



September 2022



"Emerging environmental challenges require continued and effective action from the EU in the years to come. That is why research and innovation addressing the impacts of environmental degradation is key to protecting the health of EU citizens."

Mariya Gabriel Commissioner for Innovation, Research, Culture, Education and Youth

Research and innovation to address the impact of environmental factors on Health



The quality of the environment we live and work in is a powerful determinant of our health and well-being. Environmental factors such as air, soil and water quality, urbanisation, the built environment, climate change and exposure to chemicals, nanomaterials, noise and radiation have a significant influence in the risk and incidence of disease. The World Health Organisation estimates that approximately 12.6 million deaths each year (24% of global deaths) are attributable to environmental risk factors.

In Europe, environmental risk factors are responsible for almost 20% of the deaths per year. Environment-related disease burden also has significant economic effects. On the other hand, exposure to green and blue environments can have positive impacts on health and well-being. The current state of the natural environment and the emergence of new environmental pressures calls for coordinated and timely action to understand, prevent and minimise the impacts of these stressors on human, animal and environmental health.

Feeding evidence-based policy-making through Environment and Health research

Due to increasing environmental challenges and the need to protect citizens' health from the impacts of environmental degradation, the European Union has established an extensive framework of thematic initiatives and regulatory actions related

to environment and health. The EU has also been providing increasing financial support for research and innovation for over 20 years, consolidating the evidence needed to support the implementation of this policy framework.

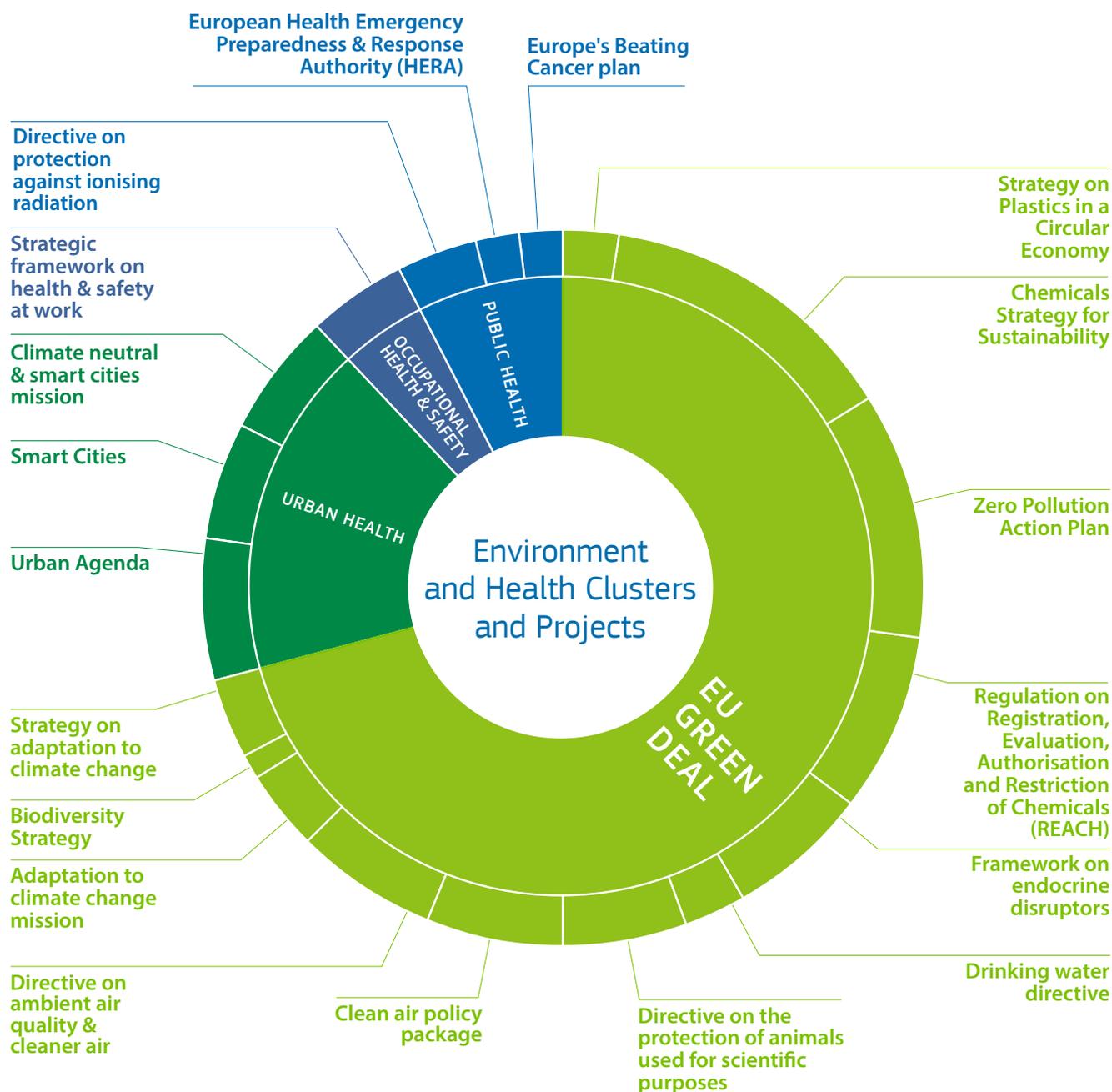


FIGURE 1: Relative contribution of the research projects and clusters of projects of the Environment and Health portfolio to various EU policy areas and related initiatives. This research portfolio also has minor contributions to other policy initiatives that are not represented in this figure.

The EU-funded research and innovation actions on Environment and Health contribute to the European Green Deal and related initiatives such as the [Chemicals Strategy for Sustainability](#), the [Zero Pollution Action](#)

[Plan](#) and the [EU Strategy on Adaptation to Climate Change](#). Furthermore, these research actions also inform the EU policies on Urban Health, Public Health and Occupational Health and Safety.

EU areas of action in Environment and Health research

Since 2000 the EU has funded over 500 multi-national, multi-partner projects on Environment and Health research with an estimated investment of around € 2.4 billion. These EU investments include a variety of actions such as research

and innovation actions, large scale European Joint programmes, coordination and support actions, and strongly contribute to the scientific understanding of environmental exposures and their health impacts.

Under Horizon 2020, the EU's Research and Innovation programme 2014–2020, the main areas covered by the funded research in environment and health were the impacts of chemical stressors on health as well as the overall approach to the environmental determinants of health and disease (including the exposome). Other significant

research areas have been nanomaterials and health, pollution monitoring and mitigation, and urban health. Some of these projects cover more than one area. For example, projects addressing urban health frequently address air quality and projects on the exposome cover many different environmental stressors.



Figure 2a

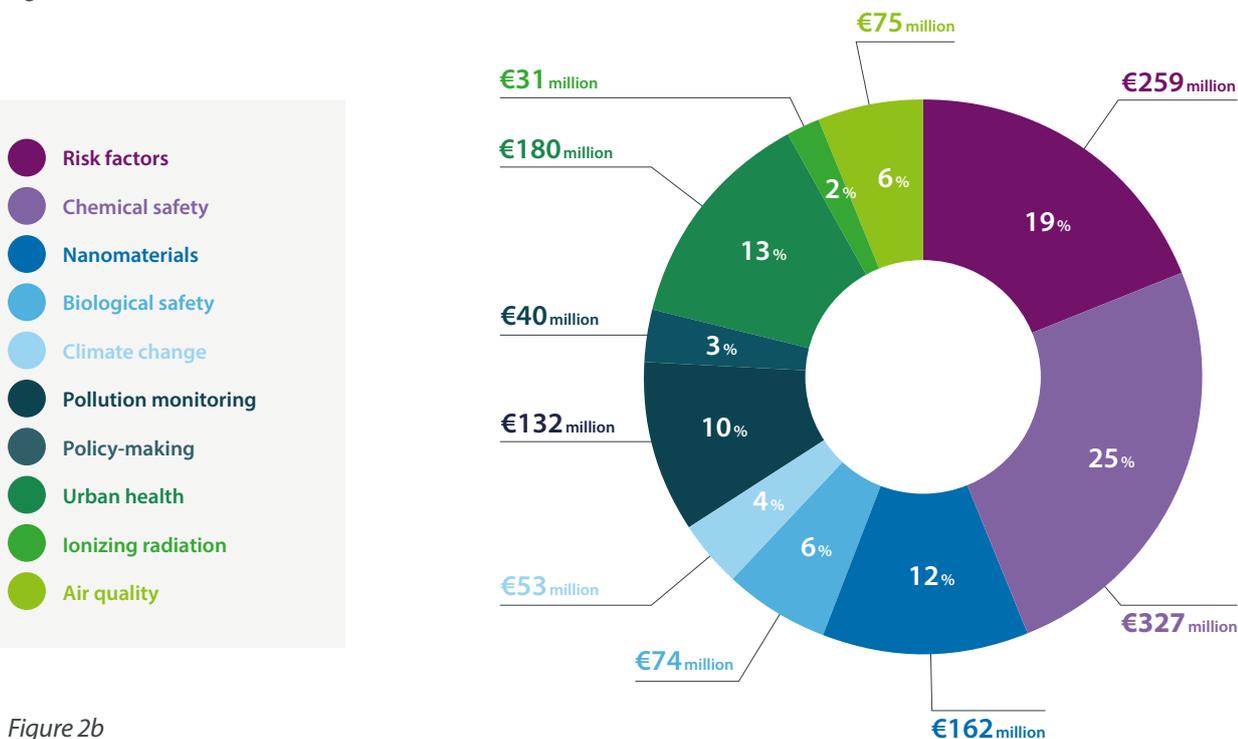


Figure 2b

FIGURE 2: Number of projects (a) and EU contribution (b) in the main areas of the Environment and Health research portfolio.

Promoting Synergies and increasing impact on Environment and Health research

Started under Horizon 2020 and strengthened in Horizon Europe, the collaboration of projects addressing the same research topic, via so-called clusters of projects, aims to promote synergies and knowledge sharing, avoid overlaps and increase societal and policy impact of EU-funded research in environment and health.

There are 9 clusters (with more than 50 projects) currently active. These clusters cover a variety of research areas, including the development of methods for the detection of chemical exposure, the health impacts of stressors like air pollution, electromagnetic fields, urban environments, climate change, chemicals and

nanomaterials, or the overall effects of exposure to the environmental determinants of health. As a whole these clusters cover occupational and living environments, target various groups (general population, children, the elderly, workers) and address physical and mental health and well-being. Using a variety of approaches (e.g. biomonitoring, omics, clinical studies, epidemiology, ecotoxicology, health interventions, etc), a wide diversity of health outcomes are studied covering, among others, respiratory, cardiovascular, metabolic, gastrointestinal and immunological diseases, reproductive disorders and fertility issues, cancer, neurodevelopmental disorders, endocrine disruption-mediated effects and diabetes.



PROJECTS



BUDGET
(in million)



COUNTRIES



RESEARCH
GROUPS

Clusters under HORIZON 2020	EURION ¹	8	€49	19	70+
	EHEN ²	9	€105	24	120+
	CUSP ³	5	€30	22	70+
	Urban Health ⁴	6	€30	26	90+
	Green Deal ⁵	6	€51	23	70+
	ASPIS ⁶	3	€60	16	60+
Clusters under HORIZON EUROPE	IDEAL ⁷	6	€47	23	100+
	Climate Change & Health ⁸	6	€59	28	100+
	CLUE-H ⁹	4	€29	18	60+

¹ [European Cluster to Improve Identification of Endocrine Disruptors](#)

² [European Human Exposome Network](#)

³ [European research cluster to understand the health impacts of micro- and nanoplastics \(MNPs\)](#)

⁴ [Urban Health Cluster](#)

⁵ [The Green Deal Cluster](#)

⁶ [Animal-free Safety assessment of chemicals: Project cluster for Implementation of novel Strategies](#)

⁷ [Cluster on Indoor Air and Health](#)

⁸ [Cluster on Climate Change and Health](#)

⁹ [Cluster on Electromagnetic fields Exposure and Health](#)

FIGURE 3: Ongoing clusters of research projects of the Environment and Health portfolio. Details are given on the number of partner projects, EU contribution and number of countries and research groups involved. The link to the cluster's website is provided when available (some clusters are recent and do not yet have a website).

These clusters of projects develop joint activities (e.g. workshops and trainings activities, annual cluster meetings) and establish collaborations through Working Groups (WGs) on areas of common interest such as communication and dissemination addressing policy-makers and also civil society, data exchange and harmonisation, science-to-policy link and scientific synergies. An example of how these

WGs are shaped within a cluster of projects is shown featuring the [CUSP cluster - The European Research Cluster to Understand the Health Impacts of Micro- and Nanoplastics](#) as an example.

The clusters are already contributing to evidence-based policy-making in the area of Environment and Health by publishing [Brochures](#), [Newletters](#) and [Policy briefs](#).

More information about the clusters of projects can be found in the [EU Environment and Health research webpage](#).

CUSP Cluster

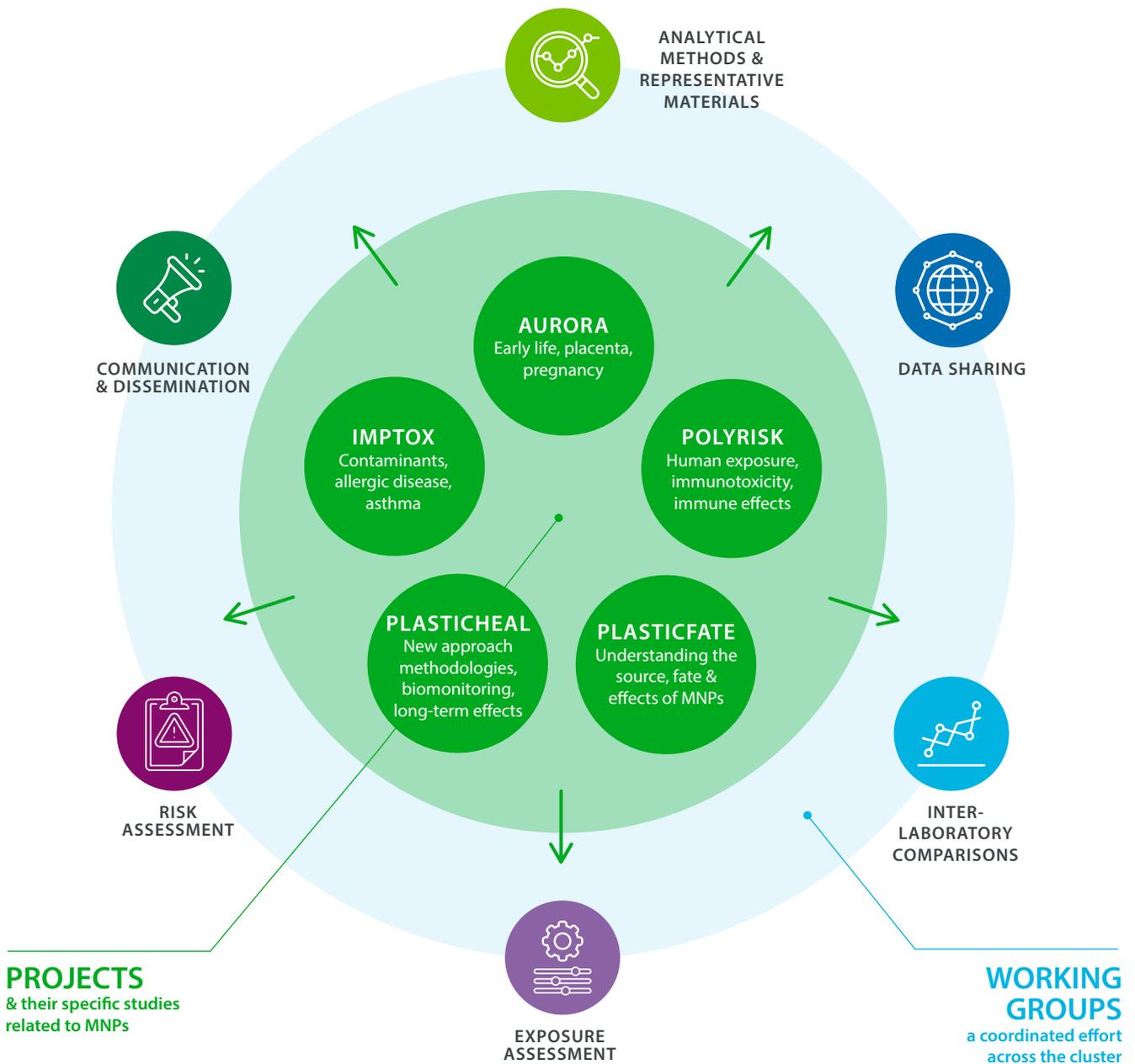


FIGURE 4: Example from the CUSP cluster showing how the five partner projects collaborate and contribute to the thematic working groups of the cluster.

Other success stories: from HBM4EU to PARC

Noteworthy large-scale initiatives working on Environment and Health research include the recently ended European Human Biomonitoring Initiative ([HBM4EU](#)) and the newly started European Partnership for the Assessment of Risks from Chemicals (PARC). HBM4EU developed a programme for the monitoring of human exposure to chemicals at the European scale and the understanding of its impact on a variety of health outcomes. PARC will build on the results from HBM4EU and will support

EU and national chemical risk assessment and risk management bodies with new data, knowledge, methods, networks and skills to address current, emerging and novel chemical safety challenges.

Because of the wide European geographical coverage of both initiatives, the budget involved and the close collaboration with regulators and policy makers, the results of these research actions will impact significantly the area of chemical safety in Europe.

HBM4EU

European Human Biomonitoring Initiative

Co-fund Supported by Horizon 2020

- Member State
- Associated Country
- Non-associated Third Country
- EU Agency
European Environment Agency (EEA), Denmark



5 YEARS (2017-2022)



Total budget: **€75 M**
(€50 M EU contribution)



117
Partner organisations



Coordinated by **UBA***

* German Environmental Agency

PARC

European Partnership for the Assessment of Risks from Chemicals

Partnership supported by Horizon Europe

- EU Agency
European Chemicals Agency (ECHA), Finland
European Food Safety Authority (EFSA), Italy
European Environment Agency (EEA), Denmark



7 YEARS (2021-2028)



Total budget: **€400 M**
(€200 M EU contribution)



199
Partner organisations



Coordinated by **ANSES****

** French Agency for Food, Environmental and Occupational Health & Safety

AT Austria	EE Estonia	IS Iceland	LU Luxembourg	SK Slovakia
BE Belgium	FI Finland	IE Ireland	NL Netherlands	SI Slovenia
HR Croatia	FR France	IL Israel	MK North Macedonia	ES Spain
CY Cyprus	DE Germany	IT Italy	NO Norway	SE Sweden
CZ Czechia	EL Greece	LV Latvia	PL Poland	CH Switzerland
DK Denmark	HU Hungary	LT Lithuania	PT Portugal	UK United Kingdom

FIGURE 5: Description of two large-scale research actions in the area of Environment and Health: HBM4EU and PARC.

MORE INFORMATION

Details on the extensive list of research actions in the Environment and Health portfolio under Horizon 2020 are available in the [Catalogue of European Research on Environment and Health](#).

Information on previous research initiatives and coming actions under Horizon Europe can be found in the [EU Environment and Health research webpage](#).

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