



Global actions needed on endocrine disrupting chemicals (EDCs)

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Via Electronic Mail

Mr. Tim Kasten, Director
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Ms. Maria Neira, Director for Public Health and Environment
World Health Organization (WHO)
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Mr. Robert Diderich, Principal Administrator, Environment Directorate
Organization for Economic Cooperation and Development (OECD)
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Ms. Leonor Alvarado, Coordinator
Secretariat of the Strategic Approach to International Chemicals Management
Geneva, Switzerland

Dear Mr. Kasten, Ms. Neira, Mr. Diderich, and Ms. Alvarado,

The recent report by the UN Environment Programme (UNEP) and World Health Organization (WHO) on the "State of the Science of Endocrine Disruptors" (UNEP-WHO Report) re-affirms the need to begin swift action at the global level on Endocrine Disrupting Chemicals (EDCs). The UNEP-WHO Report notes the high incidence and the increasing trends of many endocrine-related disorders in humans; provides data that demonstrates that wildlife populations have been affected by endocrine disruption; and concludes that disease risk due to EDCs may be significantly underestimated.

In September 2012, the global community included EDCs as an "emerging policy issue" under the Strategic Approach to International Chemicals Management (SAICM) during a meeting of its governing body (ICCM3) convened by UNEP. At ICCM3, delegates issued a consensus statement on EDCs in which more than 100 governments, the chemical industry, civil society and other global actors *"recognize[d] the potential adverse effects of endocrine disruptors on human health and the environment [and] the need to protect humans, and ecosystems and their constituent parts that are especially vulnerable."*¹ The meeting called for a variety of actions on EDCs, however five months later, a work plan still has not been developed and no actions have occurred.

¹ Decision III/2(F), "Endocrine disrupting chemicals," (SAICM/ICCM.3/24) Preamble.

Global actions need to move forward on EDCs and we believe that several well-recognized scientific elements should form the basis of this work. These include:

- *A clear definition of EDCs:* Endocrine disrupting chemicals are chemicals, or chemical mixtures, that interfere with normal hormone action.
- *Vulnerability of living organisms to EDCs:* Hormones and their signaling pathways are critical to the normal functioning of every tissue and organ in both vertebrates and invertebrates. EDCs affect more than just the androgen, thyroid and estrogen hormone pathways. Pathways are often quite similar across organisms. No endocrine system is immune to EDCs because of the shared properties of the chemicals and the similarities of the receptors and enzymes involved in the synthesis, release, and degradation of hormones.
- *EDC effects occur at low doses:* Many EDC effects occur at low doses even when high dose effects are not apparent. These non-linear or non-monotonic dose-response relationships result in effects of low-dose exposures to EDCs that are more pronounced or different than exposures at higher doses.
- *EDCs can affect future generations:* The effects of exposure to EDCs may be transmitted to future generations through germline epigenetic modifications or from continued exposure of offspring to the environmental insult. These effects can manifest as different endocrine-related disorders in different generations from the exposed individual.
- *Timing of exposure to EDCs is vital:* The most sensitive windows of exposure are during critical periods of development, from the fetal and post-natal periods, which can extend into infancy and childhood for some tissues. Exposures during tissue development likely lead to irreversible effects.
- *Exposure to EDC mixtures may result in different effects than exposure to single substances:* Humans and wildlife are exposed to complex mixtures of hundreds of EDCs. Animal studies show that exposures to mixtures of EDCs produce endocrine-related effects even when each chemical is present at levels not shown to produce effects individually.
- *The Precautionary Principle is key* to enhancing endocrine and reproductive health, and should be used to inform decisions about exposure to, and risk from, potential endocrine disruptors.

To efficiently increase the capacity of the SAICM work on EDCs, you may consider involving endocrinologists – researchers with an expertise on the endocrine system and how substances might affect its delicate balance. The Endocrine Society is the most active organization devoted to research on hormones and the clinical practice of endocrinology with more than 17,000 members in over 100 countries, including many developing countries. Members of The Endocrine Society were co-authors and co-editors of the recent UNEP-WHO Report. Given their global presence, they could play a key role in



raising awareness and providing capacity for implementation of the work plan and cooperative actions, while helping to satisfy the need for inclusiveness.

We look forward to working with UNEP, WHO, OECD, and all SAICM participants in advancing global action on EDCs.

Sincerely,

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