

Overview of the *State of the Science of Endocrine Disrupting Chemicals* – 2012. R. Thomas Zoeller, University of Massachusetts Amherst.

The *State of the Science of Endocrine Disrupting Chemicals—2012*, is an update of the scientific knowledge, including main conclusions and key concerns, on endocrine disruptors as part of the ongoing collaboration between the United Nations Environment Programme (UNEP) and the World Health Organization (WHO) to address concerns about the potential adverse health effects of chemicals on humans and wildlife. Sixteen experts from 10 countries were the primary writers for this document, but an additional 22 experts contributed specific elements and reviewed the various drafts of the documents. The first chapter reviews the basic elements of endocrine disruption, written for a broad audience. This information covers a targeted background in the field of endocrinology to lay the groundwork for understanding the challenges in identifying endocrine disrupting chemicals (EDCs) and determining whether exposures could produce adverse effects in human or wildlife populations. In Chapter 2, we reviewed information largely published in the past decade focusing on links between chemical exposures and reproductive health, thyroid-related disorders, neurodevelopmental disorders, endocrine related cancers, adrenal and metabolic disorders. It is clear from this review that the evidence supporting a role for chemical exposures in some human and wildlife disease has strengthened over the past 10 years, but has weakened in others. Exposure science is the topic of the third and final chapter. This review demonstrates that, unlike 10 years ago, it is clear that humans and wildlife are exposed to far more EDCs than just POPs and that, currently, only a narrow spectrum of chemicals are even being evaluated in the environment. There has been a great deal of progress in the past 10 years, and NIEHS-funded research has played a very large role in that. But major challenges remain both in terms of the way we think about what constitutes “proof” of a causative relationship between chemical exposures and human and wildlife health, but also in terms of the mechanisms underlying these relationships.