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Protecting humans and wildlife
from harmful chemicals

Identification of, and action on, endocrine disrupting chemicals

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**“European Chemicals Policy and Risk
Management”** conference

Barcelona, 24th September 2015



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About CHEM Trust

- A charity working at UK, EU & Global levels to protect humans & wildlife from harmful chemicals
- Working with scientists, technical processes and decision makers, in partnership with other civil society groups
- Focusing on identification of, and action on, endocrine disrupting chemicals
- See our blog & twitter for more: www.chemtrust.org.uk

The screenshot shows the CHEMTrust website header with the logo and navigation menu. The main content area features a news article titled "EU Chemical Agency committee agrees that Bisphenol A in receipts poses risk to workers" by Michael Warhurst, dated June 11, 2015. The article text states that the hormone disrupting chemical Bisphenol A (BPA) is used in many till (cash) receipts, and the French government has proposed that the EU should ban this use. The article also mentions that the European Chemical Agency (ECHA) has agreed with the French government that this chemical presents a risk to workers. Below the article is a "Share this:" section with social media sharing buttons for Twitter (28), Facebook, LinkedIn, Pocket, Email, and Google+. To the right of the article is a sidebar with a "HORMONE DISRUPTING CHEMICALS?" section featuring a "Hormone Disrupting Chemicals FAQ" graphic and a link to "What are Hormone Disrupting Chemicals?". Below that is a "POPULAR POSTS" section listing several related articles.



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What is an Endocrine Disrupter?

- **An Endocrine Disrupting Chemical (EDC) is one that can interfere with the endocrine or hormone system**
- **In practice, this requires evidence of:**
 - An endocrine mode of action
 - An adverse effect
 - A plausible link
- **An EDC must *interfere* with the endocrine system; this is not about normal responses (e.g. sugar/insulin)**



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The role of the endocrine system

- **Examples of hormone action in humans or wildlife:**
 - Development of the brain
 - Development of the reproductive system
 - Functioning of the reproductive system
 - Functioning of the metabolic system
- **Disruption of hormone action, particularly during development, can lead to delayed effects which can be serious and irreversible**
- **There's more in our EDC FAQ:**
 - <http://www.chemtrust.org.uk/what-are-hormone-disrupting-chemicals-or-endocrine-disrupting-chemicals-edcs/>



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What is the scale of the problem?

- **Many chemicals have been identified as EDCs**
 - E.g. bisphenol A in 1938 research [1]
- **Conclusion of UNEP/WHO “State of the Science of Endocrine Disrupting Chemicals” report in 2012: [2]**
 - *“Close to 800 chemicals are known or suspected to be capable of interfering with hormone receptors, hormone synthesis or hormone conversion. However, only a small fraction of these chemicals have been investigated in tests capable of identifying overt endocrine effects in intact organisms.”*
 - *“Disease risk due to EDCs may be significantly underestimated.”*
- **This report has been criticised by industry-funded scientists, but the authors have published a rebuttal [3]**
 - *“that their critique is not intended to be convincing to the scientific community, but to confuse the scientific data. ..promotes misinterpretation of the report by non-specialists, bureaucrats, politicians...”*



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EU action on EDCs

- **The EU has been discussing EDCs for around 20 years**
- **REACH includes specific mention of EDCs**
 - Through Authorisation
 - Through Restrictions
- **Both Plant Protection Products and Biocides legislation has specific mention of *criteria* for EDCs**
 - Creating a debate on these EDC criteria



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REACH and EDCs

- **Registration includes assessment of all hazards**
- **REACH can address EDCs through Restriction or Authorisation, based on the available science**
 - To be identified as SVHC, an EDC must ‘give rise to an equivalent level of concern to those of other’ SVHC substances, identified on a case-by-case basis
 - REACH doesn’t require the EU to develop specific EDC criteria
- **ECHA has an expert group on EDCs**
 - CHEM Trust has an expert on this group
 - Our position paper on EDCs in REACH:
 - <http://www.chemtrust.org.uk/wp-content/uploads/CHEM-Trust-Briefing-on-REACH-EDC-review-FINAL.pdf>



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EDCs in Authorisation

- **A number of chemicals have been identified by ECHA as SVHCs due to EDC properties:**
 - 4-tert-Octylphenol and its ethoxylates [4]
 - 4-nonylphenol and its ethoxylates [5]
 - DEHP [6]
- **An expert group working for the NGO Chem Sec has identified 32 other EDCs which meet SVHC criteria [7]**



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EDCs in Plant Protection Products

- **Plant Protection Products (PPP) Regulation 2009:**
 - Approval only if a substance is:
 - “not considered to have endocrine disrupting properties that **may cause adverse effects**” to humans or non-target species
- **PPP Regulation set deadline of 13th Dec 2013 for the Commission to propose criteria to identify such EDCs**
 - (These criteria will also be used in Biocides regulation)



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The EDC criteria debate

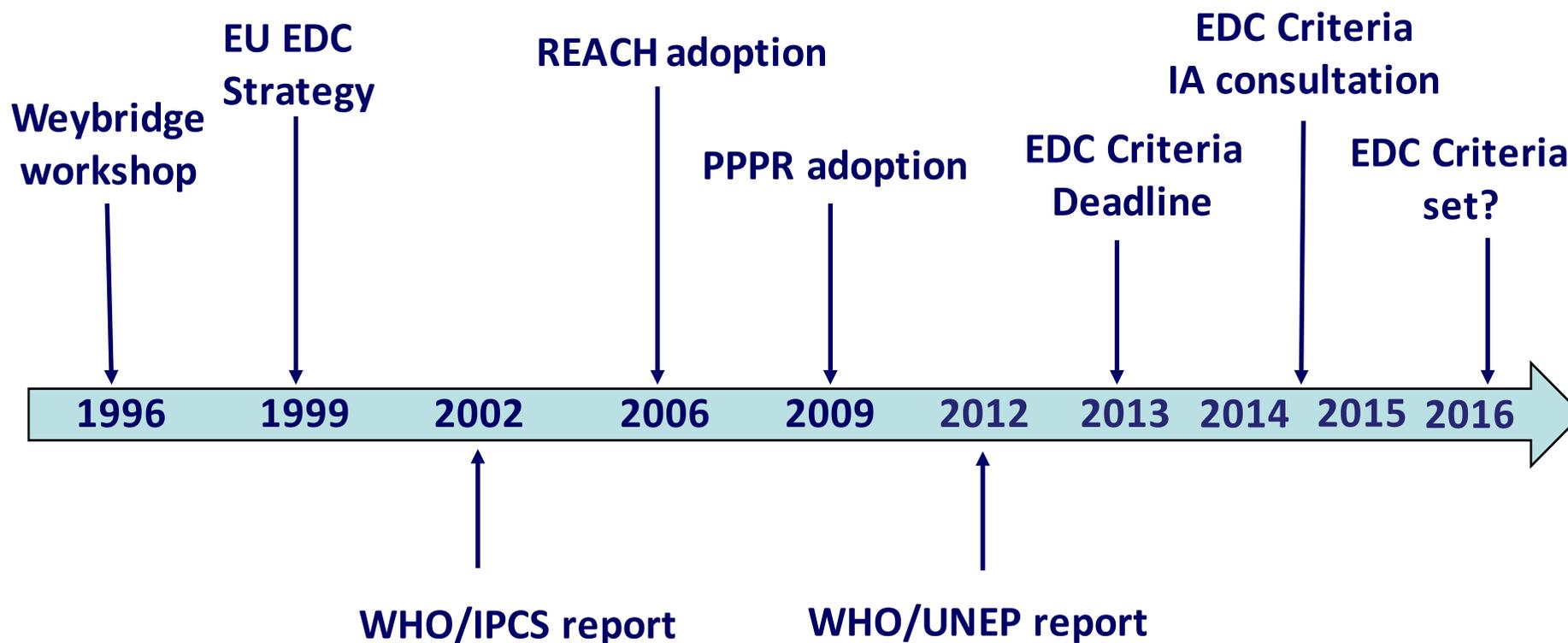
- **EU Biocides and Plant Protection Products regulations require criteria to identify EDCs**
 - A13th December 2013 deadline was not met by the Commission
 - This delay has been blamed on lobbying from parts of industry [8]
- **At start of Juncker Commission, responsibility for setting EDC criteria was transferred from DG Env to DG Santé**
- **DG Santé started an elaborate impact assessment process at the end of 2014, with a consultation on the impact of different approaches to setting criteria**
 - CHEM Trust responded to this consultation [9], emphasising the scientific basis for a categorisation-based approach.
 - We also pointed out the scientific deficiencies of a potency-based approach [10]
- **Debate continues, with a final result not expected until 2016**



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A slow policy response...



Meanwhile exposure continues and concerns increase



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Impacts of EDCs?

- ***Trasande et al* have estimated costs of EDCs to the EU [11]:**
- **“EDC exposures in the EU are likely to contribute substantially to disease and dysfunction across the life course with costs in the hundreds of billions per year.”**
- **“These estimates represent only those EDCs with the highest probability of causation; a broader analysis would have produced greater estimates of burden of disease and costs.”**



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A proactive approach

- **Regulation of EDCs is slow, some movement**
 - Many of the chemicals have been known for many years
- **Forward-looking companies should anticipate regulation**
 - E.g. use the ChemSec SIN list
 - <http://chemsec.org/what-we-do/sin-list>
 - & their SINimilarity tool to help identify substances that are structurally similar to those on the SIN list:
 - <http://chemsec.org/what-we-do/sinimilarity>
- **A range of tests are available to screen new chemicals for EDC properties**
 - E.g. see TiPED, <http://www.tipedinfo.com>



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What next?

- **Continuing action on EDCs through REACH authorisation & restriction**
- **Decision on EDC criteria**
 - with direct impact on biocide and plant protection products regulations
- **Continued scientific advances in understanding EDCs, e.g.**
 - Thyroid system – development of brain
 - Effects driven analysis of complex mixtures



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Conclusions

- **REACH is already able to address EDCs through restrictions and authorisation**
 - Though there is a need to get this moving faster
- **EU EDC criteria needed; based on the science and should protect human health & environment**
 - Without artificial and arbitrary potency limits
- **As science develops, more chemicals will be identified as EDCs, with more impacts**
 - This issue isn't going away
- **The best approach for companies is to avoid the problem – not fight the inevitable**



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