



# Endocrine Disruptors as a SAICM Emerging Issue: IPEN Position & Priorities

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Endocrine disruption is an urgent issue of global concern. Global action on a chemical is warranted when a chemical presents an unreasonable risk to human health or the environment, the acts or omissions of certain countries may increase the risk of harm, and countries find it difficult to protect themselves unilaterally from the increased risk.

Endocrine disrupting chemicals (EDCs) present unacceptable risks to human health and the environment. In 2002, the World Health Organization (WHO) defined an EDC as “... an exogenous substance or mixture that alters function(s) of the endocrine system and consequently causes adverse health effects in an intact organism, or its progeny, or (sub)populations.<sup>1</sup> Interference with hormone action has both direct and indirect consequences for the health of humans and wildlife, including the increased susceptibility to certain diseases. A significant drawback of the WHO definition is the lack of clarity, and thus consensus, around the question of what constitutes an “adverse health effect.”

The adverse effects that are increasingly linked to exposure to chemicals with endocrine disrupting properties include: effects on reproduction, such as infertility and reduced semen quality and quantity; breast, mammary, testicular and prostate cancers; type 2 diabetes, obesity, and heart disease; neurobehavioral outcomes; and thyroid and immune system dysfunction.

One of the most tragic aspects of EDCs is the vulnerability of young children, particularly unborn and newborn infants, to exposure during highly-sensitive windows of development.<sup>2</sup> Exposure during critical windows of development can have potent and irreversible effects that only become evident later in life. Multiple EDCs are commonly found in humans, including pregnant women, thereby exposing men and women alike. Exposure to several different EDCs at dose levels that by themselves are not predicted to cause adverse effects may still result in adverse effects. Studies also show the potential of lower doses of EDCs to exert stronger effect than higher doses of EDCs, and to be magnified by the “cocktail effect” of chemical mixtures.<sup>3</sup>

Both industrialized and developing countries must take action on EDCs to prevent harm. The Global Environment Facility (GEF) ranks endocrine disruption among the top six issues facing developing

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<sup>1</sup> WHO/IPCS, *Global assessment of the state-of-the-science of endocrine disruptors* (2002). Alternatively, world's oldest, largest, and most active organization devoted to research on hormones and the clinical practice of endocrinology defines an EDC as “an exogenous chemical, or mixture of chemicals, that can interfere with any aspect of hormone action.” Zoeller et al. *Endocrine-Disrupting Chemicals and Public Health Protection: A Statement of Principles from The Endocrine Society*, ENDOCRINOLOGY (Sept. 1, 2012).

<sup>2</sup> Eighty-six leading scientists from around the world recently signed a statement on the vulnerability developing children to environmental chemical exposure (PPTOX III Statement). See Barouki et al., *Developmental origins of non-communicable disease: Implications for research and public health* ENVIRONMENTAL HEALTH, 11:42 (2012).

<sup>3</sup> Vandenberg et al., *Hormones and Endocrine-Disrupting Chemicals: Low-Dose Effects and Non-monotonic Dose Responses*, ENDOCRINE REVIEWS (March 14, 2012); and Diamanti-Kandarakis et al., *Endocrine Disrupting Chemicals: An Endocrine Society Scientific Statement* (2009).



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countries and countries with economies in transition.<sup>4</sup> The potential of harm from EDCs in developing countries is projected to increase dramatically in the coming years, due to disproportionate expansion of chemical production, use and disposal outside industrialized countries. OECD predicts that these activities in the developing world will grow at least twice the rate of expansion in industrialized countries, with even faster growth outside countries currently considered economies in transition.<sup>5</sup> Accompanying this trend is the likelihood of disproportionate exposure by workers, women, children and other vulnerable populations in developing countries to EDCs.

Countries are unable to unilaterally protect themselves from the dangers of EDCs. Suspected EDCs are commonly found in food, cosmetics, building materials, electronics, furniture, toys and children's products. Because of global trade in articles and food containing EDCs throughout the value chain, as well as the long-range environmental transport of these chemicals through wind, water and wildlife, unilateral measures by countries are unable to effectively protect people from exposure to EDCs. While some countries are making efforts to reduce harm from EDCs, developing countries face considerable hurdles in accessing and utilizing this information to protect themselves from EDCs.

Addressing endocrine disruption is an urgent issue that requires global action. The international community recognized the need for global action on EDCs in 2006 when SAICM participants included EDCs repeatedly within the SAICM Global Plan of Action. While some work is currently underway in various fora on EDCs, a global vehicle is needed to leverage, disseminate and advance existing and ongoing work to address the issue of EDCs in all countries. SAICM is the only participatory, multi-stakeholder, global forum on chemicals management with the broad mandate necessary to protect all people and the environment from the potential hazards of EDCs. The third meeting of the International Conference on Chemicals Management (ICCM3) should approve EDCs as an Emerging Policy Issue under SAICM. Below are IPEN's priorities.

### **Priorities for Cooperative Action on EDCs as an Emerging Policy Issue**

One of the functions of the International Conference on Chemicals Management is "to focus attention and call for appropriate action on emerging policy issues as they arise and to forge consensus on priorities for cooperative action."<sup>6</sup> SAICM requires that new and emerging issues of global concern be sufficiently addressed by means of appropriate mechanisms.<sup>7</sup>

IPEN fully supports the nomination of EDCs as an emerging policy issue under SAICM. IPEN recommends that SAICM stakeholders ensure that the following cooperative actions on EDCs are prioritized.

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<sup>4</sup> GEF, *Guidance on Emerging Chemicals Management Issues* (2012)

<sup>5</sup> OECD, *Environmental Outlook to 2050* (2012).

<sup>6</sup> Paragraph 24 of the Overarching Policy Strategy of the Strategic Approach to International Chemicals Management, available at: [http://www.saicm.org/documents/saicm%20texts/SAICM\\_publication\\_ENG.pdf](http://www.saicm.org/documents/saicm%20texts/SAICM_publication_ENG.pdf)

<sup>7</sup> *Id.* at Paragraphs 14 (g) and 15 (g) of the Overarching Policy Strategy.



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*Establish a global list of chemicals with potential endocrine disrupting properties*

Currently, a consolidated list of chemicals with potential endocrine disrupting properties does not exist. The proposed list would include chemicals currently being used around the world in everything from detergents and cosmetics, to computers and toys, to pesticides. It would facilitate information exchange for all stakeholders and should be regularly updated. The list could build on pre-existing lists, such as the TEDX list of Potential Endocrine Disruptors<sup>8</sup>, and the *Sin List 2.0*<sup>9</sup>, which governments are using to test the accuracy of criteria for indentifying EDCs and should take into account the identification of effects described by The Endocrine Society.

Publicly available, such a list would help to ensure that all EDCs are sufficiently addressed globally by means of appropriate mechanisms. The list will help governments of developing countries and economies in transition reduce the cost of expensive research necessary for decision-making. The list would enable governments to take action with speed and urgency to protect the health of the most vulnerable. It would also enable preventative action by businesses. The list would provide downstream users of chemicals with a helpful list of chemicals to substitute, and progressive retail companies a list of hazardous chemicals to avoid. In doing so, it would steer chemical manufacturers to phase-out EDCs.

*Raise global awareness of EDCs, through broad outreach, information exchange, labeling requirements, and capacity building campaigns, with the participation of environmental and health NGOs and scientific institutions*

Public awareness can help to generate data for assessing the effects of EDCs, enable vulnerable populations to take steps to prevent exposure, and can ensure that appropriate mechanisms are in place to prevent harm to human health or the environment. At present public-awareness around the world is patchy and is typically available only in English. In order to disseminate and generate information to raise public awareness, broad outreach and capacity building campaigns are needed at global and national levels, which include the participation of scientific institutions and health and environmental NGOs.

Moreover, consumer awareness about EDCs in products can be a strong driver for creating markets for safer products, both up- and down-stream. Where a product contains an EDC or mixture of EDCs, very few include basic information regarding the environmental and health hazards of EDCs throughout their life-cycle. Greater disclosure of chemical ingredients, including EDC ingredients, would encourage businesses to remove EDCs from products. Mandatory labeling of EDCs should be established.

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<sup>8</sup> Every chemical on the TEDX List has one or more verified citations to published, accessible, primary scientific research demonstrating effects on the endocrine system. The list of over 870 chemicals is available at: <http://www.endocrinedisruption.com/endocrine.TEDXList.overview.php>

<sup>9</sup> The SIN List highlights substances that ChemSec has identified as Substances of Very High Concern in accordance with the criteria set up in REACH. Available at: <http://www.chemsec.org/list/sin-list-20>



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Ensure that all future work on EDCs retain SAICM's multi-stakeholder nature and includes expert in endocrinology as well as representatives of public interest NGOs, trade unions, and the health sector.

Endocrinologists serve a vital role in ensuring that EDCs are sufficiently addressed, particularly with respect to the unique features of endocrine disruptors for environmental and health hazard assessments. Public interest NGOs serve as a valuable link between communities, stakeholders and policy makers. Likewise, trade unions and the health sectors bring valuable contributions to minimizing exposure. However, funding is a challenge for representatives of the public interest. SAICM's structure has embraced the valuable contributions of all relevant stakeholders in achieving the sound management of chemicals by 2020, and donors should ensure funding is available for adequate participation of all SAICM stakeholders, including public interest representatives.

Prioritize eliminating EDCs that affect the most vulnerable, particularly women of childbearing age, the unborn fetus, and children

Endocrine disruption may affect not only the exposed individual but also their children and subsequent generations. Data indicate that vulnerable developing unborn and newborn babies are readily exposed to EDCs through chemicals present in their mother's body. Even infinitesimally low levels of exposure may cause developmental abnormalities, particularly if exposure occurs during a critical developmental time window. Given the likely developmental effects of EDCs—such as increased susceptibility to cancer, female and male reproductive impairment, and behavioral disabilities—particular attention should be given to critical exposure windows for the most vulnerable, especially the developing fetus.