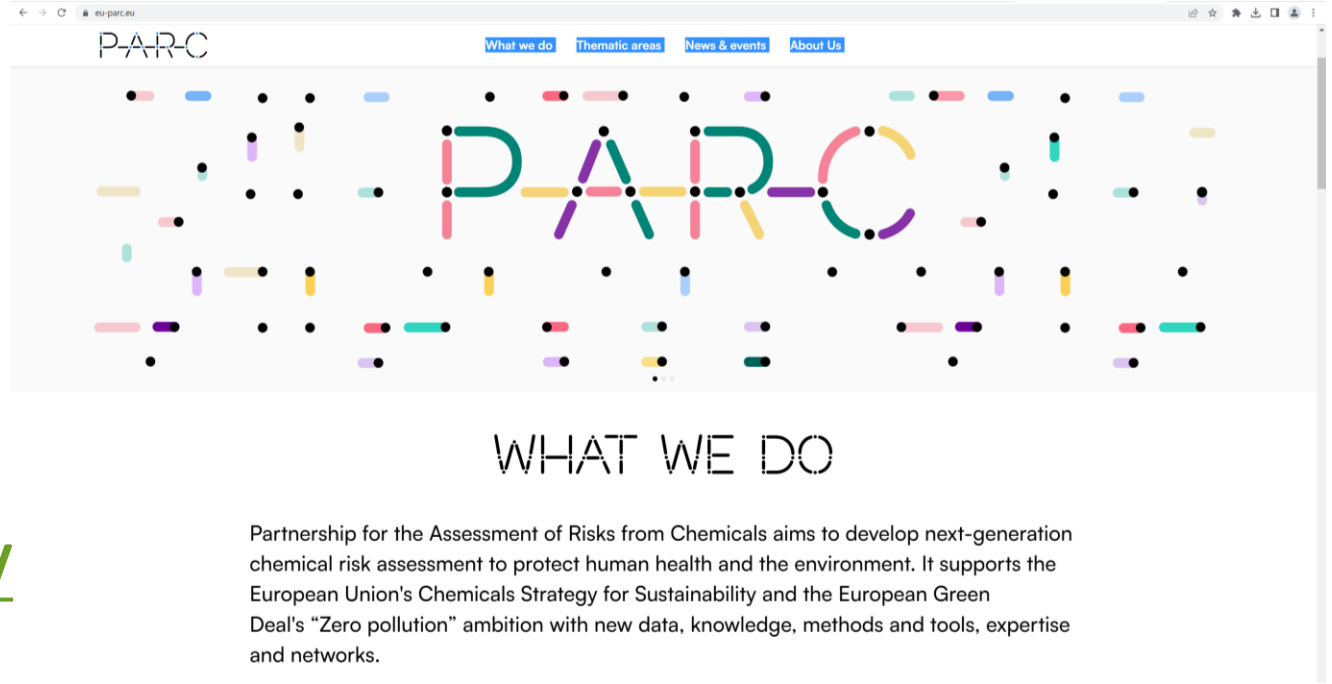
“One substance, one assessment” legislative proposal package of the European Commission and PARC

Partnership
FOR THE
Assessment
OF
Risks
FROM
Chemicals



https://www.eu-parc.eu/

REPUBLIC OF CYPRUS
MINISTRY OF HEALTH

ΓΧΚ SGL STATE GENERAL LABORATORY

ΠΣΧΟ, 27.3.2024

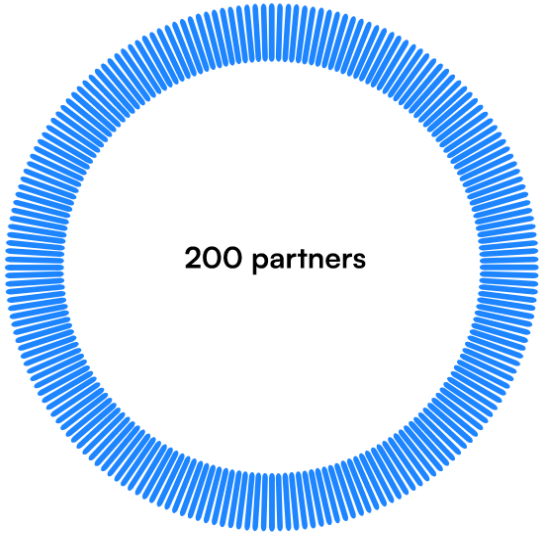
Dr. Andromachi Katsonouri, Senior Chemist

State General Laboratory – Ministry of Health

PARC National Coordinator and Contact Point

Co-funded by the European Union

PARC in the COMMISSION STAFF WORKING DOCUMENT



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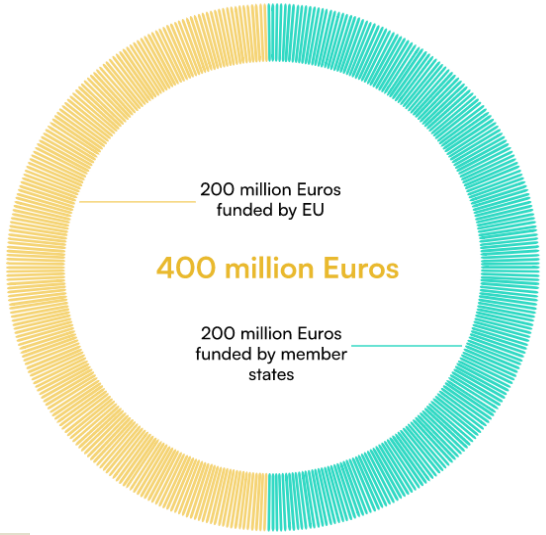
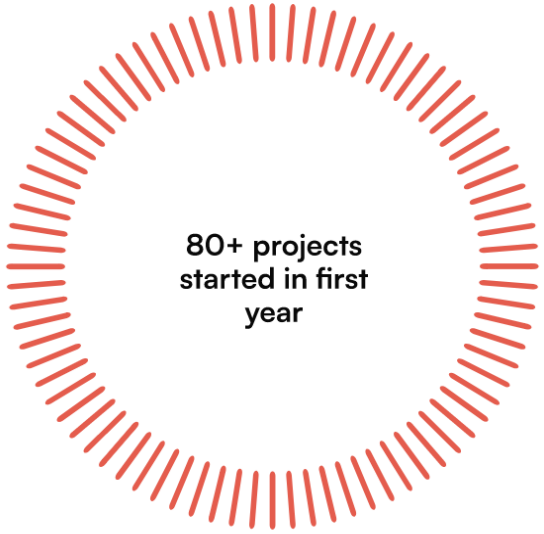
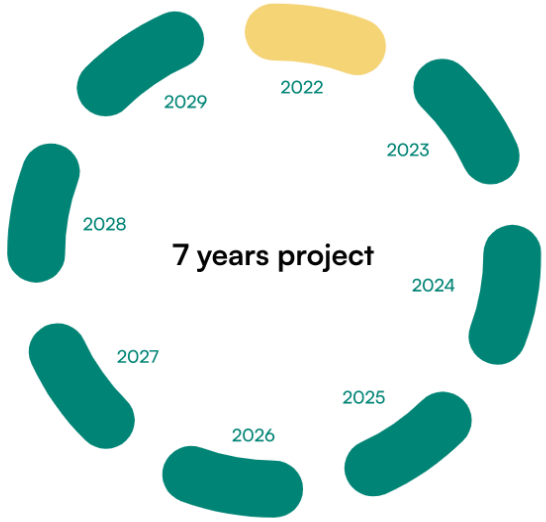


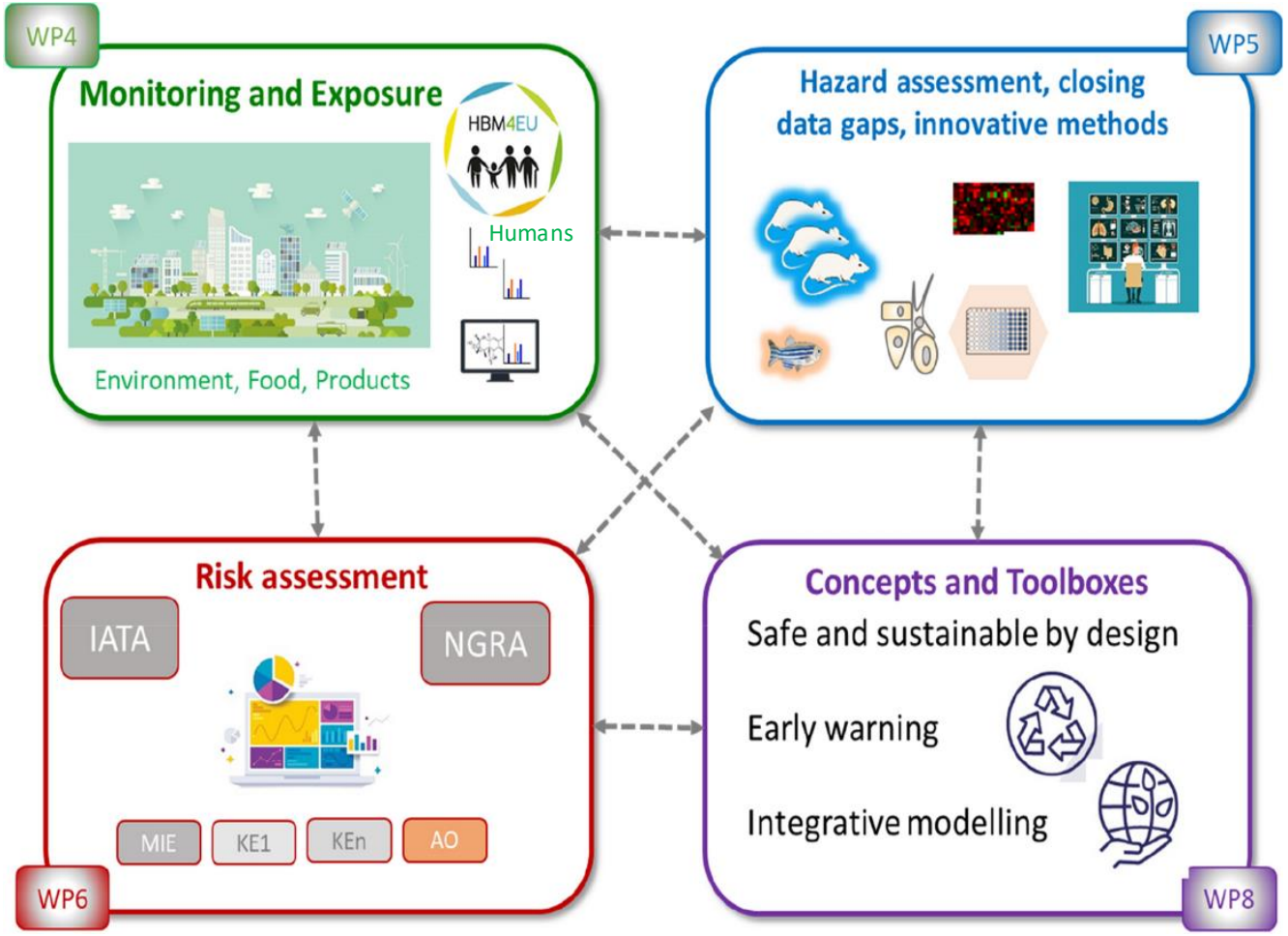




Co-engagement of EU agencies & MS

1. ECHA: European Chemicals Agency
2. EEA: European Environment Agency
3. EFSA: European Food Safety Authority

The commitment to start using the “one substance one assessment concept” and PARC



- Monitoring & outlook framework
- Common data platform with secure, high-quality FAIR data (findable, accessible, interoperable and reusable)
- Commissioning (and bookkeeping) of testing & monitoring of substances when info is necessary

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- National - EU Hubs for collaboration, alignment, capacity building, sustainability
- Prioritization of substances based on info needs
- Rapid Response Mechanism to new / urgent needs
- Communication with ALL stakeholders to enhance TRUST, Networking, Synergies, Capacities, Dissemination
- https://www.parcopedia.eu/ - an open access knowledge platform
- PARCroute – access to strategic roadmaps for policy uptakes
- Indicators for monitoring progress, impact

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Occupational Survey in the Waste Management Sector

Κυπριακή Κοορτή = CARE

– ChemicAls Risk Elimination in Waste Management

Συνεργασία ΓΧΚ - ΤΕΕ

Objectives

- ✓ **Data development** regarding the levels of **chemical exposures of workers in waste management** and their **biological effects**

  (electronics & plastics waste streams – both household and industrial)

- ✓ **Are regulations effective…?**

  … in limiting the presence of harmful substances within the loop of the circular economy?

- ✓ **What scientifically based recommendations** can be given to employers, workers and policy makers?
- ✓ **Framework** for extrapolation to general population implications

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Participants	E-Waste	Plastics
Waste management workers	Working in companies that manage e-waste. Workers should be involved directly in the tasks/processes	Working in companies that manage plastic waste. Workers should be involved directly in the tasks/processes
Controls	E.g. staff of university or other administrative tasks outside the waste companies	E.g. staff of university or other administrative tasks outside the waste companies

Biomarkers of A) exposure & B) effects

Substances	Waste stream	Matrix	A) Exposure biomarkers*
Metals	Both (but specific to stream)	Blood	Cd, Pb
		Urine	Cr, Cd, Pb and Hg (& maybe others of interest)
Flame retardants	Both	Serum	(BDE)-47; BDE-153; BDE-209; HBCD; γ-HBCD; TBBPA; DBDPE; 2,4,6-tribromophenol; syn-dechlorane plus; antidechlorane plus
		Urine	BCEP; BCIPP; BDCIPP;DPHP
Phthalates	Both	Urine	MEP; MBzP; MiBP; MnBP; MCHP; MnPeP; MEHP; 5OH-MEHP; 5oxo-MEHP; 5cx-MEPP; MnOP; OH-MiNP; cx-MiNP; OH-MiDP; cx-MiDP
Plasticizers	Plastics	Serum/urine	DINCH; DPP; DnBA; DEHA
Bisphenols	Plastics	Serum/Urine	BPA; BPS; BPF
PFAS	Both	Serum	PFHxA; PFOA; PFHpA; PFNA; PFDA; PFUnDA; FDoDA; PFBS; PFHxS; PFHpS; PFOS
PAHs	Only if combustion /heating process	Urine	1-hydroxypyrene (1-PYR); 3-hydroxybenzo(a)pyrene

B) Effect Biomarkers		Sample
Genotoxicity	Micronuclei frequencies	Blood, urothelial, buccal
	Comet Assay	Blood
	Phosphorylated histone H2A(X)	Blood
Epigenetics	Telomere length	Blood
	Mitochondrial DNA copy no.	Blood
	DNA Methylation, genome-wide DNA methylation, mitochondrial copy no.	Lymphocyte DNA from blood
Oxidative stress	F2-isoprostanes	EBC
	8-oxodG	Urine
	GSH/GSSG	Blood
	TAC, MDA, 4-HNE, SOD, GPx	Blood
Inflammation	B-cytokines (TNFα, ILs)	Blood
	C-reactive protein	Blood
Metabolomics	Untargeted metabolomics	Urine

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Environmental Monitoring / Hygiene Measurements

Approach	Sample matrix	Group of substances
Personal monitoring	Air	Metals (Cr, Cd, Pb and Hg)
	Wipe samples	Metals (Cr, Cd, Pb and Hg)
	Wrist bands*	Flame retardants and phthalates
Environmental monitoring	Settled dust**	Metals (Cr, Cd, Pb and Hg), flame retardants and phthalates

PARC Aligned Studies: General Population chemical exposures & biological effects

Min # countries

Min #participants

SUBSTANCE PRIORITIZATION

Children	Teenagers	Adults
PFAS	PFAS	PFAS
Bisphenols	Bisphenols	Bisphenols
Pesticides	Pesticides	Pesticides
Metals		Metals
Mercury		Mercury
Phthalates & substitutes	Phthalates & substitutes	
OPFRs	Arsenic species	UV-filters (reserve)

Sex

- ✓ Male
- ✓ Female

→ 50:50 ratio

SES socio-economic status

- ✓ Educational level (ISCED- classification from UNESCO)
- ✓ Level 0-6

Subject living environment

Inhabitants of

- ✓ Low
- ✓ Medium
- ✓ high density communities

Thank you for your attention!

For more information: akatsonouri@sgl.moh.gov.cy

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