For our Environment

Umwelt Bundesamt

HBM4EU – building European knowledge on citizens' exposure to chemicals

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Keeping an eye on chemicals

European COM (2001): **Global production** of **400 M t** of chemicals

June 2015: **100 Million CAS Registry Numbers** assigned

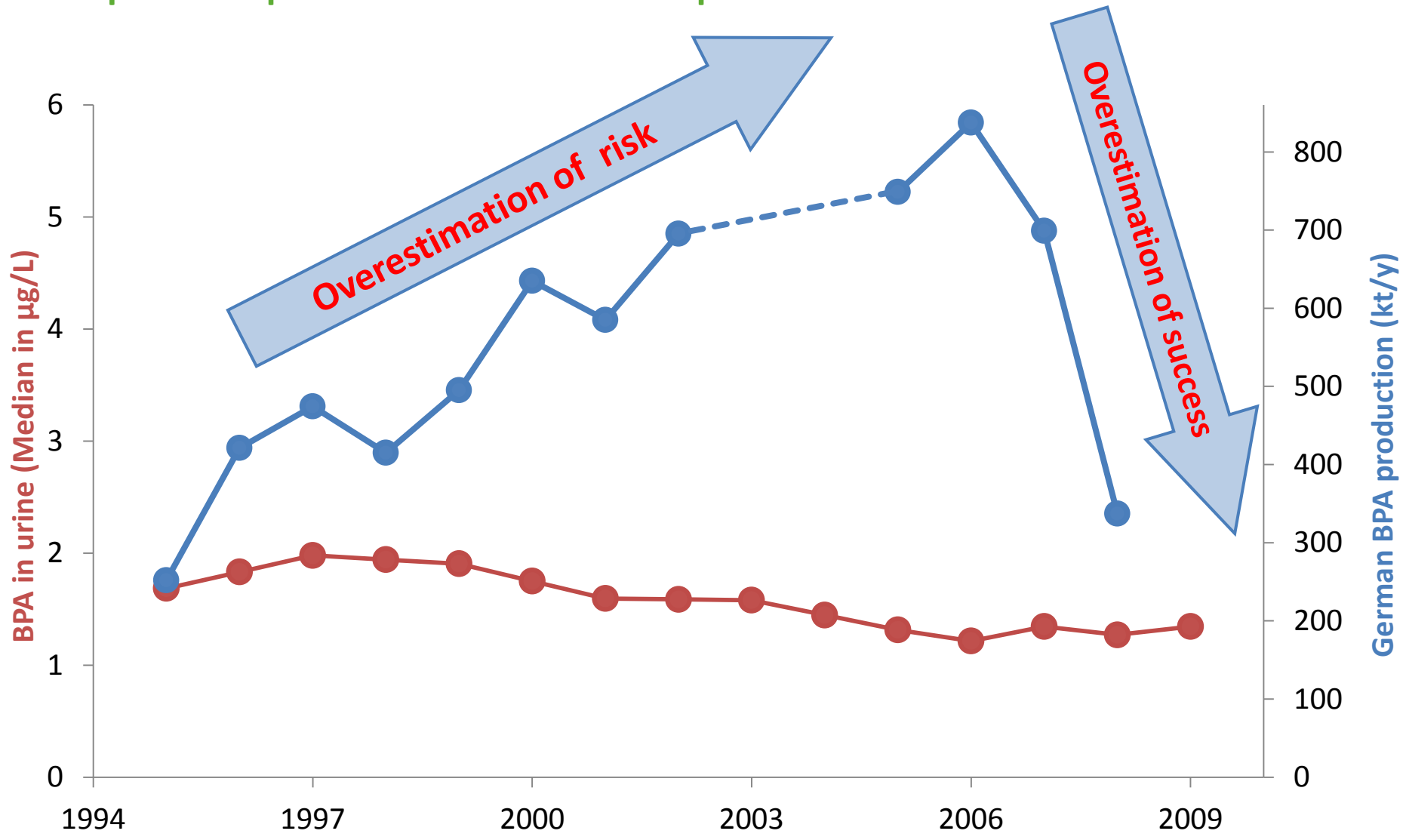
Chemical industry is **Europe's 3rd largest** manufacturing industry

Eurostat (2009):
Production of about
30 M t of carcinogenic, mutagenic and reprotoxic chemicals

Source: CC Vision

Why do we need HBM data?

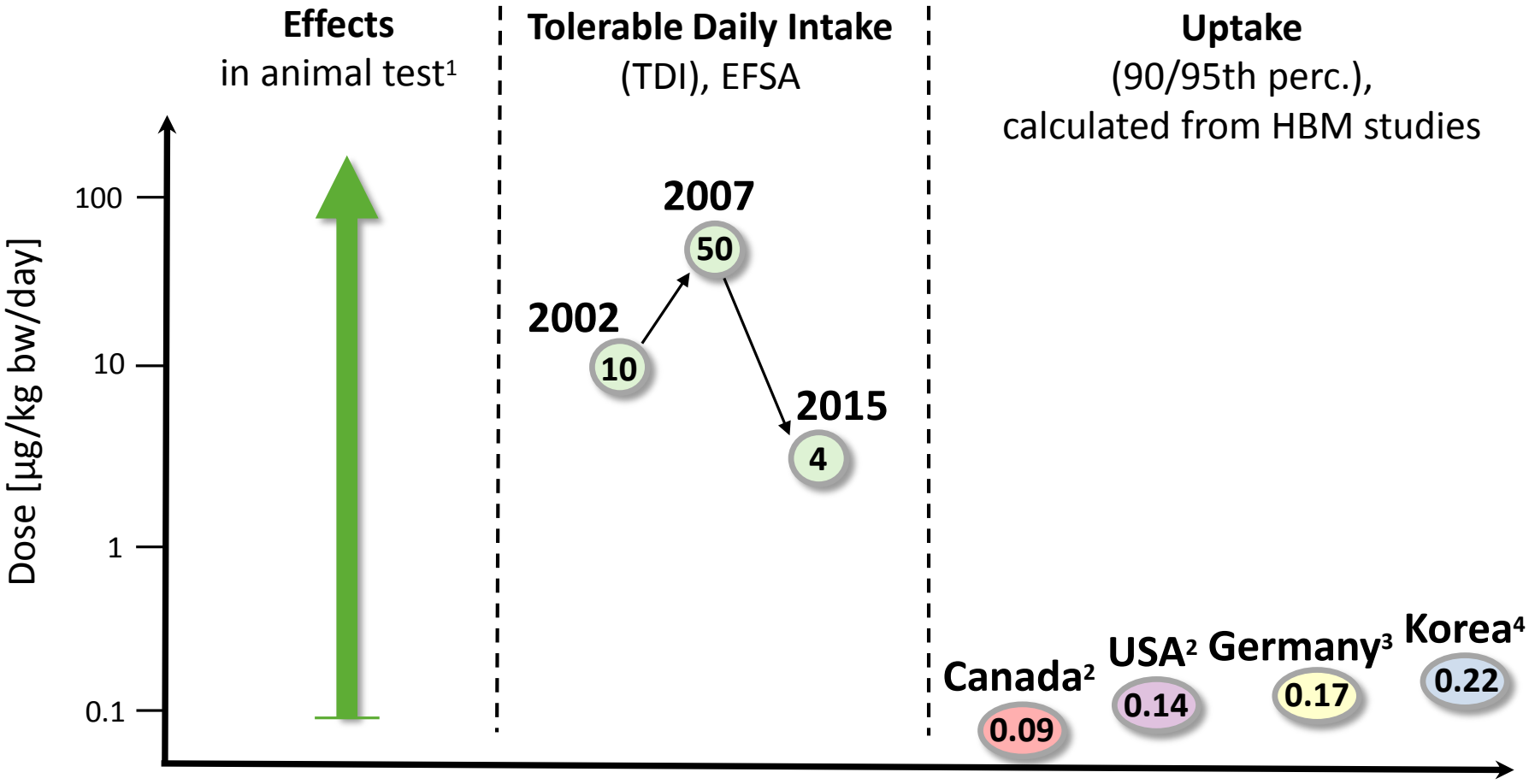
Bisphenol A production and human exposure



Data Source: German Environmental Specimen Bank

Why do we need innovative HBM research on effects?

Bisphenol A effects and regulation



Sources:

1: EEA, Gies and Soto 2012

2: LaKind and Naiman 2015

3: Longnecker et al. 2013

4: Park et al. 2016

Bisphenol A and questions to be answered in HBM4EU

- Which is the **best analytical method** for BPA, BPS, and BPF we should **harmonize**?
- Are there **time trends and spatial trends** for the Bisphenol A?
- What about the BPA **substitutes BPS and BPF**?
- Are current or expected levels of BPS and BPF of **concern for health**?
- Are there **mixtures** effect?
- Which are the **exposure sources**?
- Are we too - and uneconomically - **overprotective**?
- Do we need further regulations, restrictions, **bans**?

HBM in the EU: preparatory phase and pilot study

ESBIO
Expert team to Support BIOmonitoring in Europe

COPHES
Consortium to Perform Human Biomonitoring on a European Scale

DEMOCOPHES
Demonstration of a study to coordinate and perform human biomonitoring on a European Scale

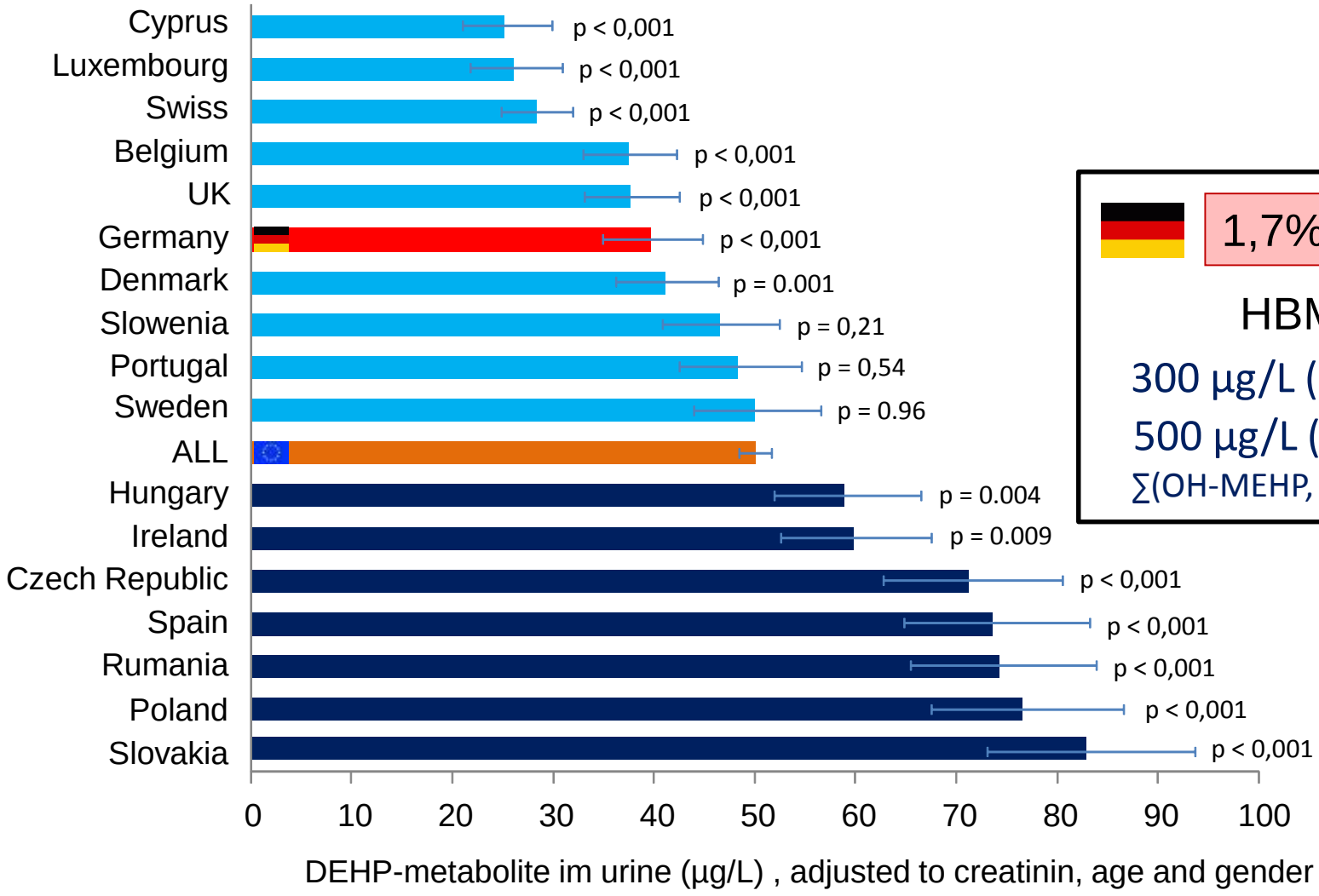
SEVENTH FRAMEWORK PROGRAMME

Life

Aims

- Preparation and conduct of a feasibility study
- Harmonization of methods, questionnaires, quality assurance, …
- Measurement of comparable results
- Building up network & infrastructur
- Use of HBM for improving policy

DEMOCOPHES: exposure of children to DEHP



1,7% > HBM I

HBM I:

300 µg/L (mothers)

500 µg/L (children)

∑(OH-MEHP, oxo-MEHP)

Who we are - the HBM4EU partners

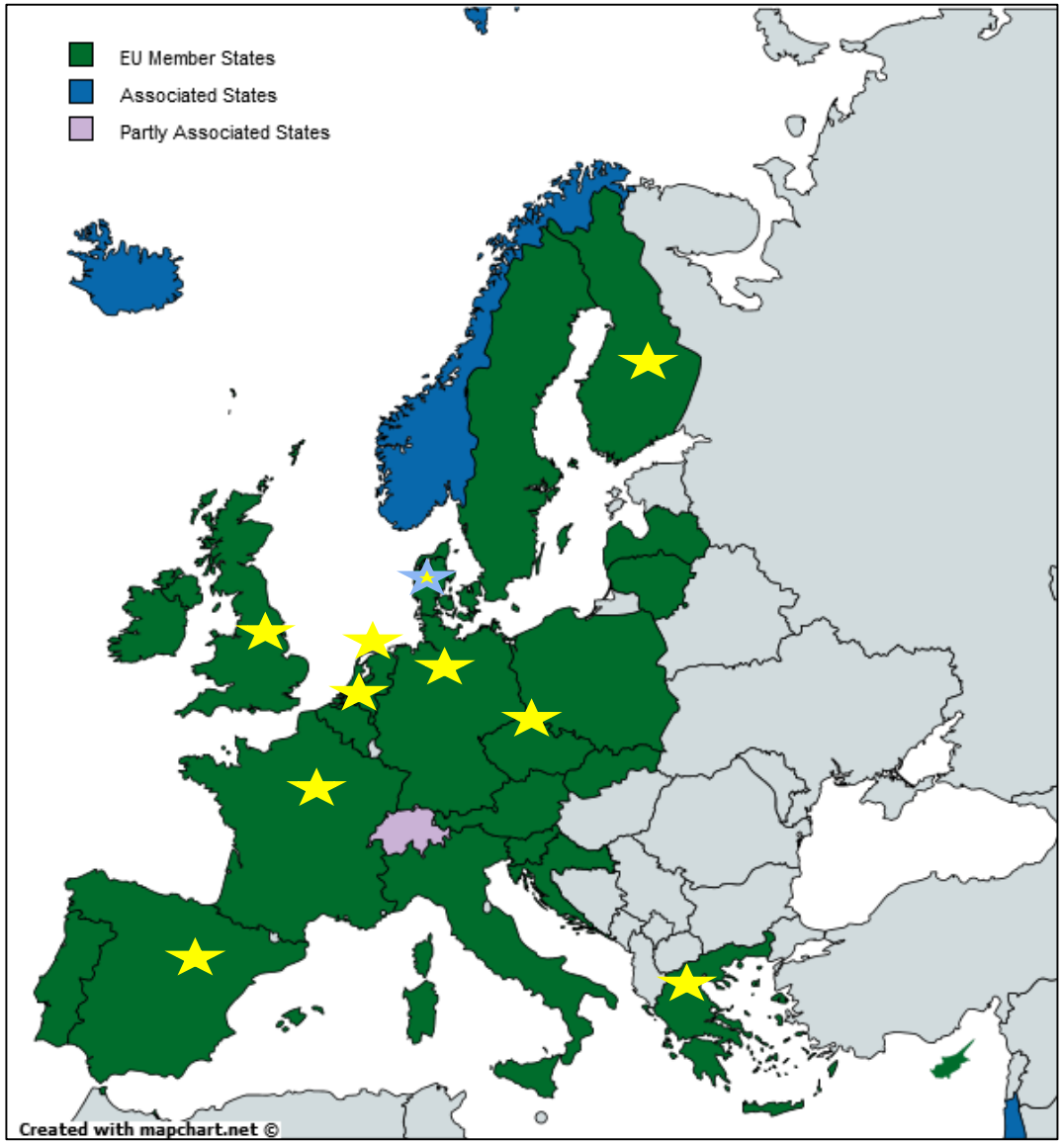
22 EU Member States
3 Associated States,
Switzerland,
and EEA

(3 candidates to join in later)

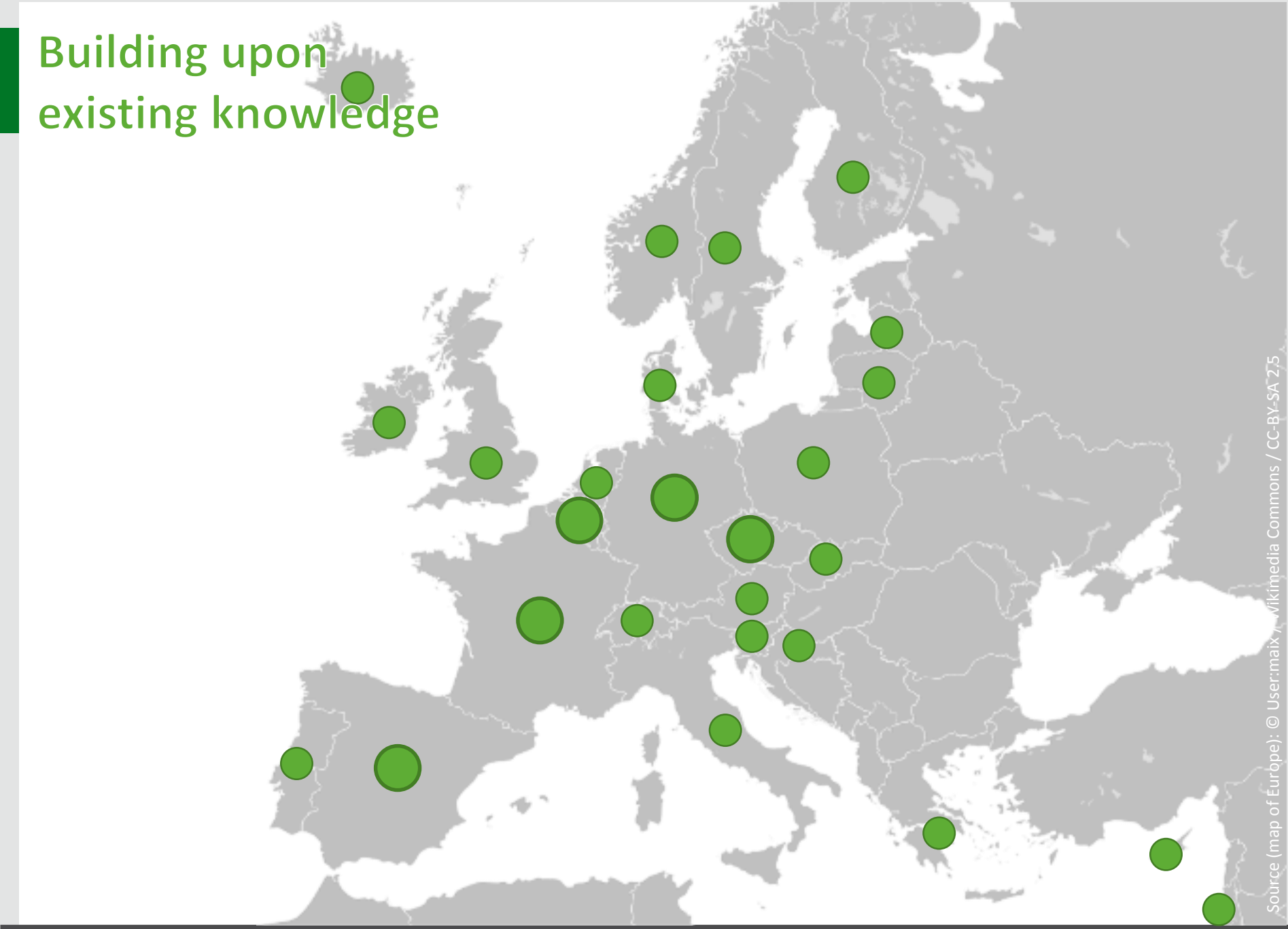
107 Partners
38 Grant Signatories

Financial volume: ~ 74 M €

★ Management Board Member

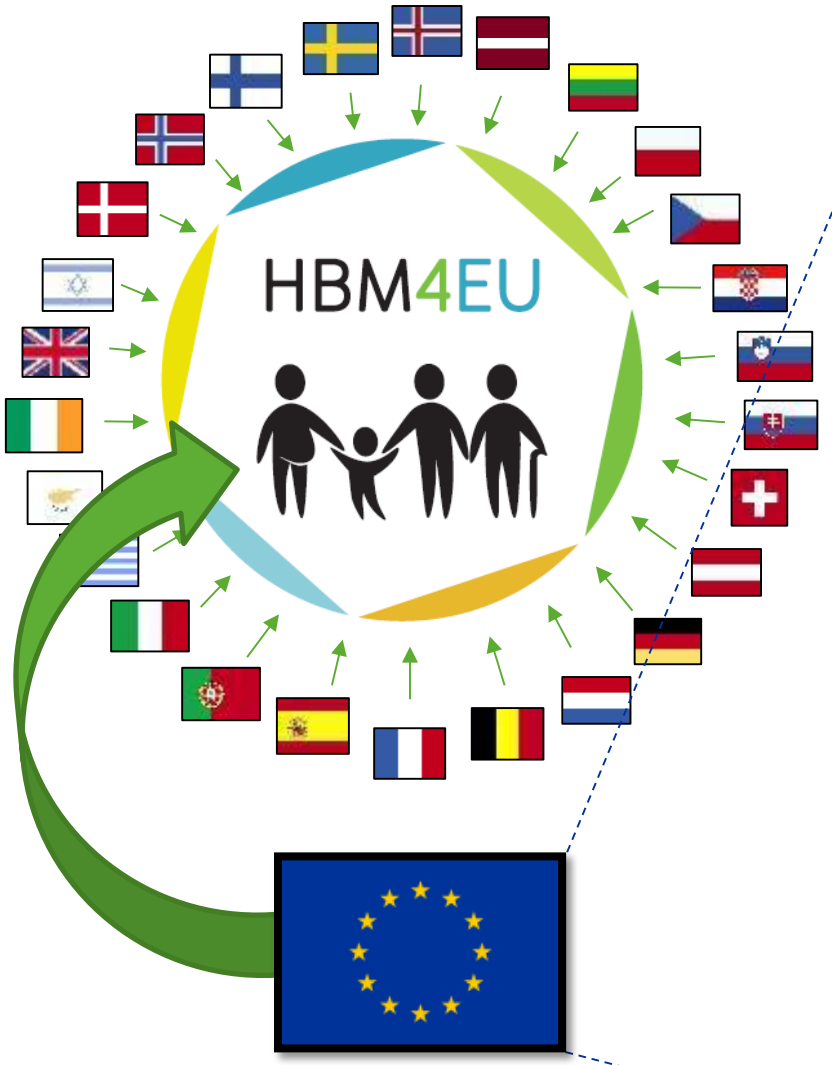


Building upon existing knowledge



Building upon existing knowledge

Prioritisation process



EU level

ENV
chemicals legislation (e.g. REACH), air/water pollution, noise

EMPL
worker safety, exposure to chemicals

RTD R&I
framework programme

SANTE
food contaminant, pesticides, biocides, EDs

GROW
product safety, cosmetics, REACH

JRC scientific and technical support	**ECHA** REACH regulation
EEA environment data, information, assessment	**EFSA** risk assessment for food and feed

Prioritisation process

National Hub

German HBM Commission

Experts

Public institutions and agencies with HBM expertise

HBM4EU

science and policy
for a healthy future

Answer open policy relevant questions as defined by EU Services and partner countries

Give policy makers a fast and easy access to results and data

Bridge the gap between science and policy

HBM4EU

science and policy
for a healthy future

an ambitious EU research programme designed especially to answer policy relevant questions

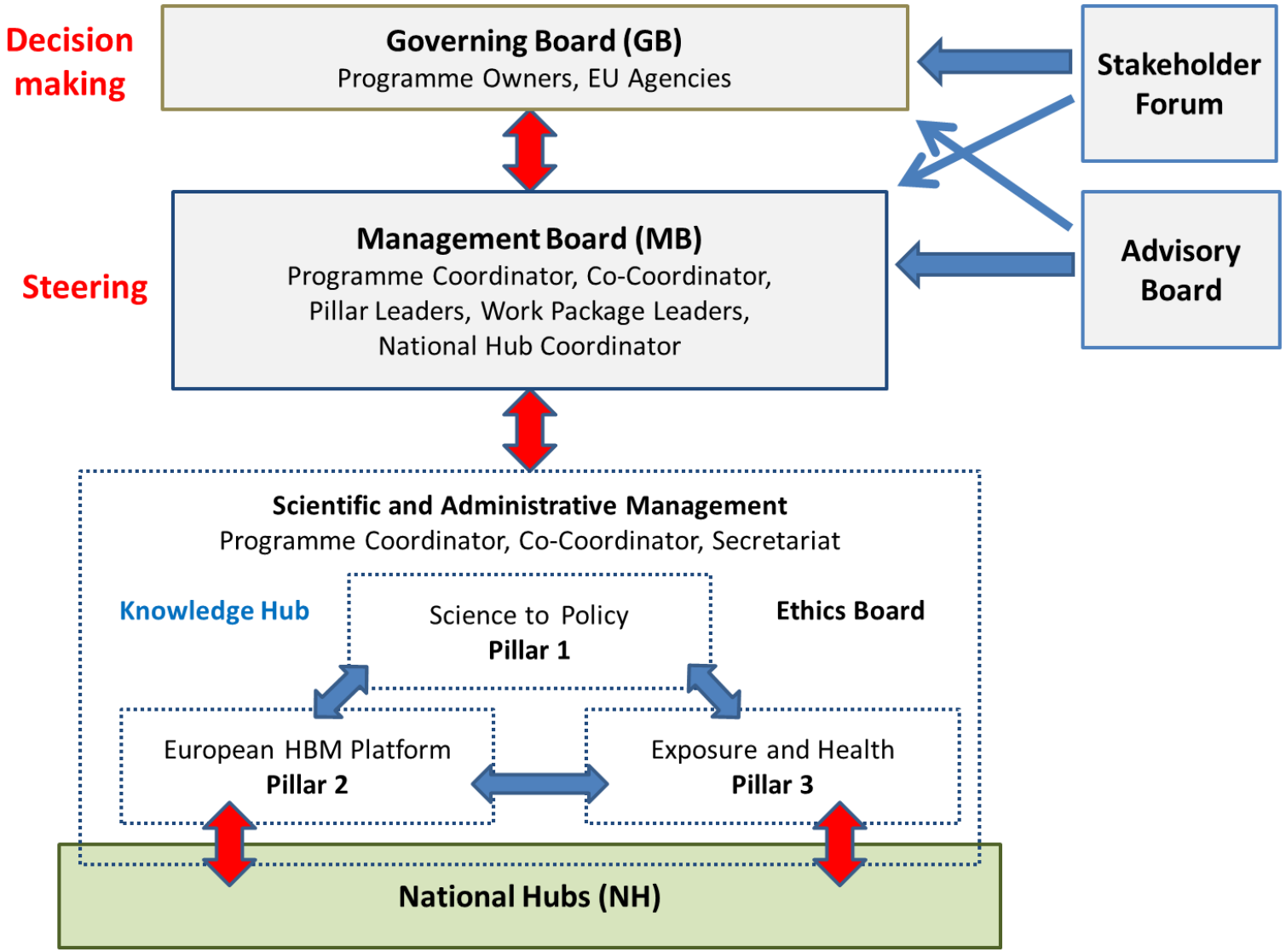
Priority substances to start with in the 1st year

Chemical family/Substances	Goals
Phthalates & Hexamoll®DINCH®	time trends, focus on substitutes
Poly/per-fluorinated compounds	baselines, time trends, support regulation, biomarkers of exposure and effect
Brominated & organophosphate flame retardants	baselines, time trends, support regulation, research on health impact
Bisphenol A, S and F	overall human exposure and exposure sources, possible further regulation
Cadmium and Chromium(VI)	overall human exposure and exposure sources, Cr(VI): possible geogr. variation
8 carcinogenic PAHs in REACH, 16 USEPA priority PAHs	overall human exposure, impact of PAHs on public health
Aniline derivatives	exposure of workers
Mixtures	identification of chemical mixtures, assessment of effects
Emerging substances	screening for new substances, non-targeted analysis

From a chemical to the work plan

1. **What is already existing?**
2. **What is needed for policy makers?**
   - to decide on the future use/ restriction of the chemical
   - to decide if the risk assessment scheme needs adaptations
   - to discuss the impact of imported goods
3. **What is needed for the information of the general public/ to inform consumers decisions?**
4. **What are the research questions?**
   - concerning the specific chemical
   - concerning overarching toxicological issues, such as mixtures

Governing Structure of HBM4EU



Pillar 1: Science to Policy

- WP4: Prioritisation and input to the annual work plan
- WP5: Translation of results into policy
- WP6: Sustainability and capacity building

Pillar 2: European HBM Platform

- WP7: Survey design and fieldwork preparation
- WP8: Targeted field work surveys and alignment at EU level
- WP9: Laboratory analysis and quality assurance
- WP10: Data management and analysis

Pillar 3: Exposure and Health

- WP11: Linking HBM, health studies, and registers
- WP12: From HBM to exposure
- WP13: Establishing exposure health relationships
- WP14: Effect Biomarkers
- WP15: Mixtures, HBM and human health risks
- WP16: Emerging Chemicals

- WP3: Internal Calls
- WP17: Ethics Requirements
- WP2: Knowledge Hub
- WP1: Programme management and coordination

Scientific and Administrative Management

National and EU Stakeholders; Advisory Board

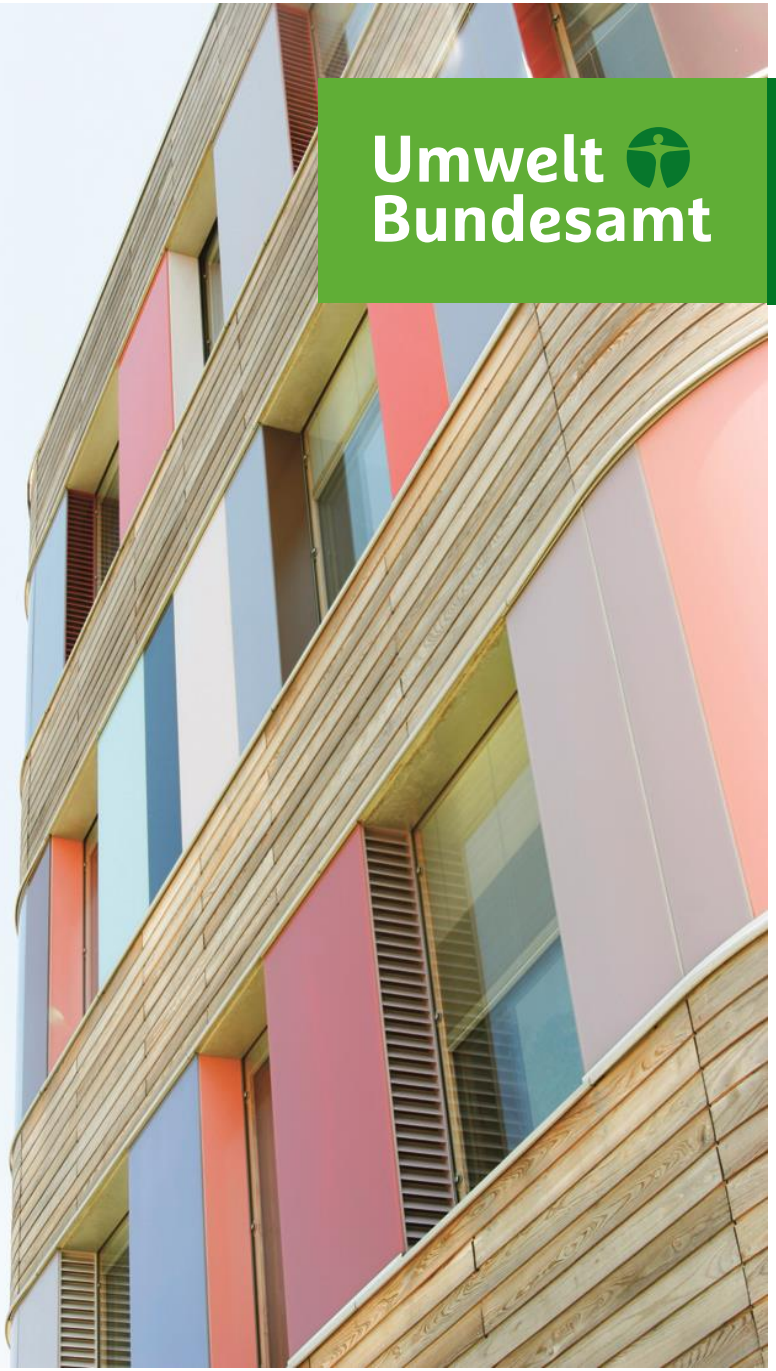
Why do we need HBM4EU?

- To better understand the consequences of **human exposure to various chemicals** as a key aspect of environmental health
- To bridge the gap between **science and policy**
- To share **evidence of use** from national programs
- To **share existing experience** in the EU
- To generate better evidence for **better regulation**
- To give better access to data by the **IPChem** database
- To **include aggregate exposure** in the assessment of health risks

HBM4EU

science and policy
for a healthy future

Umwelt Bundesamt



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