



European Union-funded Research on Air Quality and Health: Achievements and Future

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*Air pollution and Health: recent advances to inform the
European Green Deal, Brussels, 21-22 January 2020*

Outline of the presentation

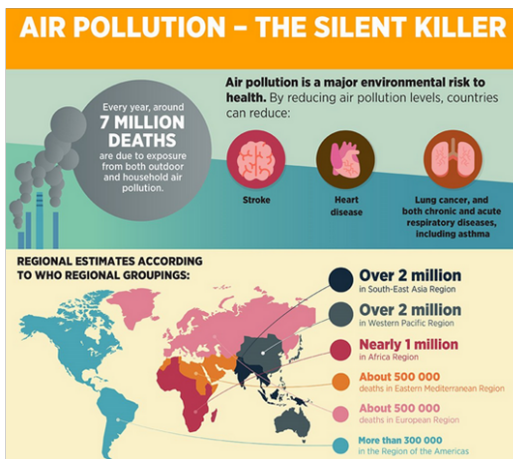
- ❑ ***Environment and health (E&H)
research and research drivers in the EU***
- ❑ ***Examples of air quality projects***
- ❑ ***Looking into the future***

Driver 1: The evidence

- ¼ of all deaths and disease burden in the world
- At least 13 million deaths

90% of people breathe polluted air!

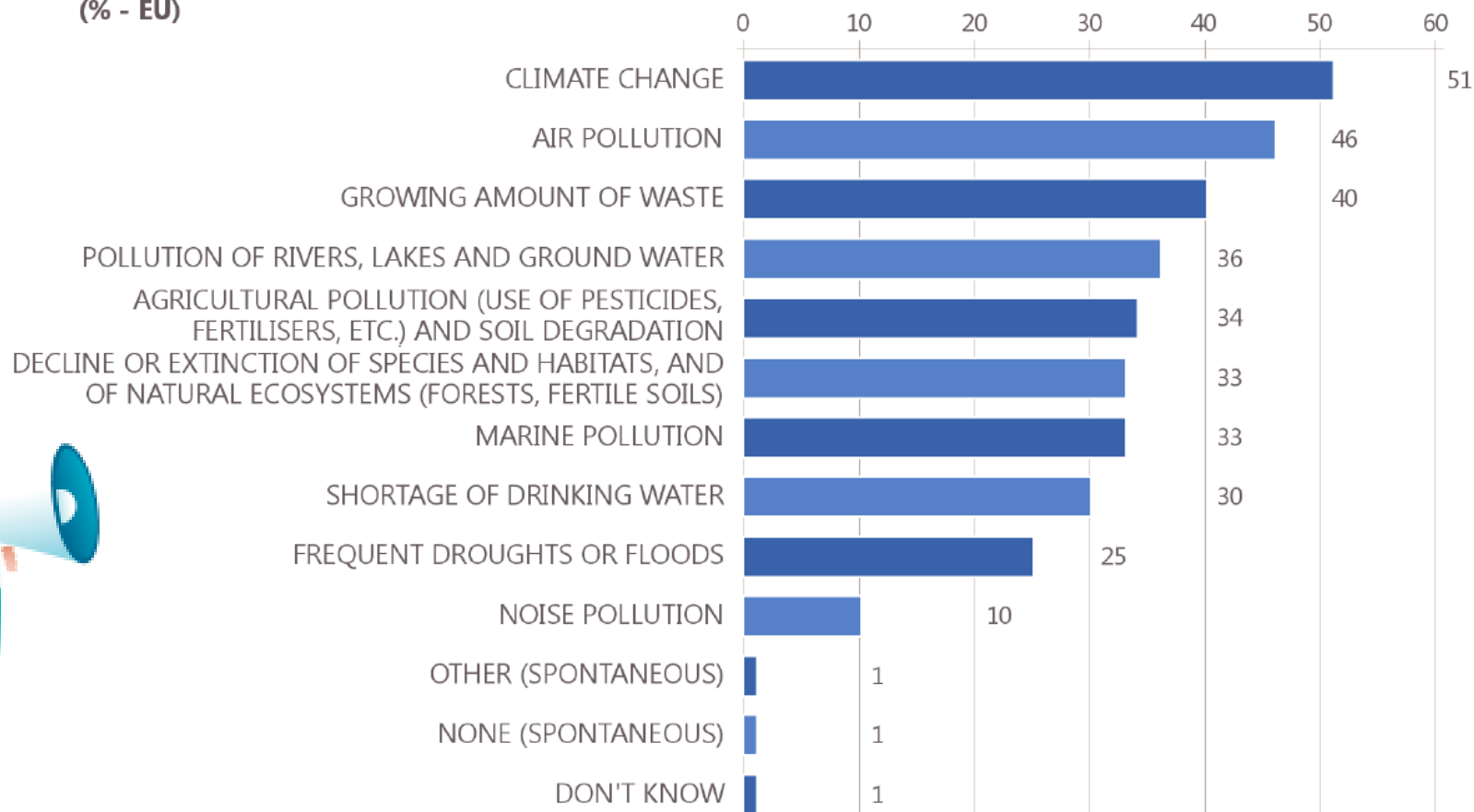
120 000 work-related cancer cases occur each year as a result of exposure to carcinogens at work in the EU



Driver 2: Public concerns

Eurobarometer 468 (November 2017: *Attitudes of European Citizens towards the Environment*): **Europeans continue to express high levels of concern about the environment and to see it as an issue that affects them personally**

QD2 From the following list, please pick the four environmental issues which you consider the most important.
(MAX. 4 ANSWERS)
(% - EU)



Base: all respondents (n=27,881)



Driver 3: Global policy processes



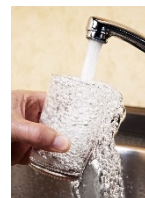
European
Environment and
Health process
(since 1989)



Declaration of the Sixth
Ministerial Conference
on
Environment and
Health 2017



'BIG 5' priorities:



Water quality &
sanitation



Waste



Chemical risks



Air quality



Climate change



The UNEA Ministerial Declaration
'Towards and Pollution Free
Planet' and the Resolution on
Environment and Health (2017)



European
Commission

Driver 4: European policy processes



Charter of Fundamental Rights of the European Union

6th Environment Action Programme (2002-2012):

Environment and health
one of four priorities



**European E&H
Strategy and
Action Plan
(2003-2010)**



**7th Environment
Action Programme
(2013-2020):**
***'Safeguarding the
Union's citizens from
environment-related
pressures and risks
to health and well-
being' one of three
thematic objectives***

**8th Environment
Action Programme
(In preparation)**

- ❖ Council conclusions
- ❖ EU Strategic Framework on Health and Safety at Work 2014-2020
- ❖ **Thematic Strategy on Air Pollution**
- ❖ Strategy on Plastics in a Circular Economy
- ❖ General Food Law
- ❖ European Union Framework on Endocrine Disruptors
- ❖ European Water Framework Directive
- ❖ The Combination Effects of Chemicals, Chemical Mixtures
- ❖ REACH Regulation
- ❖ Regulation on Classification, Labelling and Packaging of Substances and Mixtures
- ❖ Directive on the Protection of Animals Used for Scientific Purposes
- ❖ Rotterdam Convention on the International Trade in Hazardous Chemicals
- ❖ Waste Framework Directive
- ❖ The Strategic Approach to Pharmaceuticals in the Environment
- ❖ Regulation on Contaminants in Food
- ❖ Placing of Plant Protection Products on the Market
- ❖

The new Commission's guidelines



Six headline ambitions:

1. A European Green Deal
2. An economy that works for people
3. A Europe fit for the digital age
4. Protecting our European way of life
5. A stronger Europe in the world
6. A new push for European democracy



A Union that strives for more

My agenda for Europe

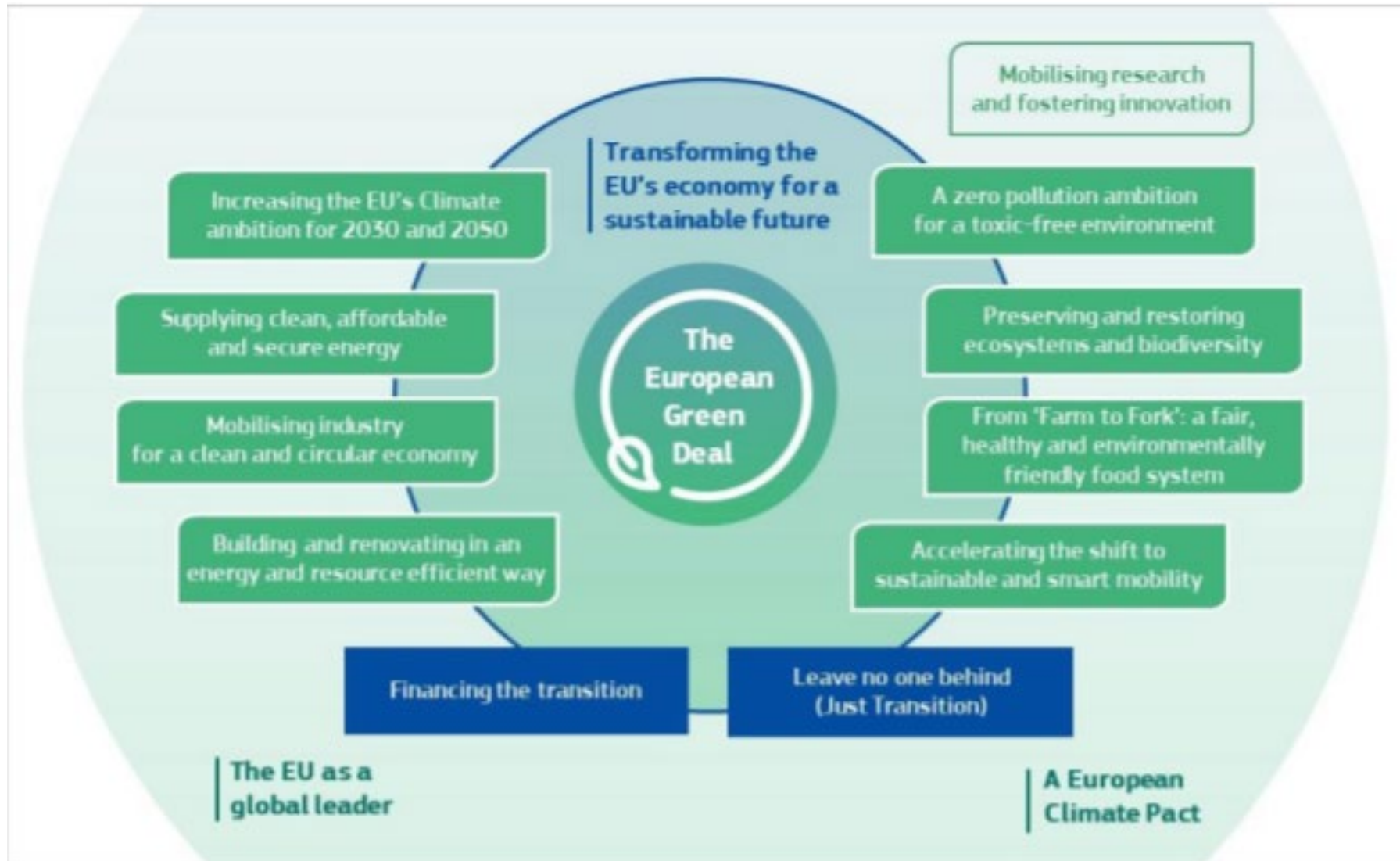
By candidate for President of the European Commission

Ursula von der Leyen

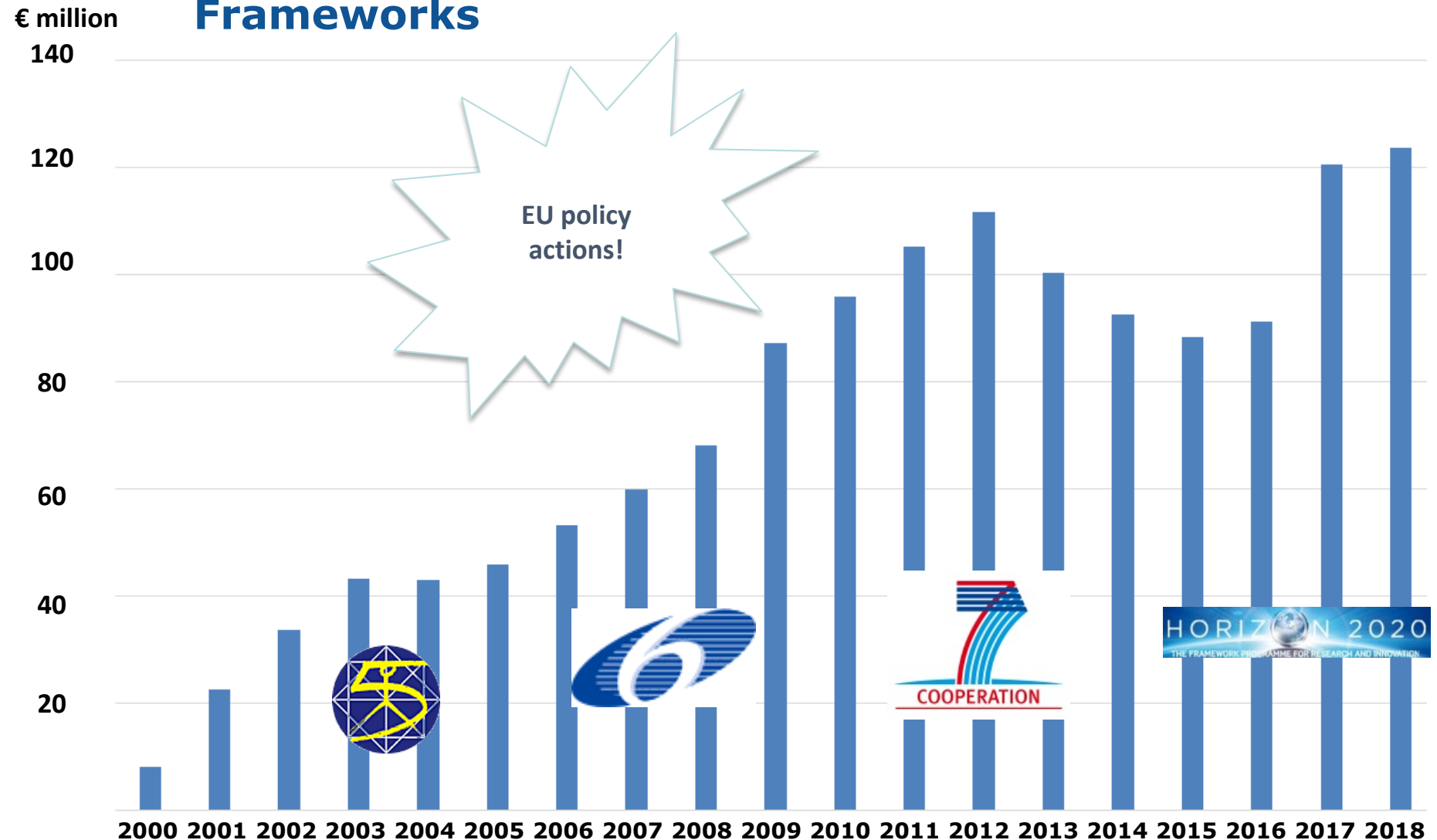
"European citizens' health and the planet's health go together: it is the quality of the air we breathe, the water we drink, the food we eat and the safety of the products we use. For the health of our citizens, our children and grandchildren, Europe needs to move towards a zero-pollution ambition.

*I will put forward a cross-cutting strategy to protect citizens' health from environmental degradation and pollution, addressing **air and water quality**, hazardous chemicals, industrial emissions, pesticides and endocrine disrupters."*

The European Green Deal



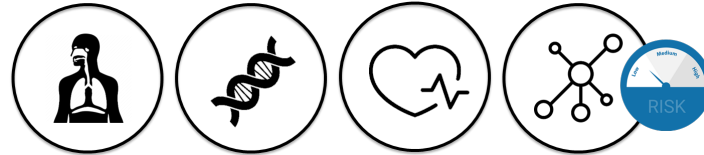
From Horizon 2020 to Horizon Europe - Spending on Environment and Health Research by EU Research Frameworks



Over 500 projects funded; received over 1.8 billion euros from FP5/FP6/FP7/H2020 (1998-2018)

Research on air pollution and health in the R&I Framework Programmes

Projects addressing air pollution and health issues



Targeted
→
Larger scale,
multifactor
initiatives

Policy-oriented research and networks of excellence



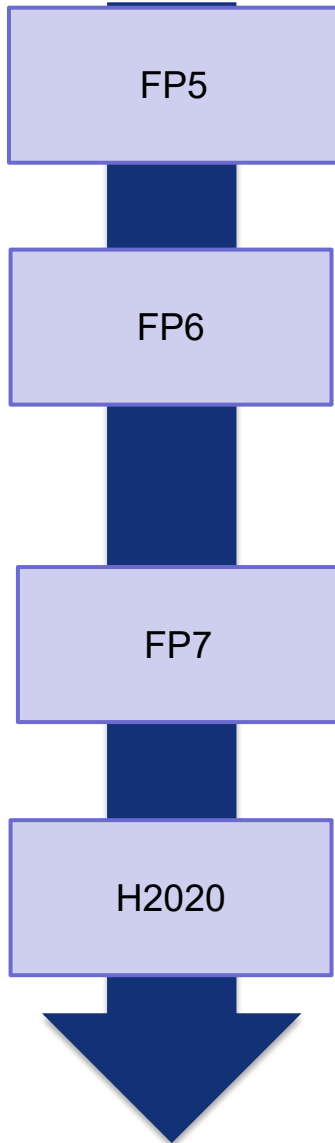
Science for
science
→
Science for
policy

Identification of pollution sources and health impacts



EU, MS,
academia
priorities
→
Joint
priorities

Clean air and sustainable urban environments



Examples of research projects – ATOPICA



Ragweed=
Ambrosia
artemisiifolia



www.atopica.eu

See video on
YouTube!



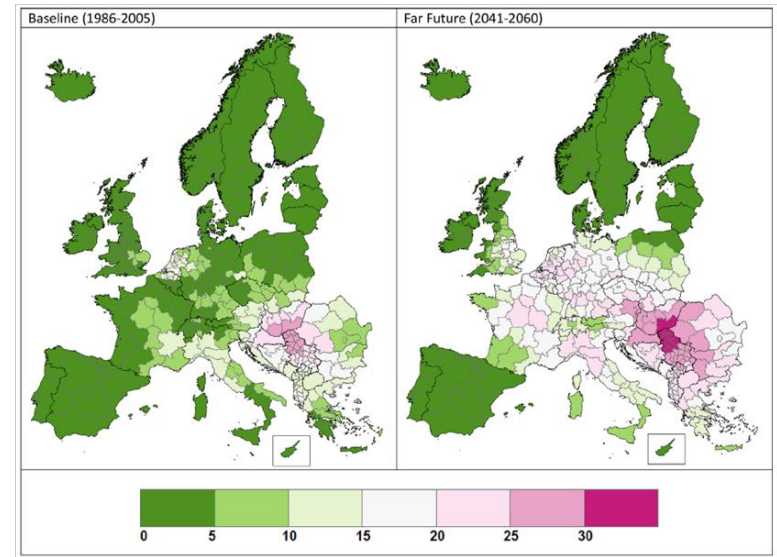
Atopic Diseases in Changing Climate, Land Use and Air Quality (2011-2014)
€3.5 million from the EU

PLAY WITH DOCTOR ATOPICA

Play online and learn how to distinguish ambrosia play»

Print, play and discover who the evil alien is download»

Play with Dr Atopica on the project website!



Percentage of population sensitized to ragweed pollen

Examples of research projects – iSCAPE, ICARUS and ClairCity

- **Improved knowledge base (emission inventories), collection, verification and integration of climate and air quality data**

Impact: Improved models and tools for air quality and carbon footprint monitoring/ management in cities

- **Strong citizen engagement and awareness raising about causes and consequences of air pollution and carbon footprint (health impacts)**

Impact: Innovative engagement in air quality monitoring and decision-making e.g. low-cost sensor kits and sensors campaigns, serious games, apps, and activities for behavioural change



ICARUS



The European Human Exposome Network – Examples air quality

EXPOSOME CLUSTER

9 projects, 24 countries, €106 million from the EU

EXPANSE

Urban exposome; exposome and health data of more than 55 million Europeans (inter alia)

ATHLETE

Prospective Europe-wide exposome cohort covering the first 2 decades of the life

EQUAL-LIFE

Combined exposures (built environment, outdoor and indoor environmental quality). Eight prospective cohorts

REMEDIA

Atmospheric pollutants, life style, socio-economic level, UV, surrounding natural space, built environment, traffic. Cohorts and population registries.

CMPD

Mental health

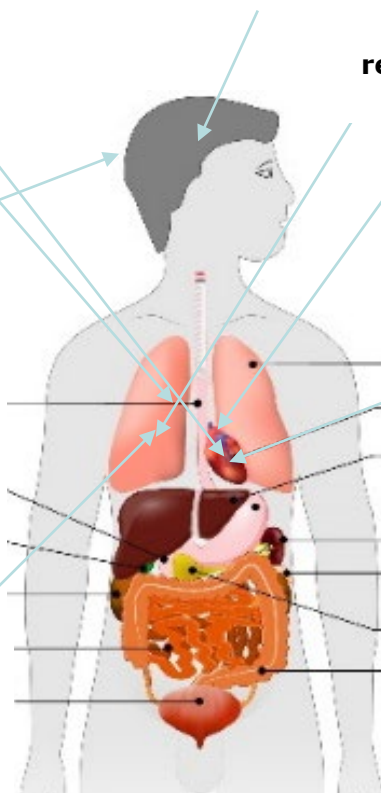
Mental, cardio
metabolic, and
respiratory health
outcomes

Cardiometabolic
health

LONGITOOLS

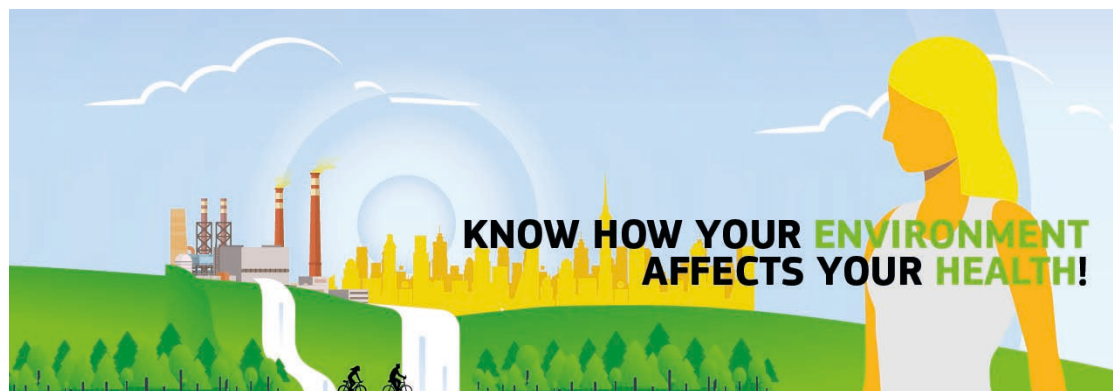
Built environment; longitudinal cohorts, clinical studies, biobanks

Chronic
obstructive
pulmonary
diseases (COPD)
and Cystic
fibrosis (CF)



European
Commission

Upcoming events



Launch event of the European Human Exposome Network
11 February 2020, Charlemagne Building, Brussels

Open registration:

https://ec.europa.eu/info/events/launch-event-european-human-exposome-network-2020_en

Please disseminate!

Looking into the future



Urbanisation

2nd stage:
SC1-BHC-29-2020: *Innovative actions for improving urban health and wellbeing - addressing environment, climate and socioeconomic factors*



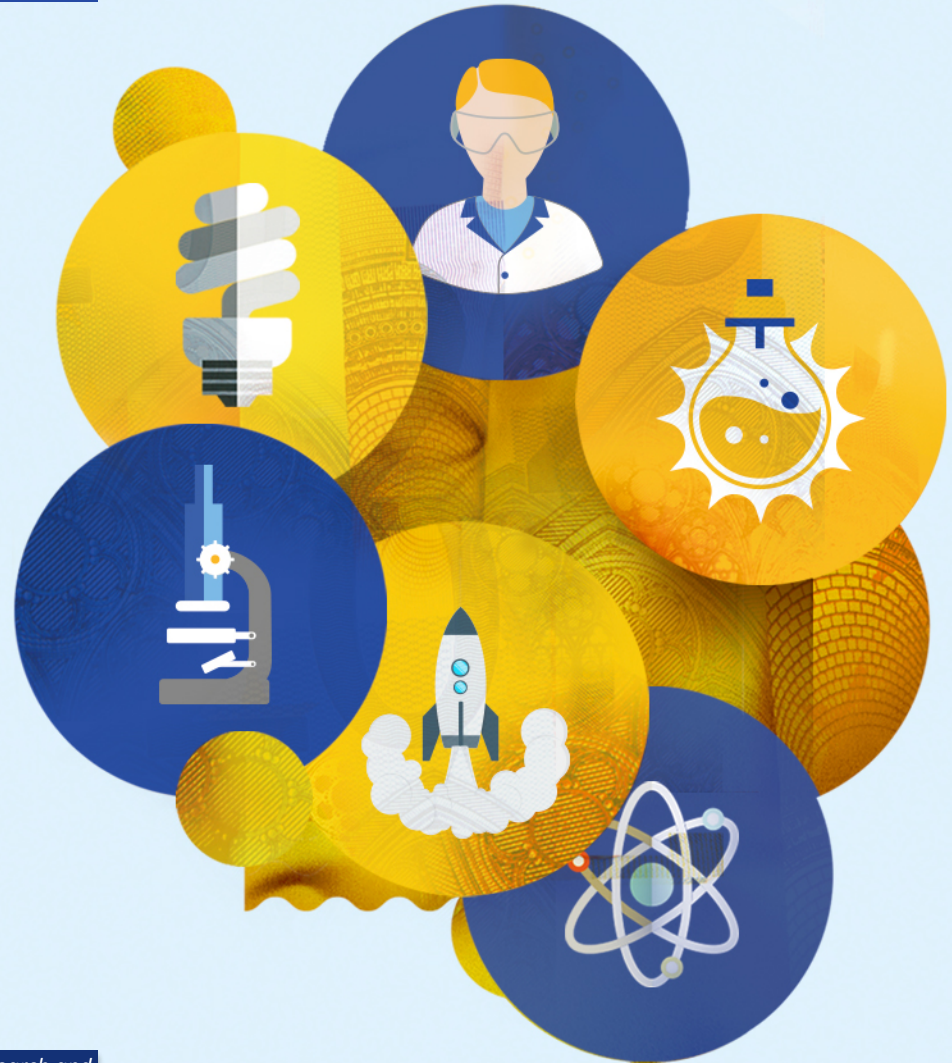
Ongoing Coordination and Support Action:
Integrating environment and health research: a vision for the EU

<https://www.heraresearcheu.eu/>

Horizon Europe

THE NEXT EU RESEARCH & INNOVATION
PROGRAMME (2021 – 2027)

#HorizonEU



Horizon Europe: structure



Adaptation to climate change, including societal transformation



Mission areas

**Healthy
oceans,
seas,
coastal
and inland
waters**



Cancer



**Climate-neutral
and smart cities**



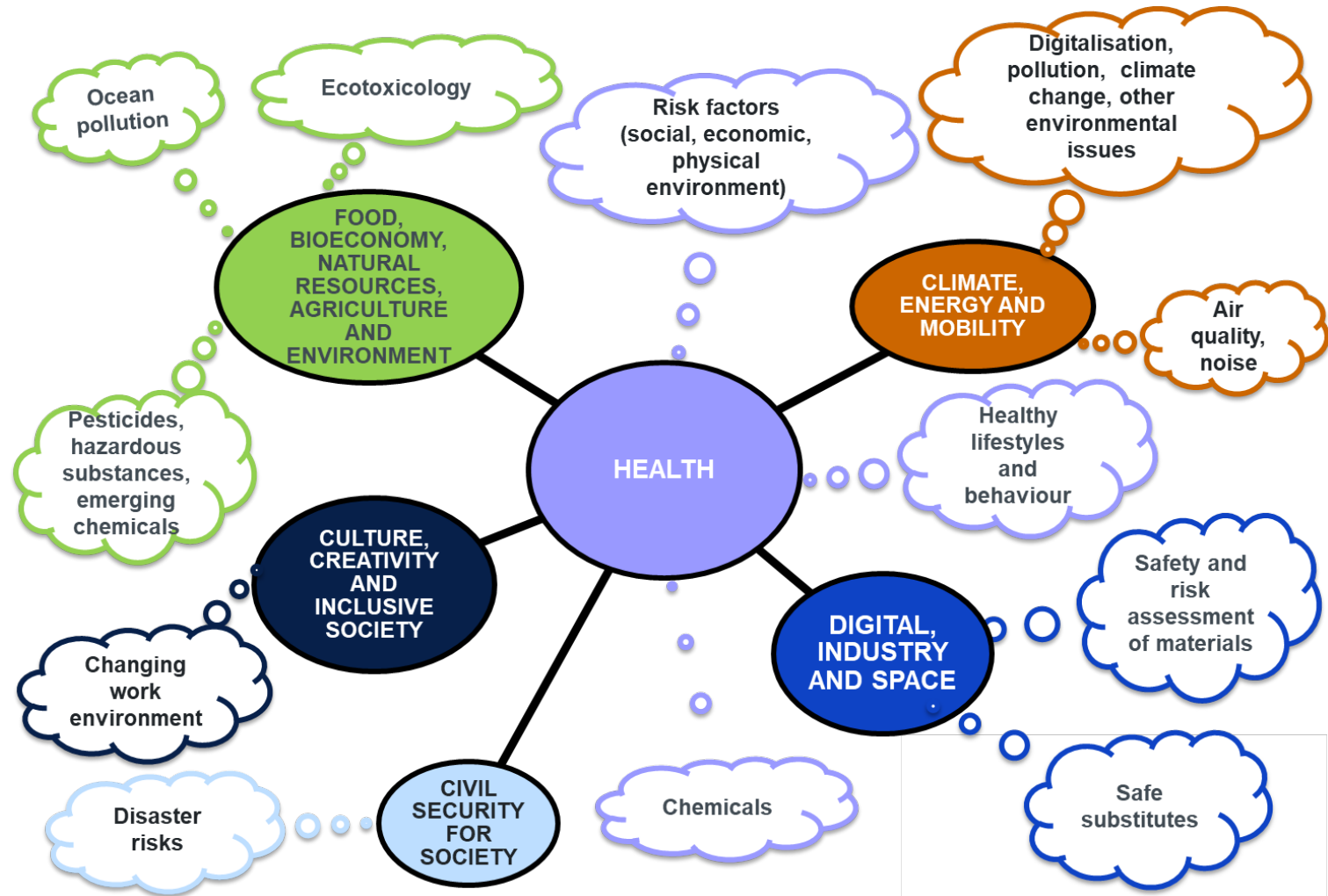
**Soil health
and food**



Clusters in 'Global Challenges and Industrial Competitiveness'

Clusters	Areas of intervention	
Health	<ul style="list-style-type: none"> • Health throughout the life course • Non-communicable and rare diseases • Tools, technologies and digital solutions for health and care, including personalised medicine 	<ul style="list-style-type: none"> • Environmental and social health determinants • Infectious diseases, including poverty-related and neglected disease • Health care systems
Culture, creativity and inclusive society	<ul style="list-style-type: none"> • Democracy and Governance • Social and economic transformations 	<ul style="list-style-type: none"> • Culture, cultural heritage and creativity
Civil security for society	<ul style="list-style-type: none"> • Disaster-resilient societies • Protection and Security 	<ul style="list-style-type: none"> • Cybersecurity
Digital, Industry and space	<ul style="list-style-type: none"> • Manufacturing technologies • Advanced materials • Next generation internet • Circular industries • Space, including Earth Observation • Emerging enabling technologies 	<ul style="list-style-type: none"> • Key digital technologies, including quantum technologies • Artificial Intelligence and robotics • Advanced computing and Big Data • Low-carbon and clean industry • Emerging enabling technologies
Climate, Energy and Mobility	<ul style="list-style-type: none"> • Climate science and solutions • Energy systems and grids • Communities and cities • Industrial competitiveness in transport • Smart mobility 	<ul style="list-style-type: none"> • Energy supply • Buildings and industrial facilities in energy transition • Clean, safe and accessible transport and mobility • Energy storage
Food, bioeconomy, natural resources, agriculture and environment	<ul style="list-style-type: none"> • Environmental observation • Agriculture, forestry and rural areas • Circular systems • Food systems 	<ul style="list-style-type: none"> • Biodiversity and natural resources • Seas, oceans and inland waters • Bio-based innovation systems in the EU Bioeconomy

Horizon Europe clusters: E&H issues are everywhere – need to coordinate!



Steps towards the first Horizon Europe work programme



Thank you for your attention!



https://ec.europa.eu/info/research-and-innovation/research-area/health-research-and-innovation/environment-and-health_en → Policies → Environment and Health