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## Human Biomonitoring and Health-Related Environmental Research

Austrian Cohort Research Days, 25. April 2023, Maria Uhl

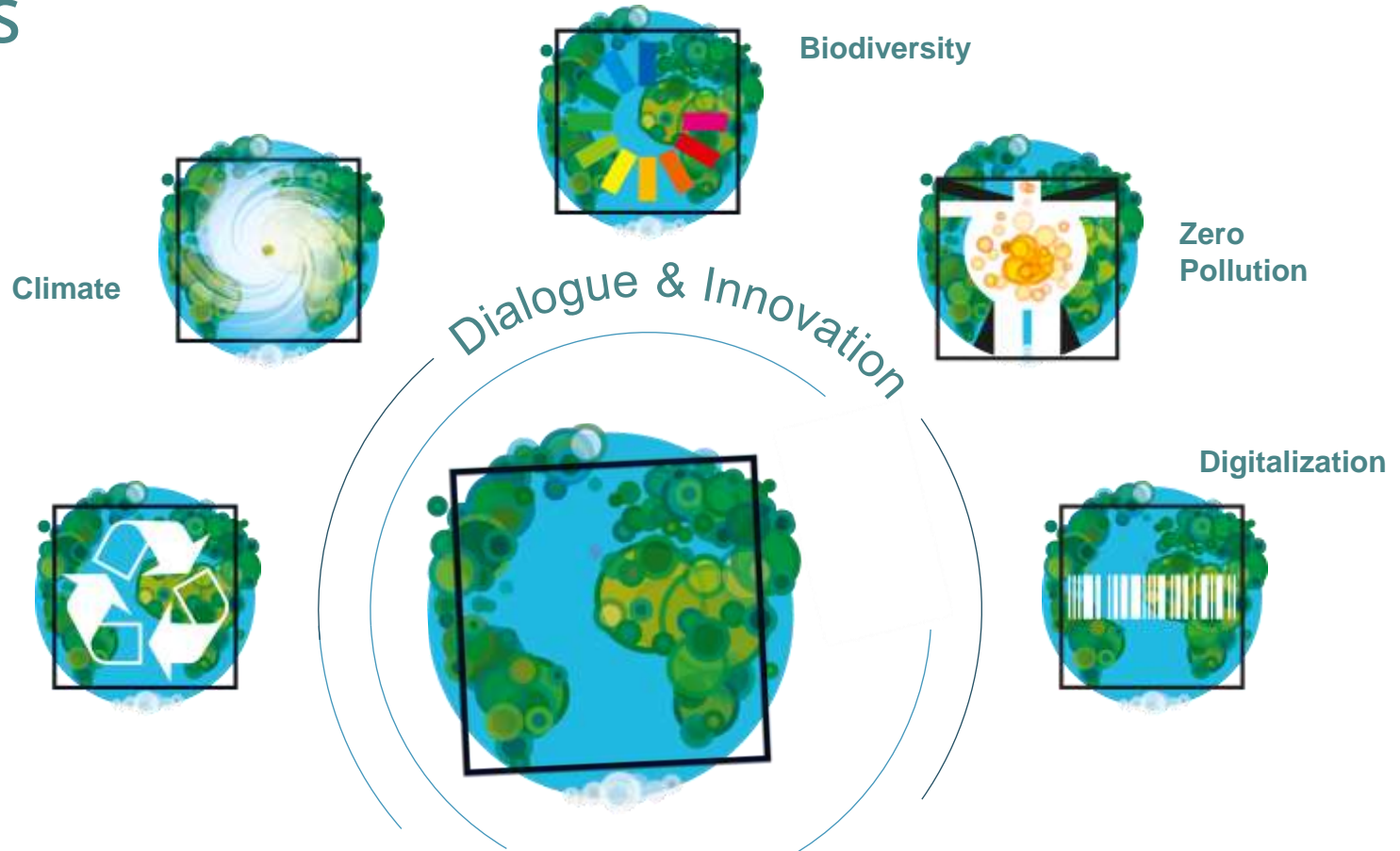
# DAS ÖSTERREICHISCHE UMWELTBUNDESAMT



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- **State of the Environment Assessment/Report**
- more than 35 years of experience  
more than 20 years as a Limited Liability Company
- developing solutions for
- federal administration, states and regions
- the EU and international institutions
- companies
- more than 500 experts
- more than 60 Mio. € turnover
- more than 20 languages
- experience in more than 60 countries

# TOPICS



# HEALTH AT THE ENVIRONMENT AGENCY?

## EXAMPLES

- Human beings as an object of protection (e.g. air pollution control, Water Framework Directive,...)
- Chemicals/Biocide assessment: risk to the environment and risk to human health
- Environment and health: EU Strategy for Environment and Health since 2003 (SCALE)
- WHO process: CEHAPE: Children Health Environment Action Plan for Europe
- Health in all policies: Austrian Health Goals: Health Goal 4: "Secure air, water, soil and all habitats for future generations".
- State of the Environment Assessment/Report: Health-related environmental monitoring
- Human Biomonitoring

# HUMAN-BIOMONITORING



# HUMAN-BIOMONITORING

- Detection of **chemicals and their degradation products** in blood, urine, breast milk or other human material (hair, saliva, fingernails, tissues)
- Establishment of **reference values** (statistically derived) // Comparison
- Comparison with **Human-Biomonitoring values** (e.g. HBM values of the German Human Biomonitoring Commission, serum concentrations corresponding to TDI or TWI values, HBM Guidance values, BE: Biomonitoring equivalents, DNEL (Derived No Effect Level<sub>internal</sub>))
- Identification of **exposure pathways/factors** and their significance
- Combination with **effect biomarkers**: evidence of adversity
- Identify **effects and impact on health**
- Embedding in **epidemiological studies/cohorts!**

# HUMAN-BIOMONITORING-PLATTFORM

- Founded in 2007
- Since 2016, advisory body to the Ministry (BMK\*)
- Reports to the National Council\*\* - every 2 years
- Experts from science and administration
- Knowledge exchange and network
- Protection of the environment and health
- National Hub of PARC (Partnership for \*Risk Assessment of Chemicals)



\*Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology.

\*\* **Human Biomonitoring in Österreich (parlament.gv.at):**  
[https://www.parlament.gv.at/dokument/XXVII/III/817/imfname\\_1486618.pdf](https://www.parlament.gv.at/dokument/XXVII/III/817/imfname_1486618.pdf)

# PARC

Partnership for the Assessment of  
the Risks from Chemicals

PARC

PARC Website: [www.eu-parc.eu](http://www.eu-parc.eu)





# What is PARC?

- A public-public **partnership** under Horizon Europe
- An initiative where the **European Union**, prepared with early involvement of **Member States and Associated Countries**, together with public partners (EU and National Risk Agencies, Universities, Public Research Organisations), commit to **jointly support the development and implementation of a programme** of research and innovation activities in relation with **the assessment of risk of chemicals**.

**Public-Public**

**Co-Fund Budget**

EU 50/50 MS,AC

400 M€

Born: 01/05/2022

Duration : 7 years

~200 Partners

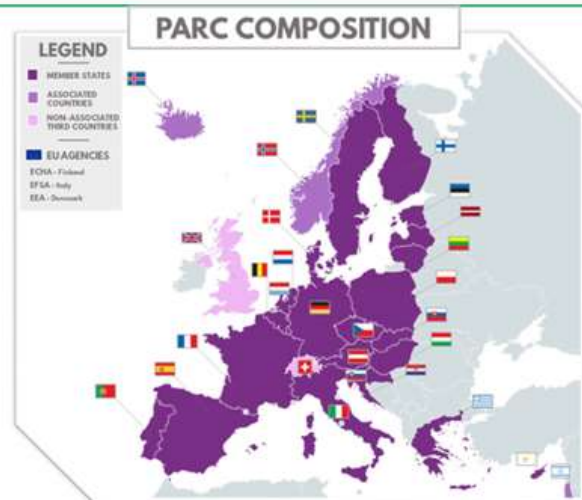
**28 countries**

23 Member States: Austria (AT), Belgium (BE), Croatia (HR), Cyprus (CY), Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (EL), Hungary (HU), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Netherlands (NL), Poland (PL), Portugal (PT), Slovakia (SK), Slovenia (SI), Spain (ES), Sweden (SE)

3 Associated countries: Iceland (IS), Israel (IL), Norway (NO)

2 Non-associated Third countries: Switzerland (CH), United Kingdom (UK)

3 European Agencies :





# WHAT WE DO

[Mission, vision and objectives](#)

[Our impact](#)

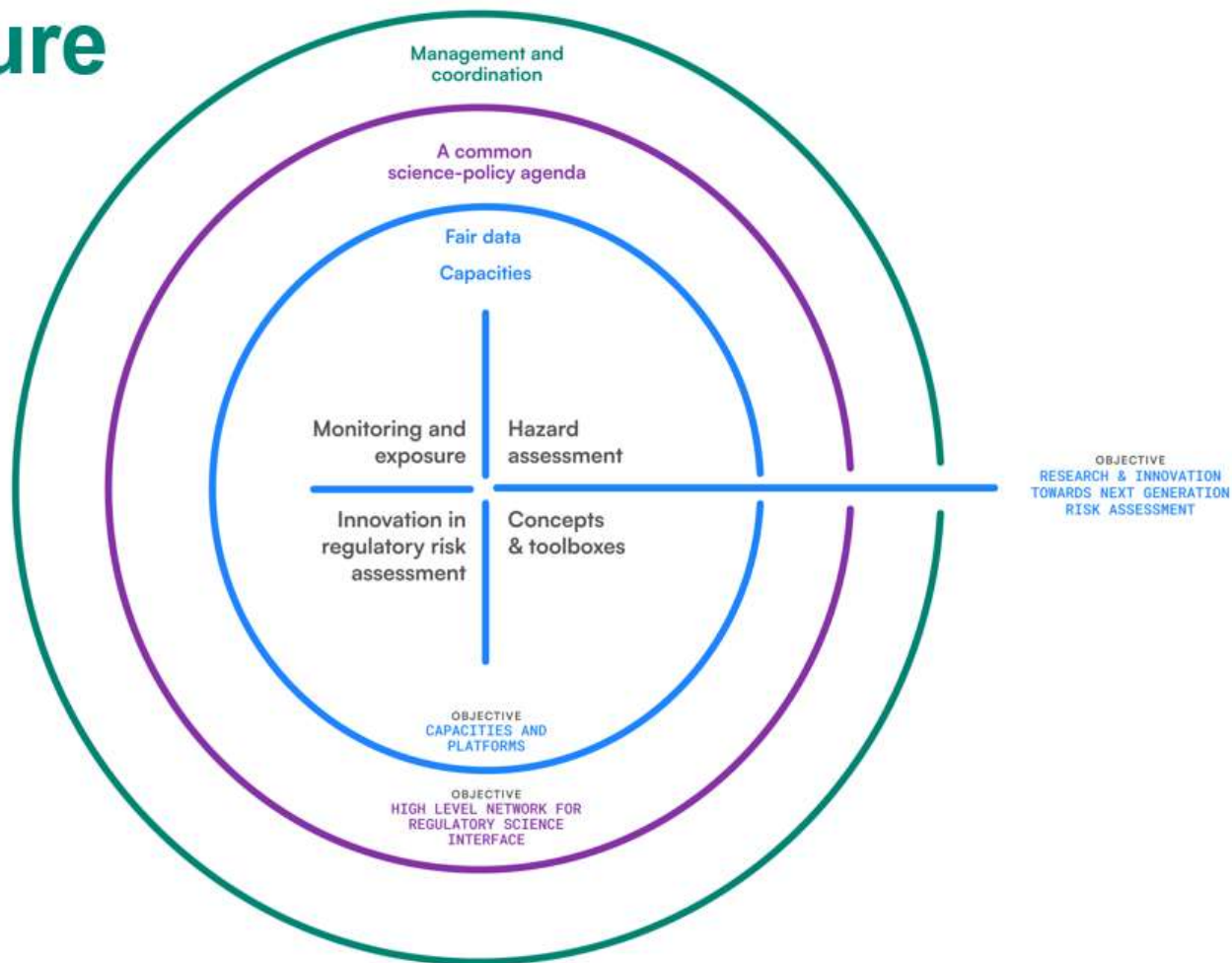
## Mission

We hope PARC will bring us a big step closer to the EU goal of a pollutant-free environment, and thus make a significant contribution to sustainable development in Europe.

# PARC Structure

## Global Objective

Consolidate and strengthen the EU's R&I capacity for chemical RA to protect human health and the environment and contribute to a non-toxic environment and a circular economy.



# BIOBANK OF THE ENVIRONMENT AGENCY AUSTRIA



## Human

Urine  
Breast milk  
Placental tissue  
Blood

Samples since 2019



## Animals

Organs  
Muscle  
Blood, Urine, Stool  
Lymph nodes

Samples since 2012







## Ecosystems

Litter  
Leaves  
Needles  
© MariSDilweis


Collection „Zöbelboden“  
Since 1992

## PFASs: What can we learn from the European Human Biomonitoring Initiative HBM4EU

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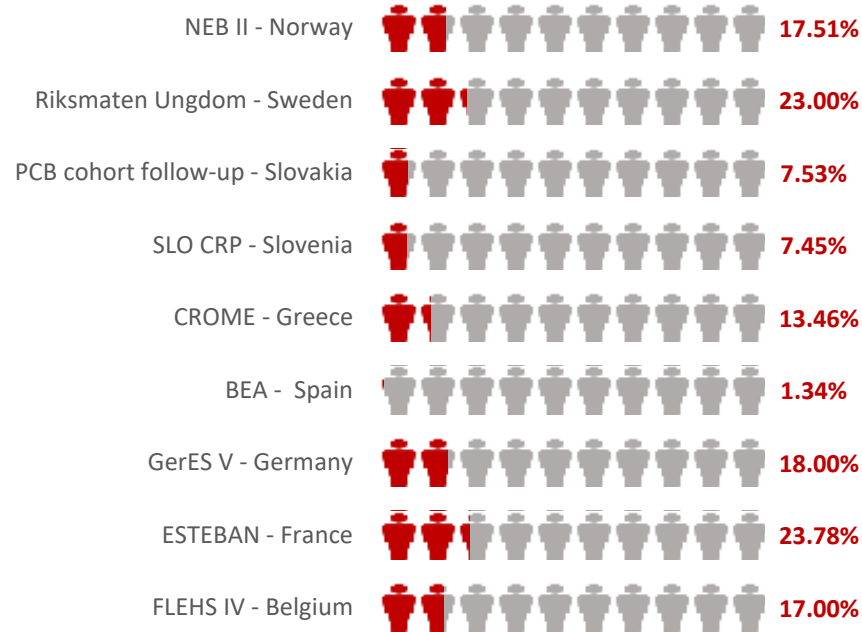
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<https://www.sciencedirect.com/science/article/pii/S1438463923000597?via%3Dihub>

### Abstract

Per- and polyfluoroalkyl substances (PFASs) were one of the priority substance groups selected which have been investigated under the ambitious European Joint programme HBM4EU (2017–2022). In order to answer policy relevant questions concerning exposure and health effects of PFASs in Europe several activities were developed under HBM4EU namely i) synthesis of HBM data generated in Europe prior to HBM4EU by developing new platforms, ii) development of a Quality Assurance/Quality Control Program covering

Share of European teenagers with combined exposure levels to PFOA + PFNA + PFHxS + PFOS exceeding health-based guidance value of EFSA (6.9 µg/L).



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Broschüre **Gesunder Start ins Leben**: Chemikalien im Alltag und ihre Wirkung auf Schwangere, Neugeborene und Babys: [file:///C:/Users/uhl/Downloads/190814\\_Gesunder-Start-ins-Leben\\_pdfUA%20\(4\).pdf](file:///C:/Users/uhl/Downloads/190814_Gesunder-Start-ins-Leben_pdfUA%20(4).pdf)

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Austrian Cohort Research Days

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