European Commission

2nd EIONET Soil Ad-hoc WG
CONTAMINATED SITES BROWNFIELDS
14th October 2015

Serving society
Stimulating innovation
Supporting legislation

Agenda

1. Status "Remediated Sites - Success Stories"
2. Revision of indicator for the Management of Contaminated Sites in EU
3. Country presentations
4. Knowledge and Information Sharing and Networking Activities on Contaminated Sites
   a. International developments:
      i. Sustainable Development Goals
      ii. Global/European Soil Partnership
   b. Networking – New COST Action "Industrial Contaminated Sites and Health"
   c. IpChem – Information Platform for Chemical Monitoring
   d. Information on ICCL (D. Darmendrail)

Agenda

1. Status "Remediated Sites - Success Stories"

Status "Remediated Sites – Success Stories

Countries participating

AUSTRIA
BELGIUM
DENMARK
FRANCE
ITALY
PORTUGAL
SERBIA
SLOVAKIA
SLOVENIA
SPAIN
SWITZERLAND
THE NETHERLANDS
UNITED KINGDOM

Themes covered	N. Articles
Historical Achievements	7
Brownfields	11
Landfill remediation	3
Mining sites	1
Human Health Protection	2
Networking	2
Research	1
Educational	1
Total	**28**

Joint Research Centre

Status "Remediated Sites – Success Stories"

BROWNFIELDS

PROJECT DETAILS

Park of Nations: an example of soil decontamination and urban regeneration of a brownfield site in the city of Lisbon

LOCATION	Lisbon, Portugal
POLLUTANT	Hydrocarbons
SOURCE	Deposit of shipping containers, open dumps, heavy industries, oil refinery, oil tanks, fuel containers industrial, slaughter and urbanization
GENERAL CLEAN UP OBJECTIVES	Remediation of groundwater and soil contamination
REMEDIATION ACTIONS	Excavation, removal of contaminated groundwater (including pumping, separation of water/oil, free product removal and water treatment), construction of a waterproof surface water drainage system
SITE /END USE	Expo exhibition 1998 and new city neighbourhood
SOCIAL-LEGAL ISSUES	Land reclamation
KEY LEARNING / EXPERIENCE TO SHARE	Involvement of different stakeholders (public, private and research institutions), city image regeneration

Cristina Cavaco
Deputy Director General in charge of the matters of territorial development, spatial planning and urban policies
Direção Geral do Território (DGT), Portugal

Marta Afonso
Technical officer
Direção Geral do Território (DGT), Portugal

Aerial view of earthworks at Park of Nations
© Parque Expo /Photostock

The study case

Introduction

meral exhibition site, the master plans and the projects stemmed from a primary principle: to combine permanence with ephemerality. The concept that the city should constitute a "he-

- ✓ **The study case**
- ✓ **The problem**
- ✓ **The strategy**
- ✓ **The results**
- ✓ **Further reading**

Status "Remediated Sites – Success Stories"

Planning

Time schedule Report Success Stories of Remediated Sites and Brownfields in Europe

2015	March-April	May	June	July	August	Sept	Oct	Nov	Dec
Launch									
Request to Authors									
Submission of articles									
Revision									
Editing									
Proof reading									
Publication									4/12 World Soil Day

2. Revision of indicator for the Management of Contaminated Sites in EU

EIONET Soil Contamination

Participants to the EIONET NRC Soil meeting in Ispra in May 2014 agreed that there is a need for improving the format and the content of the questionnaire in order to receive more reliable and comparable data across Europe.

Other aspects like land recycling and evaluation of the potential of brownfield remediation, as well as linking to the EIONET NRC Land Use and Spatial Planning were proposed as points for discussion.

EIONET Soil Contamination

Way forward

Kick-off Meeting **EIONET Working Group on Soil Contamination** on March 2015

Plenary meeting NRC Soil ➔ 15th October 2015 with participation of MC and CC, JRC, DGENV and EEA

For endorsement:

- Proposal for the revision of the indicator "Progress in the management of contaminated sites in Europe"
- Book <<Remediated Sites and Brownfields: Success Stories in Europe>>

Proposals for the revision of the indicator "Land and Soil Indicator" LSI003

Summary discussion from last meeting

Proposal 1.- To consider as **baseline the year 2001** when CSI015 was established. In case the country started building a national programme after 2001 a different baseline – year will be specified by this country.

Proposal 2.- New expressions proposed to replace the parameters PCS, CS and Remediated Sites (RS)

The new expressions are ranked from 1 to 6 as following:

1.*Sites where polluting activities took place - (rather than 'Sites registered');*

2.*Sites in need of investigation/still to be investigated – clear suspicion of contamination (not relevant to all countries, in some countries there is a transition from situation 1 to situation 2 following risk assessment);*

3.*Sites that have been investigated, but no remediation needed (unless land use change, i.e. fit for current use);*

4.*Sites that need remediation or RRM (risk-reduction measures, including natural attenuation if monitored) – see definition remediation of Common Forum;*

5.*Sites under/with on-going remediation or RRM (probably common for all countries);*

6.*Sites remediation completed (it may include after care measures, RRM i.e. monitoring)*

Proposal 3.- New expressions proposed to replace the parameters PCS, CS and Remediated Sites (RS) Continuation

Proposal 3.- New "sites where polluting activities took place" be counted separately from the "Baseline" and reported separately...

New Proposal

Does your country discriminate between historic contamination and new contamination (new or continuing polluting activities, accidents) and is this division marked by a year?

Proposals for the revision of the indicator "Land and Soil Indicator" LSI003 Continuation

Proposal 4.- To ask the 11 EIONET countries, for which it is not clear if they keep a comprehensive **national/regional or local inventory** for contaminated sites, in which way are they monitoring the progress in the management of contaminated sites.

New Proposal:

1. Does or will your country make a register of polluted and potentially polluted sites? and does or will it make inventories to get an overview of the problem?
2. Does or will your country devise a mechanism to gradually catch polluted sites (i.e. connected to selling and purchase of land, to permit renewal and/or agreements with the organisations of a line of industry)

Proposals for the revision of the indicator "Land and Soil Indicator" LSI003 Continuation

Proposal 5.- With no common European legislative framework on soils, there is no formal working group to develop a harmonised approach to setting environmental standards for soil quality. The Chair invited the experts to share the information and methodology available in their countries.

New Proposal

1. Does your country have or use a formal list of threshold values, do you have a procedure for substances found on a site but not occurring on the list of threshold values?

2. Does your country have formalised procedures to assess site-specific risks?

Proposals for the revision of the indicator "Land and Soil Indicator" LSI003 Continuation

Proposal 6.- For 22 EIONET countries it is not clear if they have established policy targets relating to the management of contaminated sites. They will be invited to submit their targets relating to the management of contaminated sites.

New Proposal

1. Does your country have regulations for land selling and purchase in relation to soil pollution (e.g. the transfer or upholding of financial responsibilities)
2. Does your country register sites made fit for actual use which may have to be managed again with a change of land use?

Key policy questions addressed

PQ1 What is the estimated extent of soil contamination?

PQ2 How much progress is being achieved in the management and control of local soil contamination?

PQ3 Which sectors contribute most to soil contamination?

PQ4 Which are the main contaminants affecting soil and groundwater in and around contaminated sites?

Reference Report on the management of contaminated sites in Europe (JRC, 2014)

- There are an estimated 2.5 million potentially contaminated sites in Europe, where soil contamination is suspected and detailed investigations are needed.
- Of the circa 115 000 contaminated sites that have already been identified in Europe, nearly half of them (46%) have already been remediated.
- Contaminated sites are mainly managed using 'traditional' techniques such as excavation and off-site disposal, which together account for about one third of **management practices**.
- Mining activities, metal industries and gasoline stations are the most frequently reported sources of soil and groundwater contamination. However, the **range of polluting activities** varies considerably from country to country.
- The most frequently occurring contaminants are **mineral oils and heavy metals.**

Joint Research Centre

Other Key Policy Questions

What are the main health issues around contaminated sites?

What is the extent of the population affected?

Which interventions have been done to protect and promote public health in contaminated areas?

Agenda

3. Country presentations

Agenda

4. **Knowledge and Information Sharing and Networking Activities on Contaminated Sites**
   a. **International developments:**
      i. **Sustainable Development Goals**
      ii. **Global/European Soil Partnership**
   b. **Networking – New COST Action "Industrial Contaminated Sites and Health"**
   c. **IpChem – Information Platform for Chemical Monitoring**
   d. **Information on ICCL (D. Darmendrail)**

European Commission

GLOBAL SOIL PARTNERSHII

IASS POTSDAM

Global Soil Forum

Institute for Advanced Sustainability Studies e.V.

ECSSS

European Confederation of Soil Science Societies

ESSC EUROPEAN SOCIETY for SOIL CONSERVATION

4. Knowledge and Information Sharing and Networking Activities on Contaminated Sites

Joint Research Centre

The Sustainable Development Goals

"This Agenda is a plan of action for people, planet and prosperity. It also seeks to strengthen universal peace in larger freedom. We recognise that eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development. ***All countries and all stakeholders, acting in collaborative partnership, will implement this plan****. We are resolved to free the human race from the tyranny of poverty and want and to heal and secure our planet…."* **United Nations Sustainable Development Summit 2015, 25 September**

GLOBAL SOIL PARTNERSHIP

Joint Research Centre

2015 International Year of Soils

The Sustainable Development Goals

Explicitly mention to soil contamination

- **Goal 3. Ensure healthy lives and promote well-being for all at all ages**
  - **Target 3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
  - Proposal for indicator: Concentration of contaminants in air, water and soil.

Indicator should address deaths and illnesses associated with contaminated land and soil (where heavy metals and persistent organic chemicals are of particular concern). Reduction of health impacts due to long-term, low-level (or 'chronic') exposure to soil contaminants should be reflected in this indicator. JRC has baseline for heavy metals in soil for EU.

GLOBAL SOIL PARTNERSHIP

Joint Research Centre

2015 International Year of Soils

Three key messages

1. Raising Awareness

At all levels: National, Regional and Local

International Year of Soils Plan of Action (2015)

2. Agree on concrete actions

Development of detailed implementation plans

Guidelines for the establishment and consolidation of Regional Soil Partnerships

3. Sustainable Development Goals

a. ITPS to develop position paper on the role of soils in meeting the SDG
b. Relevant parties to monitor and contribute as appropriate to the implementation of SDG.

ITPS: Intergovernmental Technical Panel on Soils

European Soil Partnership

The Five Pillars of Action

1. Promote sustainable management of soil resources for soil protection, conservation and sustainable productivity

2. Encourage investment, technical cooperation, policy, education awareness and extension in soil

3. Promote targeted soil research and development

4. Enhance the quantity and quality of soil data

5. Harmonization of methods, measurements and indicators

Joint Research Centre

Intergovernmental Technical Panel on Soils (ITPS)

Summary outcomes of the September 2015 meeting:

a. Nomination of Luca Montanarella (JRC) as chair for the next 2 years.
b. ITPS to develop a position paper on the role of soils in meeting the SDG
c. Relevant parties to monitor and contribute as appropriate to the implementation of SDG.

Next meeting ITPS on April 2016 (tbc), venue tbd.
Plenary GSP meeting Rome June 2016

Agenda

4. Knowledge and Information Sharing and Networking Activities on Contaminated Sites

4.3 Networking – New COST Action "Industrial Contaminated Sites and Health"

Industrially Contaminated Sites and Health Network (ICSHNet) COST Action IS1408

http://www.cost.eu/COST_Actions/isch/IS1408

Ivano Iavarone, *Istituto Superiore di Sanità, Italy*
Chair of the Action

ISTITUTO SUPERIORE DI SANITÀ

WHO Collaborating Centre for Environmental Health in Contaminated Sites

cost EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

The Action

Building on the available experiences, and on expert consultation promoted by WHO, the COST Action
"Industrially Contaminated Sites and Health Network" (ICSHNet)

has been launched in 2015 in the Domain *Individuals, Societies, Cultures and Health* (COST Action IS1408)

http://www.cost.eu/COST_Actions/isch/IS1408

EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

COST is the longest-running European framework supporting trans-national cooperation among researchers across Europe

ISTITVTO SVPERIORE DI SANITÀ

WHO Collaborating Centre for
Environmental Health in Contaminated Sites

EUROPEAN COOPERATION
IN SCIENCE AND TECHNOLOGY

EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

Industrially Contaminated Sites and Health Network (ICSHNet)

http://www.cost.eu/COST_Actions/isch/IS1408

Action Primary goals

- **Establish and consolidate a European network of experts and institutions, and develop a common framework for research and response on environmental health issues related to industrial contamination**
- **Clarify knowledge gaps and research priorities; support collection of relevant data and information; stimulate development of harmonised methodology; promote collaborative research initiatives, and develop guidance and resources on risk assessment, management and communication**

Action details

MoU	108/14
CSO Approval date	13/11/2014
Start of Action	29/04/2015
End of Action	28/04/2019

General Information*

Chair of the Action:
Dr Ivano IAVARONE (IT)

Vice Chair of the Action:
Dr Giovanni LEONARDI (UK)

Science officer of the Action:
Dr Rossella MAGLI

Administrative officer of the Action:
Mr Leo GUILFOYLE

Downloads*

Action Fact Sheet
Download AFS as .RTF

Memorandum of Understanding
Download MoU as PDF

ISTITUTO SUPERIORE DI SANITÀ

WHO Collaborating Centre for Environmental Health in Contaminated Sites

Action Structure and Organisation

http://www.cost.eu/COST_Actions/isch/IS1408

WG1. Environmental and health data
WG2. Methods and tools for exposure assessment
WG3. Methods and tools for health risk and health impact assessment
WG4. Risk management and communication

The WGs activities are planned to reach the following overall goals:

- clarify needs and priorities among participating countries on the environmental health issues related to industrial contamination in Europe
- support collection of available information, methods and data
- promote shared initiatives and develop guidance and resources on exposure evaluation, risk assessment, management and communication across Europe
- address a comparative reading and interpretation of existing data on health of citizens who live in contaminated sites
- create the conditions for the undertaking of comparable HIAs of contaminated sites in Europe
- promote guidance on interventions to protect and promote public health in contaminated areas

WHO Collaborating Centre for Environmental Health in Contaminated Sites

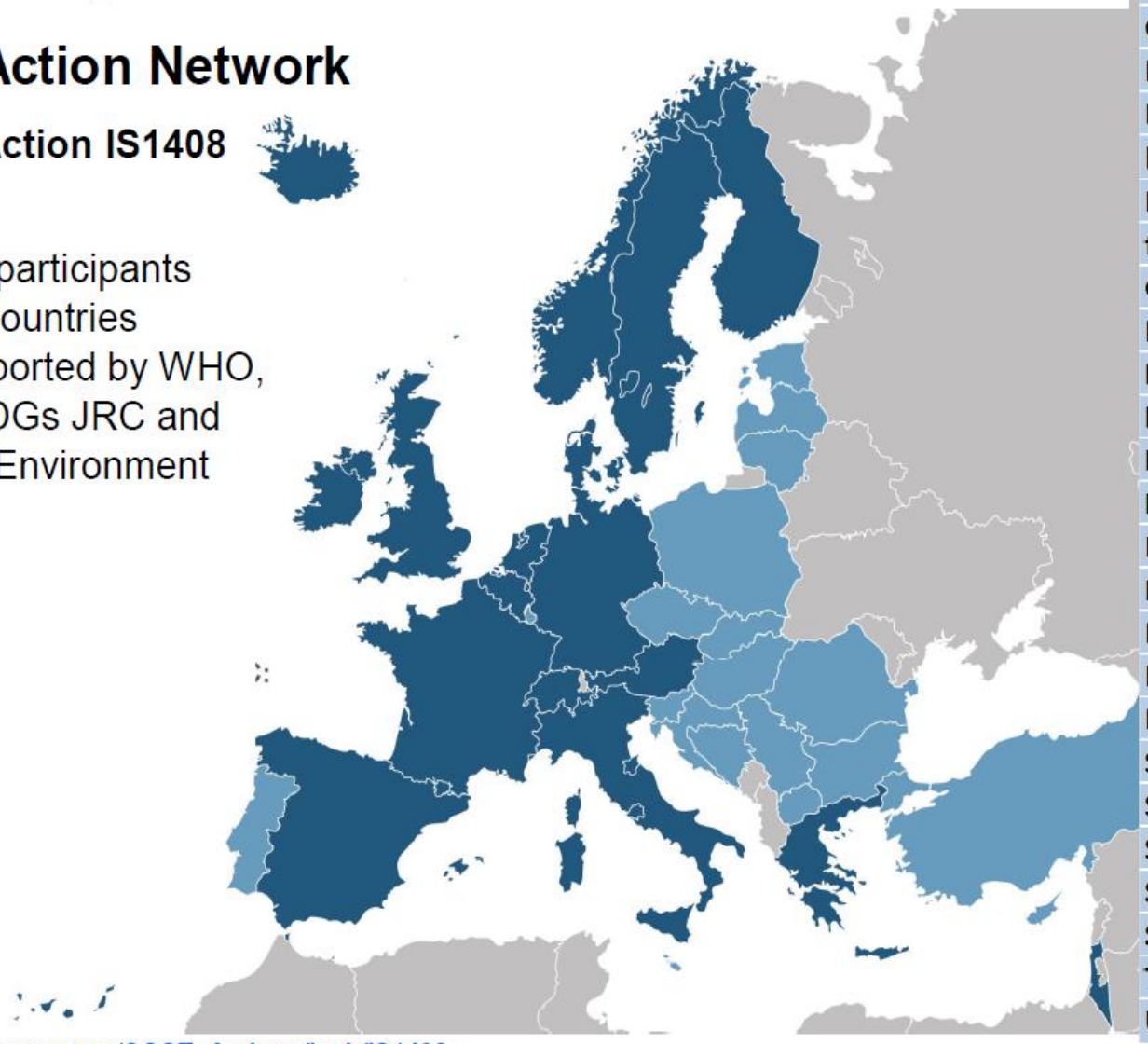
WHO Collaborating Centre for Environmental Health in Contaminated Sites

EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

The Action Network

COST Action IS1408

- **100** participants
- **27** Countries
- Supported by WHO, EC DGs JRC and DG Environment



- Albania
- Belgium
- Croatia
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- fYR Macedonia
- Greece
- Hungary
- Iceland
- Ireland
- Israel
- Italy
- Lithuania
- Netherlands
- Poland
- Portugal
- Romania
- Serbia
- Slovakia
- Slovenia
- Spain
- Switzerland
- Turkey
- United Kingdom

http://www.cost.eu/COST_Actions/isch/IS1408

Multidisciplinary and integrated approach

Experts and institutions from different relevant disciplines and with different mandates and institutional roles (primary etiologic research, risk assessment and management, health impact assessment, international coordination)

- Exposure assessment
- Epidemiology and public health
- Health risk assessment
- Environmental contamination
- Policy making/ communication, advocacy
- Social sciences
- Biological/environmental monitoring
- Health impact assessment
- Risk management
- Children's health and welfare

ISTITUTO SUPERIORE DI SANITÀ

WHO Collaborating Centre for Environmental Health in Contaminated Sites

cost EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

….and food safety, air pollution, chemical safety, waste management, risk abatement, European chemical legislations, inequity, environmental justice, occupational exposures and risks,……..

http://www.cost.eu/COST_Actions/isch/IS1408

Action dissemination plan

http://www.cost.eu/COST_Actions/isch/IS1408

Direct interactions with Government Organisations, EC and EU Agencies and International Organisations, like WHO, will allow:

- expanding and consolidating networks and mechanisms for the collection and dissemination of information on environment and health in contaminated sites, through a mutual benefit in organisation of conferences, workshops, training and dissemination activities

- The outcomes of the Action will widely and systematically be made available to all relevant and potentially relevant stakeholders and interested parties, including the populations who live and/or work in or near industrial facilities, public authorities with an environmental or public health mandate and especially with responsibilities for the health surveillance, monitoring and management of industrial facilities established or suspected of environmental contamination, and responsible for remediation of contaminated sites

ISTITVTO SVPERIORE DI SANITÀ

WHO Collaborating Centre for Environmental Health in Contaminated Sites

cost EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

Concluding remarks

http://www.cost.eu/COST_Actions/isch/IS1408

- The development of harmonized methodologies on HIA able to integrate data on contamination of all environmental matrices (soils, sediments, surface and groundwater, air and food-chain) is a priority across Europe
- Environmental health issues related to industrially contaminated areas must be addressed through an intersectoral approach if we are to protect health and maximise wellbeing and prosperity in such areas
- Assessing the health dimension of contaminated sites has to be seen as part of a social negotiation, where the legitimate needs and aspirations of vulnerable groups, children, residents, workers, investors and business are taken into account, in a fair process
- The international Network on Industrially Contaminated Sites and Health, currently involving WHO, EU and EC bodies and many public health institution of 27 countries, is a promising process to identify research priorities and to transfer scientific evidence to the policy making process

ISTITUTO SUPERIORE DI SANITÀ

WHO Collaborating Centre for Environmental Health in Contaminated Sites

cost EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY

Agenda

4. Knowledge and Information Sharing and Networking Activities on Contaminated Sites

4.4 IpChem – Information Platform for Chemical Monitoring

European Commission

IPCheM- The Information Platform for chemical monitoring

Alessandro Annoni
Silvia Dalla Costa
H06 Unit

Joint Research Centre

European Commission

Problem statement

The lack of information on the chemical exposure and burden on the humans and the environment is a major gap in knowledge base for the European chemical policies.

- *It is not possible to assess the real impact of chemicals and their mixtures*
- *It is difficult to assess effectiveness of policies*
- *Ad-hoc collections are very time demanding and inefficient*

Key Policy Question

support improved understanding of the chemical mixtures to which human populations and the natural environment are actually exposed

- *What is the overall (via different routes) exposure of humans to a substance?*
- *Which is the spatial and temporal distribution of a substance within the environment, humans and food at EU level?*
- *Which mixture of chemicals is person living in a city exposed to?*

DG ENV RESPONSE→ JRC to set-up an **European Chemical Data Centre** (2011)

JRC RESPONSE → We will set-up a **Knowledge Management Tool** establishing interoperability between different data repositories

A single access point for discover and access chemical monitoring data across Europe

*"**Support improved understanding of the chemical mixtures to which human populations and the natural environment are actually exposed** by promoting a more coherent approach to the generation, collection, storage and use of chemical monitoring data in relation to humans and the environment, through **the creation of a platform for chemical monitoring data**. This would help identify links between exposure and epidemiological data in order to explore potential biological effects and lead to improved health outcomes."* (COM/2012/0252 final)*

Joint Research Centre

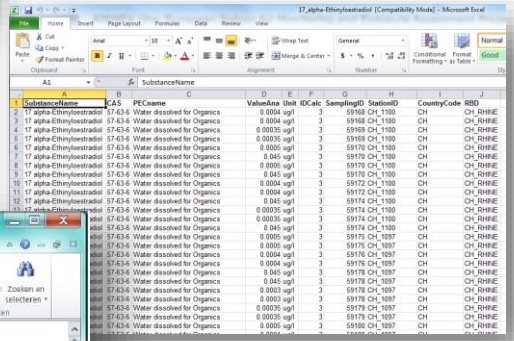
*** The combination effects of chemicals – Chemical mixtures**

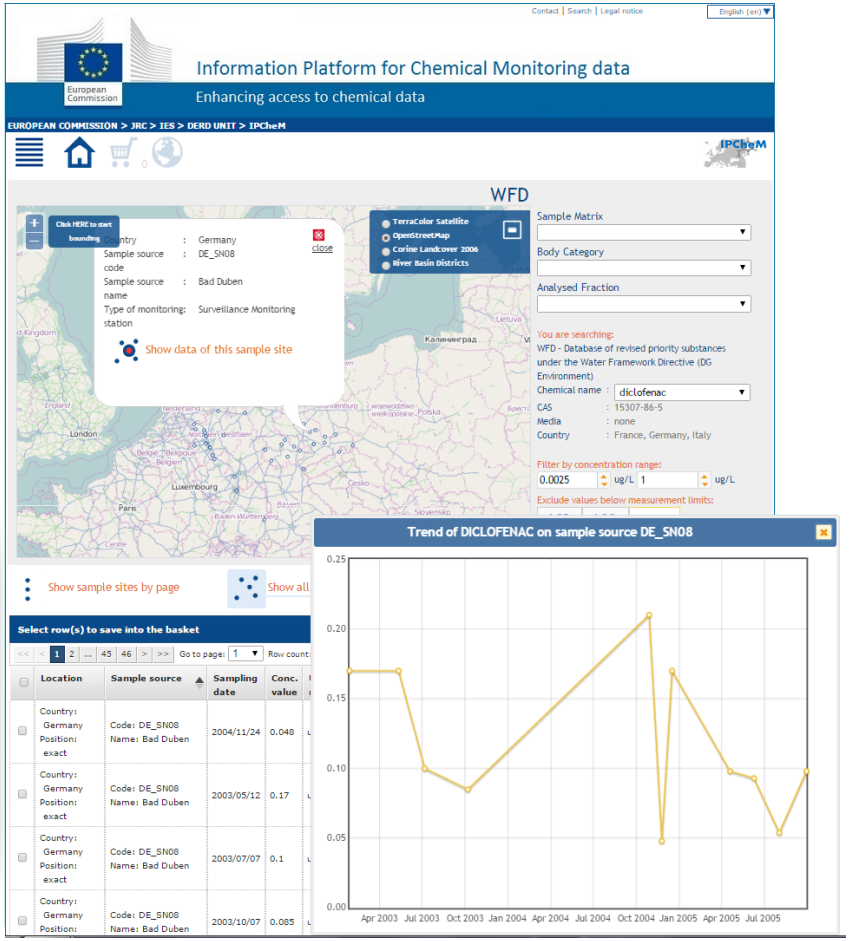
Scientific challenge 1 → handle heterogeneity in a transparent way

AIRBASE

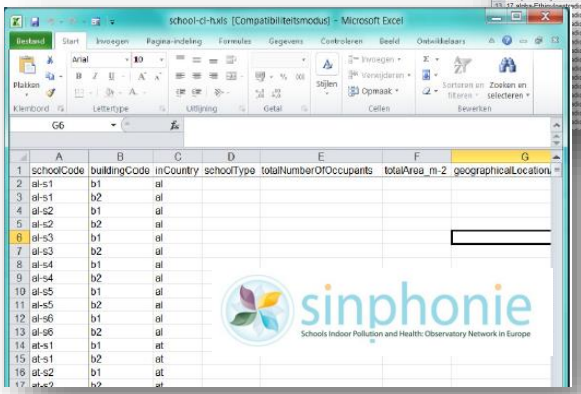
BIOSOIL

WFD priority substances



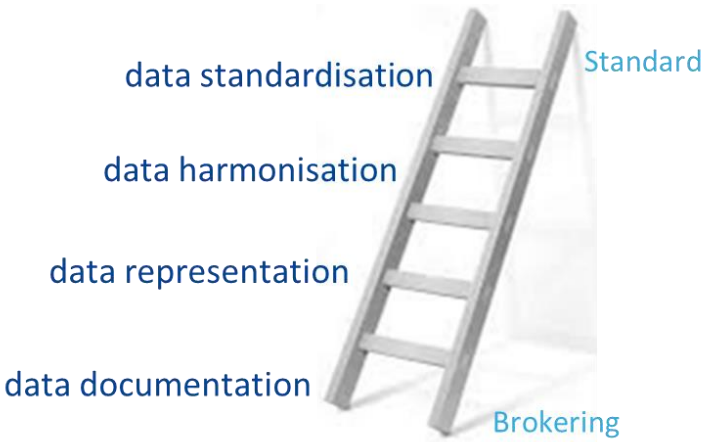


SINPHONIE



Joint Research Centre

Scientific challenge 2 → climb the "data comparability" ladder



"IPCheM should further strive to improve comparability of the data by promoting standardisation of data and metadata and improvement of quality assurance standards" (IPCheM Scoping Paper)

Benefits in chemical monitoring domain:

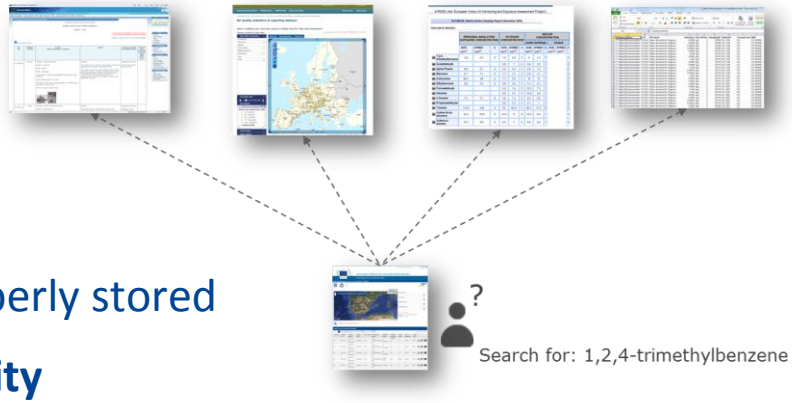
- evaluate multi-media and multi - pathway exposure for human risk assessment
- evaluate time trends in the levels of chemicals in the environment and in humans
- evaluate the efficacy of policy measures for reducing exposures in the environment and in humans
- prioritise further research, monitoring and policy measured for protecting the environment and human health from chemical exposure threats

IPCheM definition

IPCheM is IPCheM is a de-centralised system establishing remote access to existing data collections

IPCheM is

- avoiding data duplication and information systems replication
- respecting any condition/restriction of data access and use defined by Data Providers



Objectives of IPCheM

- **Facilitate access** to chemical monitoring data
- **Provide hosting facilities** for data currently not properly stored
- **Promote and improve data quality and comparability**
- Facilitate assessment

Structure

Environmental monitoring data	EEA
Human Biomonitoring	EEA
Food and feed	EFSA
Indoor air and products	IHCP JRC

PROJECT GOVERNANCE

Chef de File
DG ENV

Technical Coordinator JRC

Policy Masters
SANTE, RTD, CNECT,…

Module coordinators

Data providers
DGs, EU Agencies, MS Agencies

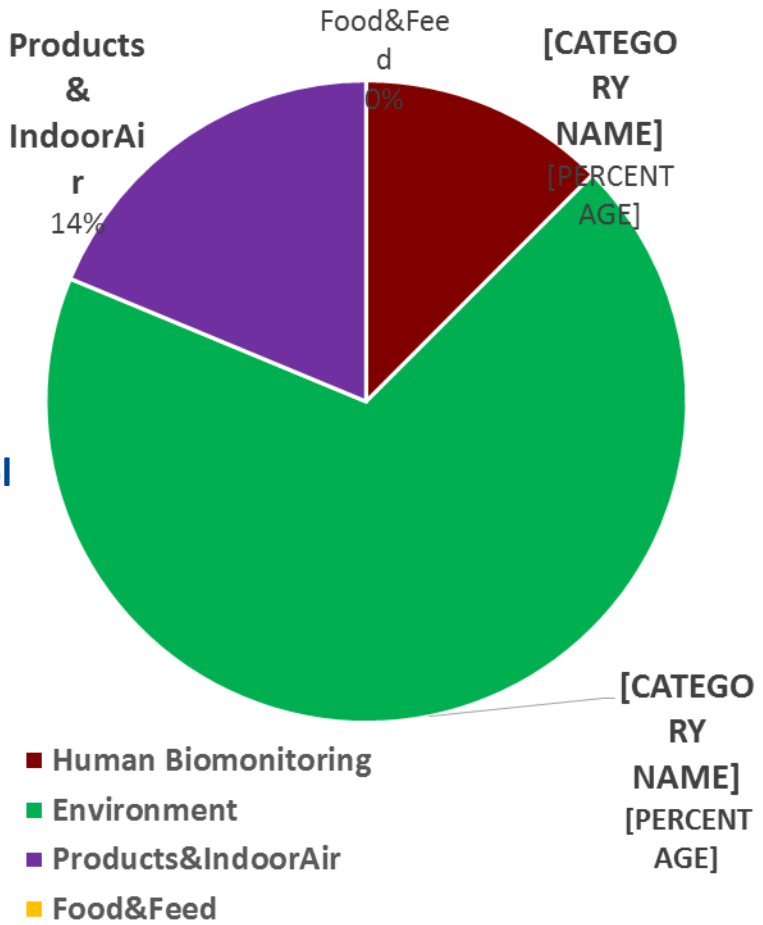
Working groups:
Terms and data policy
Interoperability

4 thematic modules

Status of data integration

- **Number of Data Collections: 16→ 20 (for September)**
- **Number of concentration measurements: 21.592.958 across Europe and beyond**
- **Next data collection to integrate:**

1. **Analysis of occurrence of 3-monochloropropane-1,2-diol (3-MCPD) in food in Europe in 2009-2011 (EFSA)**
2. **Human urinary excretion of non-persistent environmental chemicals: Danish data 2006-2012 (Institute of Public Health, University of Southern Denmark)**
3. **Environmental Specimen Bank (UBA Germany)**
4. **Programme for biomonitoring the Italian population exposure (PROBE): internal dose of metals (ISS Italy)**

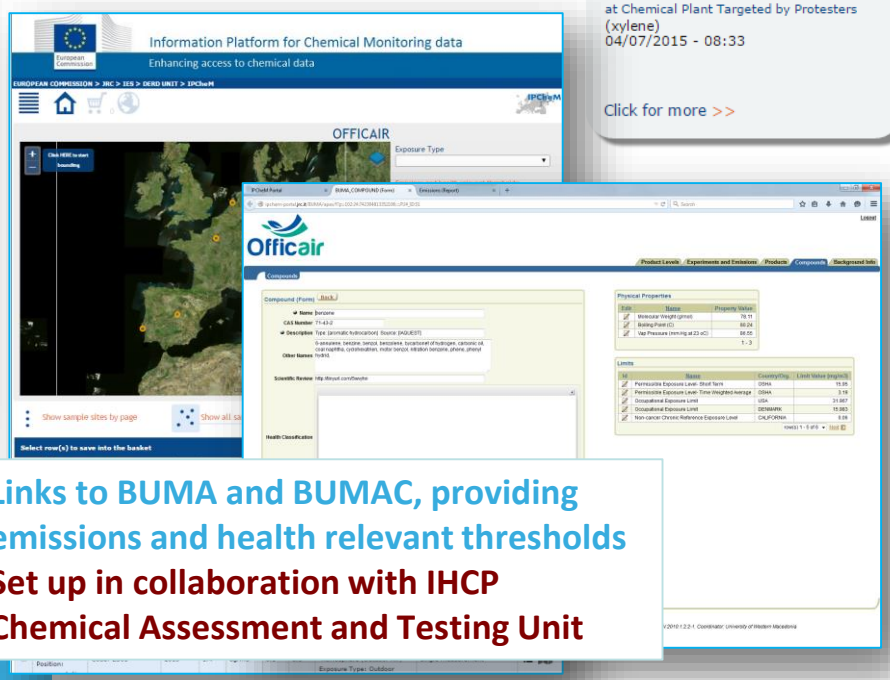


Status of information system linkages

- **Links with other information systems and services**
- **Based on CAS nr or the Chemical name:**

- **ChemAgora service (XML) customized for IPCheM**
- **Providing a selection of links on Third-party repositories**
- **Created by IHCP Systems Toxicology**

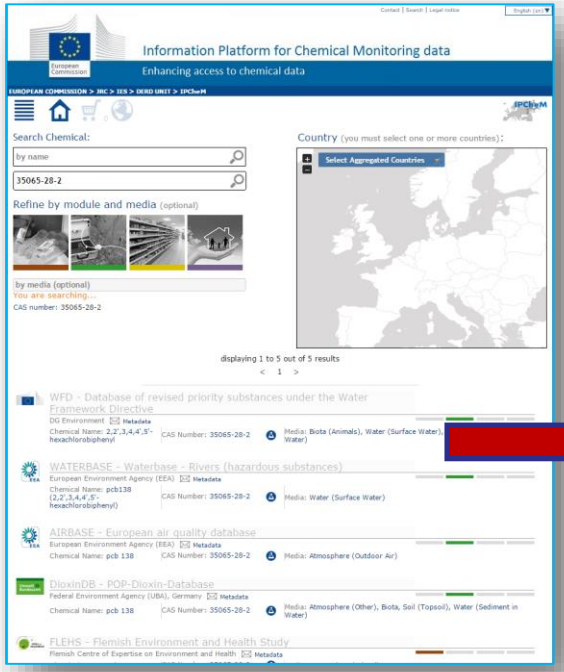
- **News on Media, searching by name,**
- **Based on EMM-MEDISYS**
- **Updated every 15'**
- **Developed in Collaboration with IPSC**



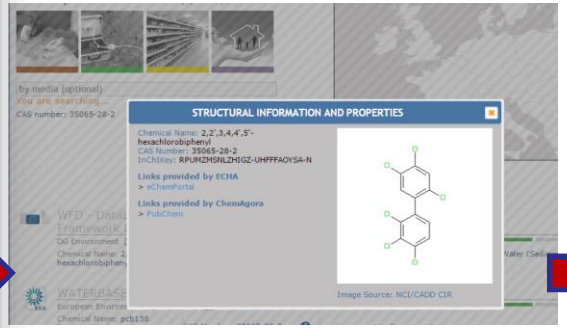
- **Links to BUMA and BUMAC, providing emissions and health relevant thresholds**
- **Set up in collaboration with IHCP Chemical Assessment and Testing Unit**

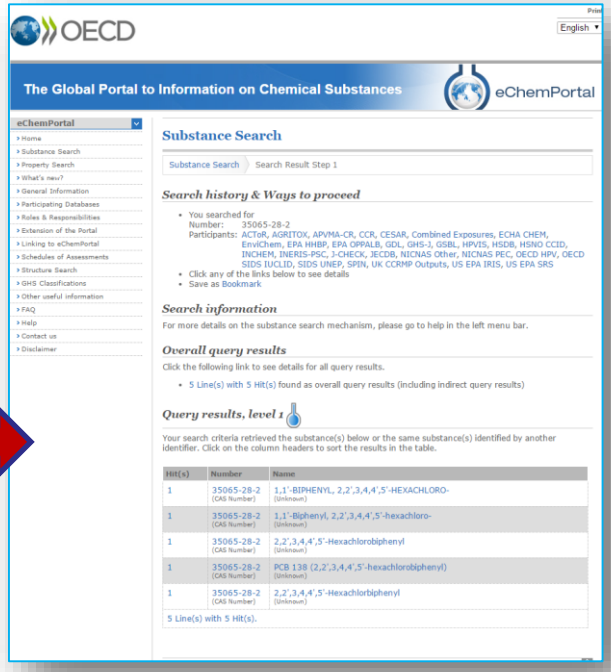
Status of information system linkages

- **Enhancement of interoperability with OECD eChemPortal to boost the knowledge framework of effects on chemicals and mixtures**



Link to eChemportal from IPCheM
Already available





Link from eChemportal to IPCheM
July 2015

European Commission

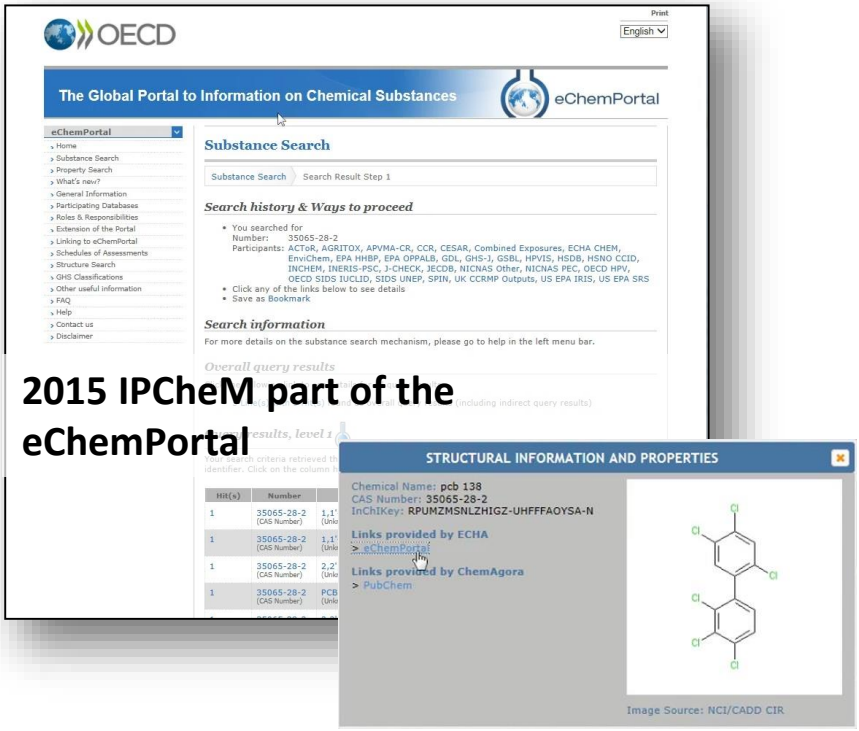
Our vision for the future

IPCheM → Fitting IPCheM into an International knowledge framework (e.g. OECD)

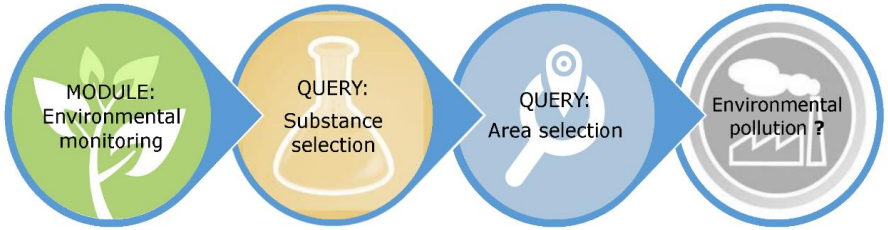
IPCheM → the official repository of the outcomes of relevant research projects (already in line with RDA principles)

IPCheM → a 'two-way alert' system between environmental and food monitoring (to flag up contamination)

IPCheM → support system for knowledge on exposure-dose-response relationships correlating health data with data on Biomonitoring, environment, food to identify proper policy responses



2015 IPCheM part of the eChemPortal



Joint Research Centre

IpChem goes Public
19 October 2015

https://ipchem.jrc.ec.europa.eu/

Technical Support

ipchem-support@jrc.ec.europa.eu

Joint Research Centre

European Commission

EUROPEAN SOIL PORTAL

http://ESDAC.jrc.ec.europa.eu/

Thank you for your attention!

2015 International Year of Soils

Joint Research Centre