



The EU Framework Programme for Research and Innovation

HORIZON 2020

**Activities and
initiatives in
environment and
health**

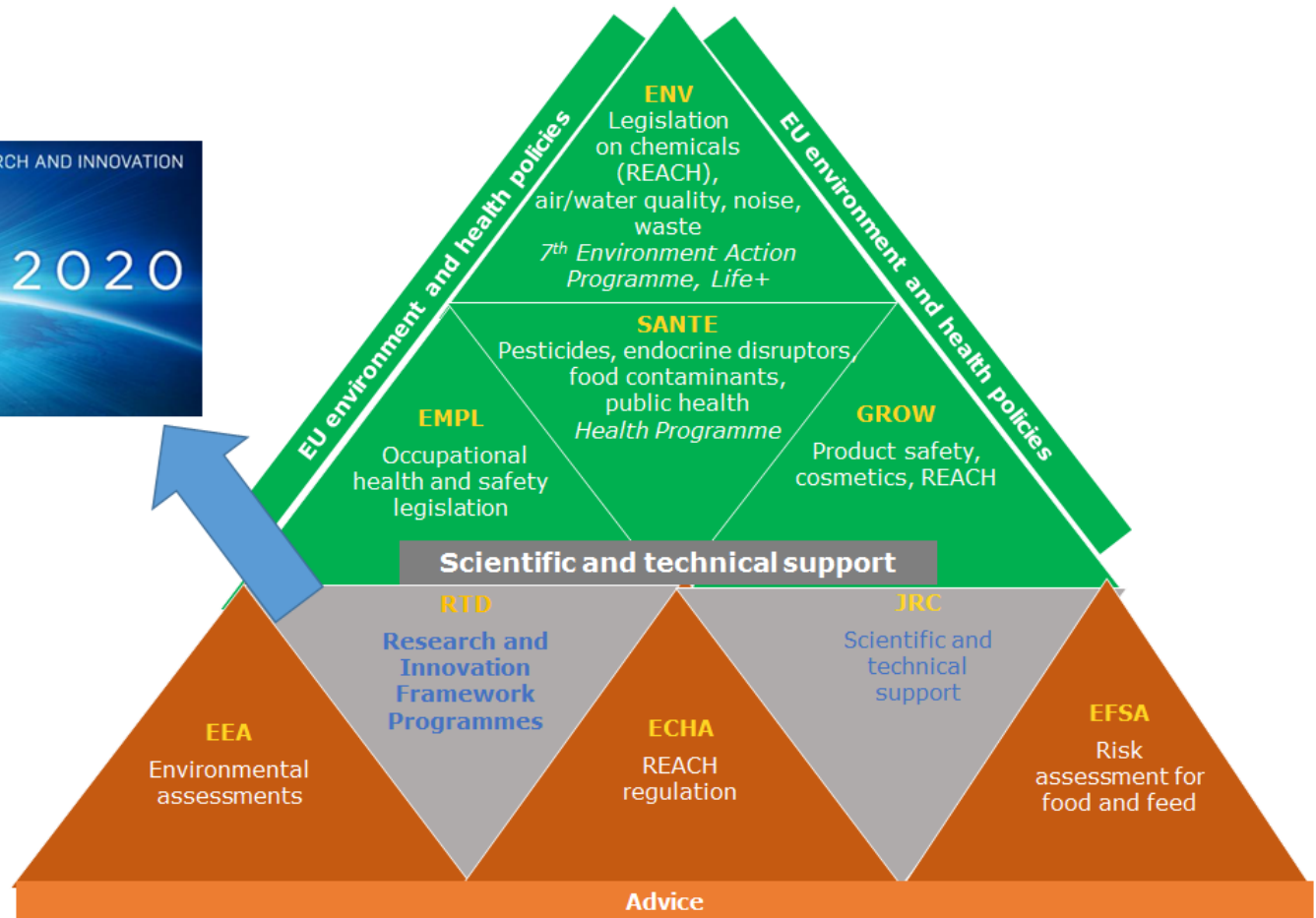
DG RTD

European Commission
Unit E5



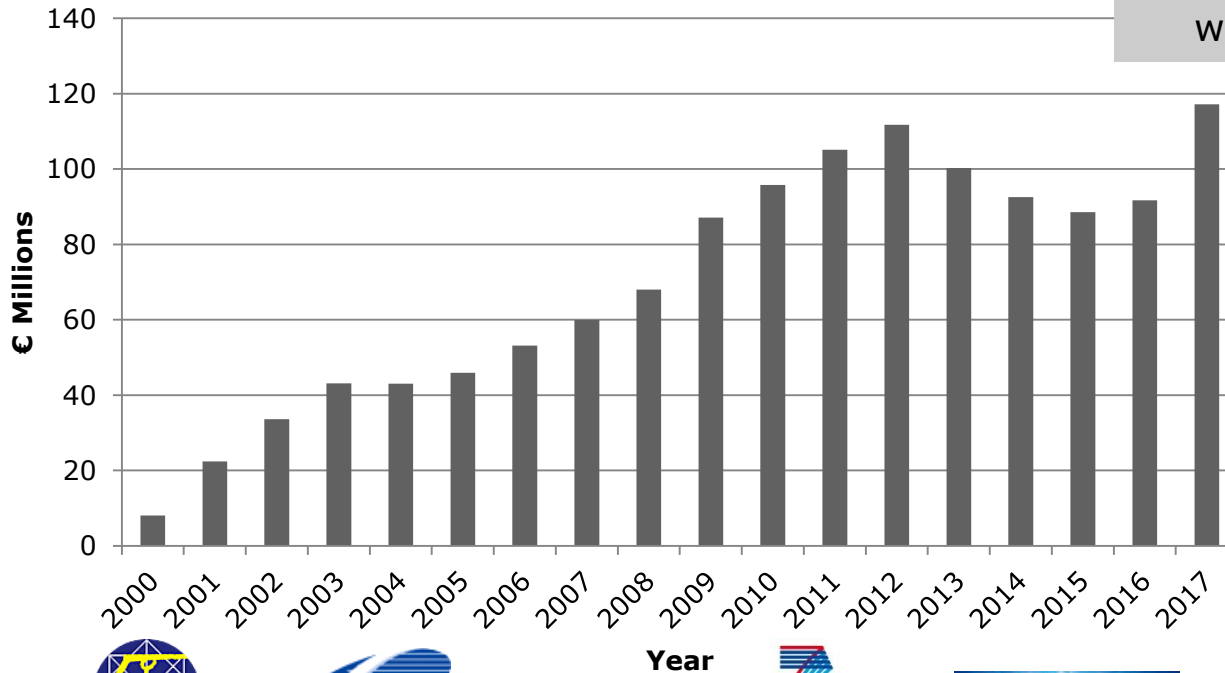
*Research and
Innovation*

Environment and health at EU level: a multi-actor effort



What has been achieved so far?

- ❖ ~360 projects funded have received over a billion euros from FP5/FP6/FP7/H2020 (1998-2016)
- ❖ Wide reaching outreach: 1190 institutions from 68 countries worldwide participated in FP7



Year



Human Biomonitoring

HBM4EU: EU knowledge for EU policies



A **joint** European programme for monitoring and scientific assessment of human exposures to chemicals and health impacts

2017-2021,
26 countries
74M€, 50M€ EU

www.hbm4eu.eu

⇒ Clear, factual,
open evidence
for policy making

Generate EU-wide **evidence** on human **exposure** to chemicals and understand the **impact on human health**

Research on policy makers open questions, enhance chemical risk assessment and track efficacy of existing policies - **bridge science and policy**

Coordinate and interlink HBM activities in the EU –
HBM Platform

Comparable and validated exposure and health data for sound policy-making – **IPChem**

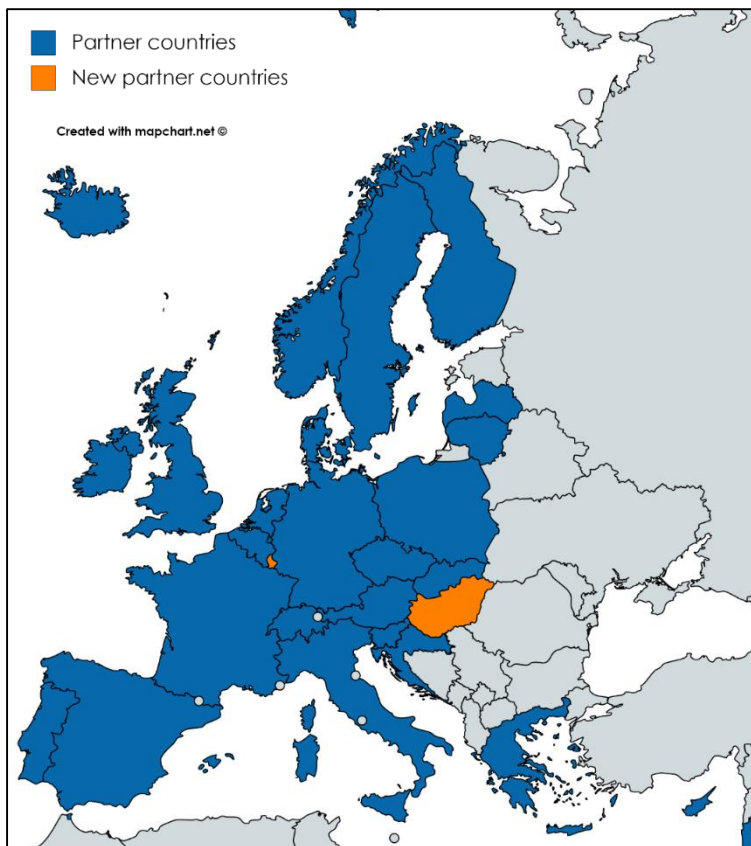


Models linking external and internal exposure, AOPs, long-term effects, link to health data – **Research activities**

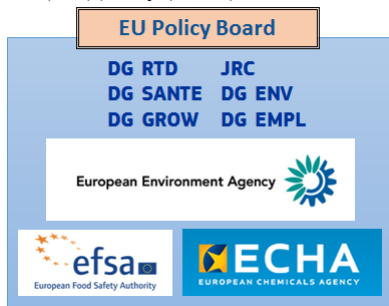
Share excellence, spread best practice, promote capacity, communicate –
Knowledge Hub and training

Promote **sustainability**

Partners, timeframe and budget



Map from <http://philarther.org/diary/2013/euro-map/>



- 28 countries and the European Environment Agency:
- 24 EU Member States
- 4 associated countries
- Coordinator: German Environment Agency (UBA)
- Co-coordinator: Flemish Institute for Technological Research (VITO)
- 5 year project: 1 January 2017 to 31 December 2021
- Horizon 2020, European Joint Programme Co-fund
 - ✓ Costs are reimbursed by the European Commission at 70%
 - ✓ Co-financing of 30% by partners
- Total costs: € 74 million
- Maximum grant: € 50 million

First results – key examples

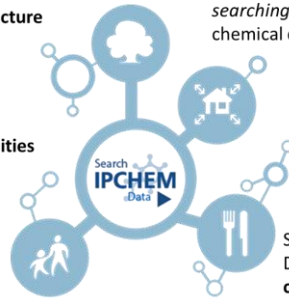
- Transparent and open prioritisation process
- Harmonised procedures for fieldwork, sample storage and analysis
- Reference laboratories → QA/QC procedure ongoing
- Alignment of national/regional surveys for 1st set of priority chemicals started
 - ✓ 21 countries
 - ✓ Statistical analysis plan: 3 age groups focused on specific substances
 - ✓ Time trends
- Occupational survey on exposure to chromate (CrVI) kicked-off
 - ✓ 8 countries
 - ✓ Include Ni, Mn, PFAS
 - ✓ EBC methodology development
- **71 meta-data pages of HBM data ready for IPCHEM → validation**
 - ✓ **20 HBM data sets today findable in IPCHEM (to be updated +32?)**
- Reference values/indicators
 - ✓ Health based Guidance Values – DEHP, Hexamoll DINCH
 - ✓ HBM indicator: exceedance, frequency of exceedance, mixture exposure

IPCHEM

IPCHEM one access point, all the information

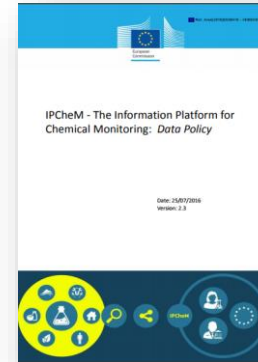
Developed as distributed infrastructure

It offers hosting facilities for orphan data and research results.



It is the EC's reference access point for searching, accessing and retrieving data on chemical concentrations in various media

Strategy, End-users' requirements, Data Policy and Governance defined in close collaboration with the IPCHEM partners



IPCHEM Data Policy (Oct. 2016)

- IPCHEM promotes and implements the **Open Data principles**
- IPCHEM recognises and respects **legislative provisions on data ownership and IPRs.**



Level of data detail

- Metadata
- Aggregated
- Filtered/Generalised Single measurement
- Single measurement

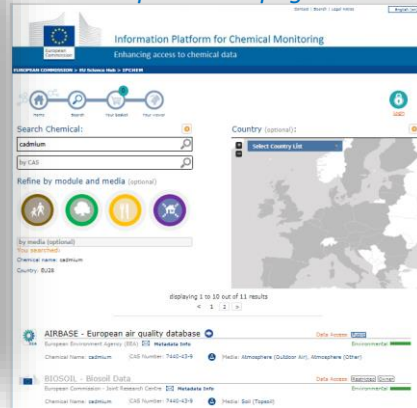
User Groups

- EU Commission
EU Agencies
- EU National Bodies
- General Public

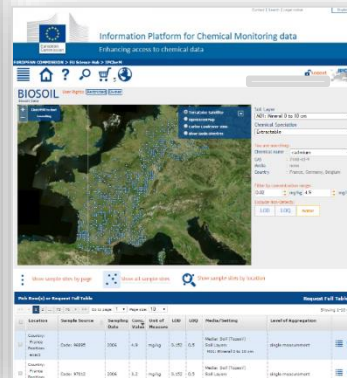
Metadata info page



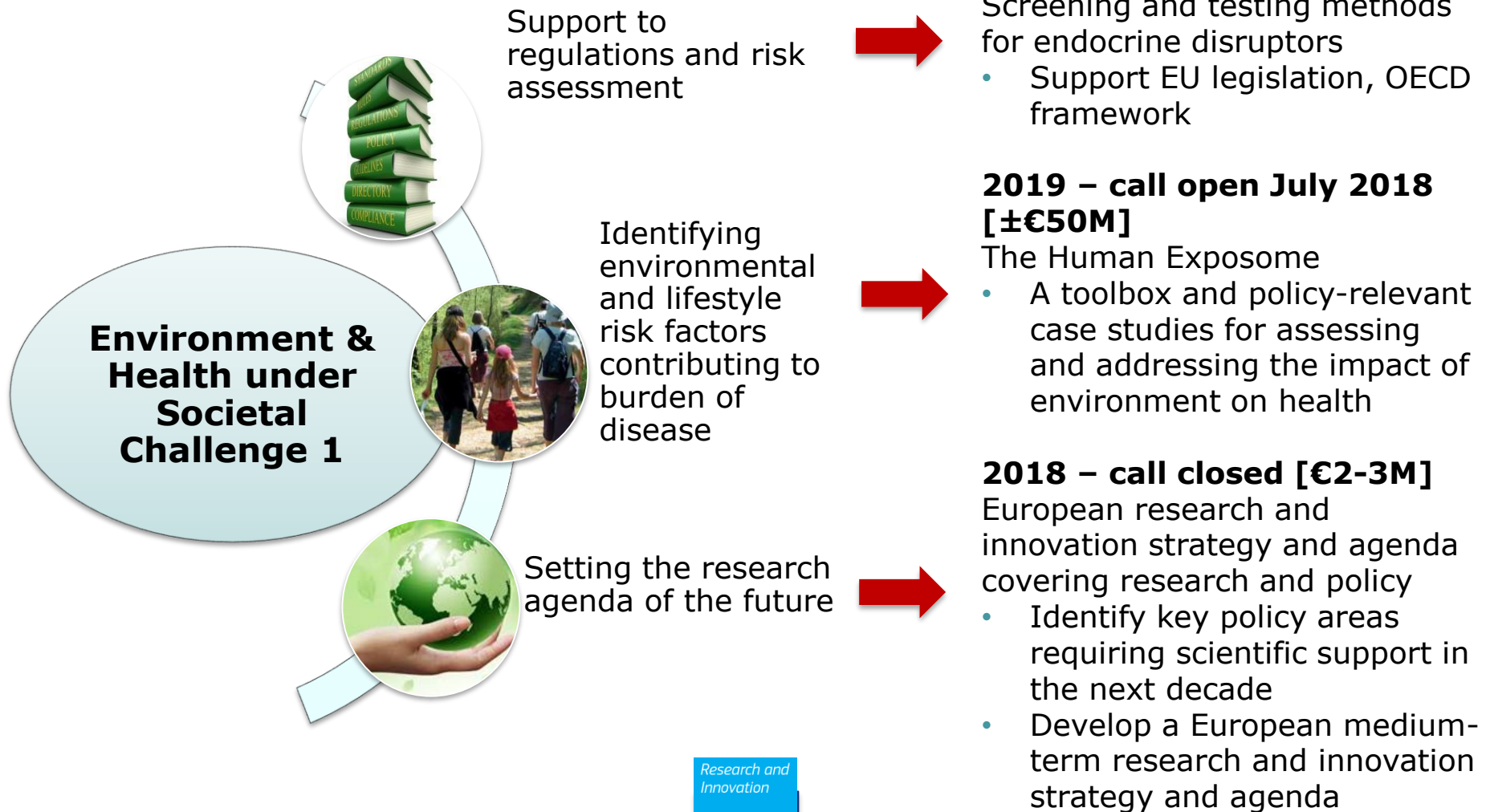
Unique Search page



Database Console



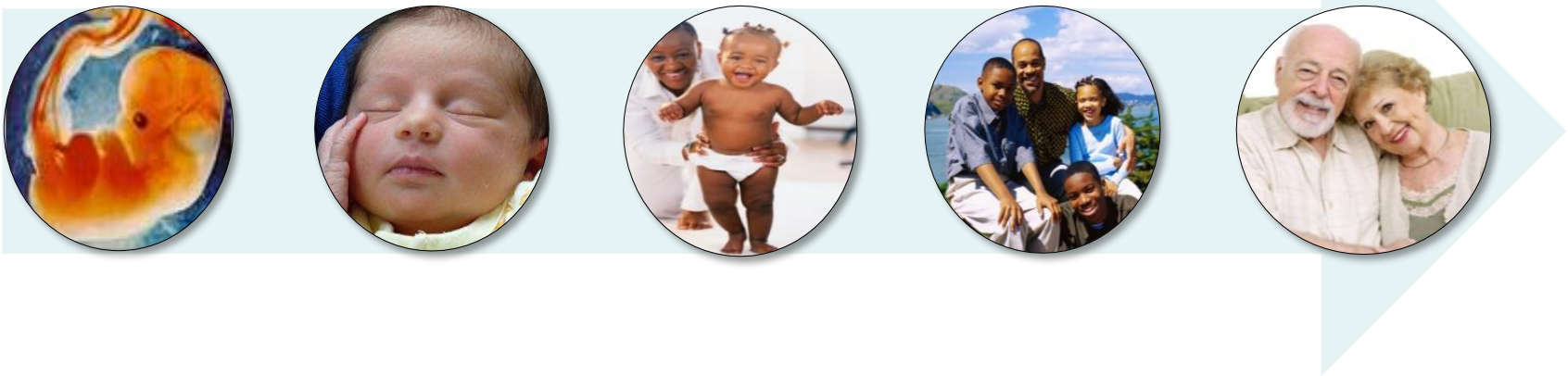
What's coming next ?



The definition of the exposome

“The Exposome (Chris Wild, IARC): The totality of environmental exposure an individual is subjected to from conception to death...”

Health and disease are influenced by the genome and the exposome, including lifestyle factors



Slide borrowed from R. Barouki's presentation to the Gastein Forum in 2017

The complexity of exposures

What type of Stressor?

Physical, Chemical, Biological, Psycho-social

Which Source?

Air, Water, Soil, Food, Consumer
Products, Drugs

Where?

Home, School, Work,
Neighborhood, City, Region



What type of effect?

Organs, Tissues, Biological
pathways, Adverse pathways

When?

Fetal, Child, Adolescent, Adult,
Elderly



Calls for proposals 2018-2019 – Other parts of H2020

- *SC2: Integrated health approaches and alternatives to **pesticide use*** } Call opening October 2018 - €15M – two-stage
- *SC4: InCo flagship on reduction of transport impact on **air quality*** } Call open - €30M – two-stage
- *SC5: **Climate impacts on health** in Europe* } Call open - €20M – two-stage
- *SC5: Visionary and integrated solutions to improve **well-being and health in cities*** } Call opening November 2018 - €43M – two-stage
- *Industrial Leadership - **nanotechnologies**:*
 - ✓ Risk governance of nanotechnology;
 - ✓ Nanoinformatics: from materials models to predictive toxicology and ecotoxicology} Call open - €30M – two-stage
- ✓ Safe by design, from science to regulation: metrics and main sectors } Call opening October 2018 - €28M – two-stage

Scientific support for possible actions to advance the implementation of the Ostrava Declaration

Action	Topic(s)
Improving indoor and outdoor air quality	<ul style="list-style-type: none"> The Human Exposome (SC1) InCo flagship on reduction of transport impact on air quality (SC4)
Safe drinking water	<ul style="list-style-type: none"> EU-India water co-operation (SC5)
Adverse effects of chemicals	<ul style="list-style-type: none"> Screening and testing methods for endocrine disruptors (SC1) Integrated health approaches and alternatives to pesticide use (SC2) Nanotechnology topics (Industrial Leadership)
Waste and contaminated sites	<ul style="list-style-type: none"> Waste mentioned as a case study in the exposome topic Several topics under SC5 on waste reduction
Climate change-related health risks	<ul style="list-style-type: none"> Climate impacts on health in Europe (SC5) Setting the priorities for a European environment, climate and health research agenda (SC1)
Healthier, more inclusive, safer, resilient and sustainable cities	<ul style="list-style-type: none"> Visionary and integrated solutions to improve well-being and health in cities (SC5) InCo flagship on reduction of transport impact on air quality (SC4)
Environmental sustainability of health systems	<ul style="list-style-type: none"> Several topics under SC1



Thank you

@EUScienceInnov

#InvestEUresearch

#EUHealthResearch

<http://ec.europa.eu/research/health>

<http://ec.europa.eu/research/participants/portal>