tools, metrics and reporting to advance green and sustainable chemistry**

This chapter contains the following sections:

- Sustainability assessment and life-cycle metrics

- Green chemistry and engineering metrics
- Sustainable chemistry metrics
- Sustainability performance reporting and their chemistry dimension

***Chapter VI- Enabling instruments and policies to advance green and sustainable chemistry***

This chapter contains the following sections:

- Regulatory action and standards
- Labeling, certification and transparency
- Sustainable procurement (public and private)
- Sustainable supply chain management
- Sustainable and circular business models
- Knowledge-sharing and award programs
- Supporting policy principles and approaches
- Public-private partnerships

***Chapter VII- Enabling sector policies and programs to advance green and sustainable chemistry***

This chapter contains the following sections:

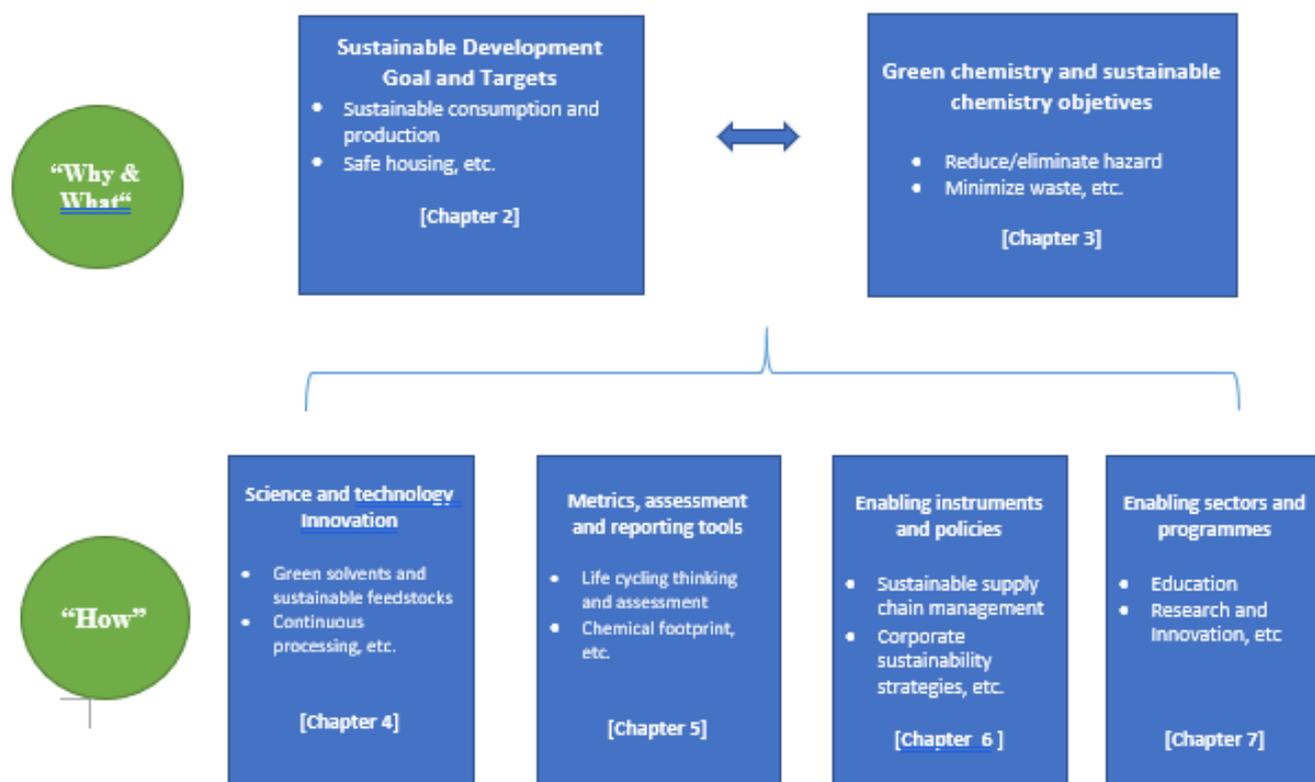
- Green and sustainable chemistry education
- Green and sustainable chemistry research, innovation and digitalization
- Green and sustainable chemistry financing

***Chapter VIII- Developing a green and sustainable chemistry road map***

Drawing upon examples in the public and private sector, this concluding chapter will make practical suggestion for actors to integrate green and sustainable chemistry consideration in their planning processes.

## Annex A:

## Advancing sustainability through green and sustainable chemistry



## 2) Preparation of a report on relevant issues where emerging evidence indicates a risk to human health and the environment

*In response to Resolution 4/8 on Sound Management of Chemicals and Waste, adopted at the fourth session of the United Nations Environment Assembly*

(March 2020)

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### Background

Resolution 4/8 on Sound Management of Chemicals and Waste, adopted by UNEA-4 (Nairobi, Kenya, 11-15 March 2019), requested the Executive Director subject to the availability of resources and, where appropriate, in cooperation with the member organizations of the Inter-Organisation Programme for the Sound Management of Chemicals (IOMC), to prepare a report by 30 April 2020 on relevant issues where emerging evidence indicates a risk to human health and the environment identified by SAICM, the GCO and under subparagraph (e) above<sup>3</sup>, including an analysis of existing regulatory and policy frameworks and their ability to address these issues towards the achievement of the 2020 goal, in particular for lead and cadmium.

The report on relevant issues where emerging evidence indicates a risk to human health and the environment will be presented to UNEA-5 as well as relevant meetings of the intersessional process to prepare recommendations regarding the Strategic Approach and the sound management of chemicals and waste beyond 2020. The report seeks to strengthen the knowledge base and thus help facilitate informed decision-making to address the relevant issues by governments, industry, civil society and academia.

### Approach in developing the report

A draft concept note of the report and its draft outline were provided at the third meeting of the intersessional process, held in Bangkok, Thailand in October 2019 ([SAICM/IP.3/INF/9](#)). This note provides an update on the development of an initial draft of the report. The link [here](#) contains the outline of the report, which will be replaced by the most recent version of the draft report on Issues of International Concern, as of 30 April 2020.

### Scope

The final report will feature the following substantive areas (further details provided below):

- An assessment of progress made by relevant stakeholders in addressing the Emerging Policy Issues (EPs) and other issues of concern identified under the Strategic Approach to International Chemicals Management (SAICM). The issues covered are: lead in paint; chemicals in products; hazardous substances within the life cycle of electrical and electronic products: nanotechnology and manufactured nanomaterials; per- and polyfluoroalkyl substances and the transition to safer alternatives; endocrine disrupting chemicals; environmentally persistent pharmaceutical pollutants; and highly hazardous pesticides. The assessment includes an analysis of existing regulatory and policy frameworks and their ability to address these issues.
- An overview of relevant information on the 11 chemicals/groups of chemicals for which, according to the Global Chemicals Outlook II (GCO-II), emerging evidence indicates a risk. Responding to the mandate received through the second session of the United Nations Environment Assembly (UNEA-2), Resolution 2/7<sup>4</sup>, the GCO-II identified other issues where emerging evidence indicates a risk to human health and the environment. The following chemicals or groups of chemicals were identified: arsenic, bisphenol A, glyphosate, cadmium, lead, microbeads, neonicotinoids, organotins, polycyclic aromatic hydrocarbons, phthalates and triclosan. The overview includes an analysis of existing regulatory and policy frameworks and their ability to address these issues.

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<sup>3</sup> (e): Follow trends in the design, production, use and release of chemicals and the generation of waste in order to identify issues of concern for future editions of the Global Chemicals Outlook and the Global Waste Management Outlook and catalyse sound management actions

<sup>4</sup> UNEP/EA.2/Res.7.

- A thought starter: Identifying International Issues of Concern. The GCO II used a criteria-based approach, whereby the identification of recent assessments and regulatory risk management actions taken by public bodies on a chemical (or group of chemicals) was used as a starting point. While, for some of the issues identified under GCO II, concerns had existed for a long time (e.g., regarding lead, which continues to be widely used in applications other than paint), recent regulatory action has been taken in several countries in light of new evidence on lower thresholds for adverse effects or additional evidence related to specific uses. In other cases, additional or new evidence has emerged in recent years, prompting regulatory action (e.g., on microbeads). In yet other cases, some countries have taken precautionary action based on existing knowledge. Further activities undertaken in response to the mandate received through UNEA-4 resolution 4/8<sup>5</sup> subparagraph (e) may identify additional issues with emerging evidence of risk. The GCO-II notes that stakeholders could find value in further exploring methodologies that facilitate a more systematic identification of future priorities at the international level and highlights the value of an improved science-policy interaction in this context. The thought starter discusses existing approaches and raises a number of questions of potential relevance for further consideration by stakeholders, such as on methodologies and criteria for identifying issues. These considerations could support further editions of global outlooks.

### ***Relationship with ongoing work under SAICM and the intersessional process***

The report seeks to complement, rather than duplicate, ongoing work in the context of SAICM and the intersessional process.

First, the section covering the assessment of progress made by relevant stakeholders in addressing the EPIs and other issues of concern identified under SAICM will be distinct from the progress reports prepared by the SAICM Secretariat<sup>6</sup>. The latter features a description of the activities called for by the ICCM, together with summaries on progress achieved as developed from input received from the respective lead organizations. Similarly, the report on progress in the implementation of SAICM<sup>7</sup> relies on information obtained through stakeholder submissions. The here discussed section is a distinct effort in that it seeks to:

- rely on sources of information and actions beyond the input from the respective lead organizations; and
- systematically analyze existing regulatory and policy frameworks and their ability to address these issues; and
- provide relevant policy insights, as appropriate.

Second, the section covering the considerations relevant for the identification of chemicals and waste management priorities at the international level seeks to complement, rather than duplicate the ongoing discussions on addressing issues of concern, as most recently captured in the co-chairs paper on this topic<sup>8</sup>. The co-chairs paper contains a proposal on text for the definition, criteria and possible modalities for adopting issues of concern; it thus represents a specific proposal on how to address issues of concern. Meanwhile, the here discussed section seeks to explore challenges, opportunities and options in a broader manner. This section intends to build on the initial considerations featured in the GCO-II and rely on further insights from the scientific literature.

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<sup>5</sup> UNEP/EA.4/Res.8.

<sup>6</sup> SAICM/ICCM.4/9 Emerging policy issues and other issues of concern and SAICM/OEWG.3/6 - Emerging policy issues and other issues of concern

<sup>7</sup> SAICM/OEWG.3/5 - Summary report on progress in the implementation of the Strategic Approach to International Chemicals Management for the period 2014–2016

<sup>8</sup> SAICM/IP.3/4 - Addressing issues of concern, prepared by the co-chairs of the intersessional process

## Content overview

Chapters 1 and 2 of the report provide an introduction and an overview of the methodology. Chapters 3, 4 and 5 are described below. Chapter 6 delivers concluding remarks.

### **Chapter 3. EPIs and other issues of concern**

Complementing the knowledge presented in the GCO-II as well as various activities and documentation prepared in the context of SAICM, a draft overview has been prepared for each of the eight EPIs and other issues of concern identified by SAICM (lead in paint, chemicals in products, the hazardous substance within the life cycle of electrical and electronic products, nanotechnology and manufactured nanomaterials, endocrine-disrupting chemicals, environmentally persistent pharmaceutical pollutants, perfluorinated chemicals and the transition to safer alternatives, and highly hazardous pesticides), covering the following information:

- Comprehensive but non exhaustive overview of existing instruments and actions by governments (including both legally binding and non-binding initiatives, such as bans, use restrictions, fiscal policies) and by non-governmental actors from civil society as well as the private sector (including voluntary standards, initiatives by industry associations, awareness-raising and capacity building projects by civil society etc.) and their ability (including considerations such as enforcement etc.) to address the EPIs;
- other relevant policy developments (e.g. multi-sectoral and multi-stakeholder action taken, such as through partnerships) and considerations (e.g. changes in consumer behavior, specific challenges faced by developing countries, progress in availability of data and lack thereof); and
- an analysis of the current challenges and opportunities in addressing the sound management of the issue, identifying knowledge gaps, areas for further research, opportunities for future action and priority setting.

For the above bullets, examples are provided to illustrate how the respective regulatory and policy frameworks as well as other relevant actions and initiatives are addressing the issues.

### **Chapter 4. Other issues where emerging evidence indicates a risk**

Complementing the knowledge presented in the GCO-II, a draft overview has been prepared for each of the 11 chemicals/groups of chemicals (arsenic, bisphenol A, glyphosate, cadmium, lead, microbeads, neonicotinoids, organotins, polycyclic aromatic hydrocarbons, phthalates and triclosan) for which according to the GCO-II emerging evidence indicates a risk, covering the following information:

- A framing of the issue based on the GCO-II.
- basic technical information (brief background, chemical structure, main uses/applications, production process etc.) and economic information, including production data (key producers, geographic distribution etc.), use data (key markets etc.);
- information relevant for environment and health considerations<sup>9</sup>, including, as appropriate, hazard, exposure, risk, releases, concentrations, effects and foreseeable global trends;
- Costs of inaction and benefits of action
- identification and assessment of relevant alternatives, considering among others relevant environment/health information, socio-economic information, life-cycle analysis etc.;
- analysis of existing regulatory and policy frameworks (including both legally binding and non-binding initiatives, such as bans, use restrictions, fiscal policies) and action taken by non-governmental actors (including voluntary standards, initiatives by industry associations, awareness-raising and capacity

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<sup>9</sup> To the extent possible given available data, differentiations will be made regarding environmental and occupational exposures.

building projects by civil society etc.) and their ability (including considerations such as enforcement, scope of the initiatives etc.) to address the issues;

- other relevant policy developments (e.g. multi-sectoral and multi-stakeholder action taken, such as through partnerships) and considerations (e.g. changes in consumer behavior, specific challenges faced by developing countries, progress in availability of data and lack thereof); and
- identification of knowledge gaps, areas for further research, remaining challenges and options for action.

For the above bullets, examples are provided to illustrate how the respective regulatory and policy frameworks as well as other relevant actions and initiatives are addressing the issues. Throughout, particular attention is paid to lead and cadmium. To the extent possible given available data, distinctions will be made in terms of occupational and environmental exposure, developing and developed countries, and vulnerable populations.

### ***A Thought Starter: Identifying International Issue of Concern***

The thought starter further elaborates on the GCO-II finding that stakeholders could find value in further exploring methodologies that facilitate a more systematic identification of future priorities at the international level. Moreover, considerations are provided regarding the UNEA-4 mandate to follow the trends in the design, production, use and release of chemicals and the generation of waste in order to identify issues of concern in future Global Chemicals and Waste Management Outlooks and catalyse sound management actions. For this purpose, the thought starter covers the following information.

- A brief review of existing approaches to identify issues of concern or emerging issues by SAICM, Global outlooks, MEAs and the OECD.
- A discussion on future global outlooks, looking at how to identify and address issues of concern. Linkages are drawn with the assessment of options for strengthening the science-policy interface at the international level for the sound management of chemicals and waste, prepared in response to a mandate received from UNEA-4 (SAICM/IP.4/INF/3);
- The identification of issues of concern on account of risks to human health and the environment;
- The identification of issues of concern on account of wider risk issues including sustainable development, life cycle approaches and links to other thematic clusters such as health, biodiversity and climate change, among others.
- The identification of issues of concern on account of areas for potential catalytic action to create the enabling conditions for sound management of chemicals and wastes

## **Key Milestones in the preparation of the report**

Desk research was undertaken since the third quarter of 2019 to compile existing knowledge on relevant issues where emerging evidence indicates a risk, covering the topics listed above. This was followed by the development of an annotated outline of the report in November 2019 providing further structural guidance to the development of the report. Experts across the globe, with regional consideration taken, have been engaged to draft reviews on individual issues. Sources of information considered include assessments by government agencies, relevant activities/reports by intergovernmental organizations as well as other stakeholders<sup>10</sup>, and scientific literature.

Based on the desk research, a first draft of the report was prepared late 2019 and during the first quarter of 2020. This draft was circulated for comments from the IOMC participating organizations and relevant

<sup>10</sup> E.g. the World Health Organization is developing guidelines on the prevention of lead poisoning which entails a systematic review of the evidence to support various risk management actions, and is to release a report on 'Methodologies and Systems for the Identification of Emerging Risks to Human Health from Chemicals'

secretariats of Multilateral Environmental Agreements. A subsequent version of the report will be prepared for the deadline of 30 April 2020.

Later in the year, UNEP intends to develop an addendum to the report which in addition to the work already produced, will review state of implementation vis-a-vis the possible measures featured in the GCO-II for each EPI.

In compiling relevant information, the IOMC participating organizations and relevant secretariats of MEAs are being engaged on a regular basis.

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