



Fourth Plenary Conference COST Action IS1408
Industrially Contaminated Sites and Health Network (ICSHNet)
WHO European Centre for Environment and Health (ECEH)
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Towards a consensus on ICS policy priorities and response

Background

Based on current available estimates, almost 1.5 million deaths per year in the WHO European Region are attributable to environmental risks that could be avoided and/or eliminated. Building on these data the Sixth Ministerial Conference on Environment and Health calls for urgent actions to address the leading environmental determinants of ill-health, such as air pollution, inadequate water and sanitation services, hazardous chemicals, waste, contaminated sites and climate change (Ostrava, Czech Republic, 13- 15 June 2017)

Industrially Contaminated sites (ICS), in particular, represent a major environmental health issue, as they embrace many risk factor including air, water, soil and food chain contamination, but also hazardous chemicals and wastes.

In Europe, earlier industrialization and poor environmental management practices have left a legacy of thousands of contaminated sites. Past and current industrial activities can cause local and diffuse contamination, to such an extent that it might threaten human health of resident populations, especially in vulnerable subgroup. Moreover, health, environment, and social aspects are strongly interconnected, local communities are often alarmed, and both scientists and policy makers have expressed concern. Distinct research initiatives on the health impact of contaminated sites have provided considerable evidence, however data are sparse, and assessments have seen a fragmentation of objectives and methods. It is therefore urgent to promote coordination and collaboration between researchers and risk managers to identify common strategies at European level to deal with this issue more systematically.

The European industry, like the energy and transport sectors, delivers a complex mixture of benefits and costs to society. In addition to producing goods and services, the sector generates substantial employment, earnings and tax revenues.

Though the environmental performance of European industry has improved in recent decades, the sector is however still responsible for significant amounts of pollution to air, water and soil, as well as generation of waste (EEA, 2015, *The European environment · state and outlook 2015: synthesis report*). According to recent EEA analysis, the damage costs (relating to harm to human health, crop yield losses and material damage) associated with air pollution released by the 14000 most polluting facilities in Europe are estimated to be at least EUR 329. 1053 billion in the five year period 2008. 2012. It is estimated that half of the costs occurred as a result of the emissions from just 147, or 1%, of the facilities (*Costs of air pollution from European industrial facilities 2008. 2012 an updated assessment, EEA Technical report No 20/2014*).

Several aspects contribute to make industrially contaminated sites one of the most relevant environmental public health issue. First of all, characterizing the overall impacts of contaminated areas is a challenging task, especially. This is linked to several factors often related each other, including: heterogeneous hazards and chemical mixtures affecting several environmental matrices (soil, air, water and food chain); multiple agents from multiple sources, mostly assumed not to interact; close contiguity of industrial settings to urban areas, often densely populated and therefore with expected high impacts; multiple aetiology of most potentially related diseases and difficulty in gathering quantitative exposure estimates.

Another distinctive feature, shared by many contaminated sites, is that they often involve marked health inequalities. These sites, being in general not attractive residential areas, tend to be inhabited by people of lower socioeconomic level and deprivation gradients are often seen around contaminated sites. Given the concurrence of multiple contaminants, the social disadvantage, and additional burden imposed at the individual level by unhealthy lifestyles, contaminated sites can sometimes be seen as hotspots of generally bad environment and health, where pressures on health from different sources can produce peaks of bad health, in otherwise healthy populations. In addition society at large obviously benefits from the output of industrial activities, thus introducing an additional dimension of environmental (in)justice. For these reasons, the issue of human health in industrially contaminated areas is best addressed with a strong sustainability perspective, taking into account, on the one side, the evidence on health effects and impacts, but considering the broader context of environmental and ecosystem health, as well as the social environment including the occupational opportunities that arise from industrial activities. All of this requires an intersectoral approach, and has to be seen as a part of a social negotiation, where the legitimate needs and aspirations of vulnerable groups, residents, workers, investors and business are taken into account, in a non-discriminatory process .

The issue of a European response to the health problems caused by contaminated sites was initially raised in the frame of technical meetings organized by the World Health Organization (WHO) European Centre for Environment and Health). This implied bringing together experts operating across Europe, reviewing existing scientific evidence and methodological options, exploring priorities and identifying topics and goals for collaborative works.

Building on previous experiences and on available evidence and policy needs, the COST Action on Industrially Contaminated Sites and Health Network (ICSHNet) since 2015 has been greatly contributing to consolidate the awareness and policy profile of Contaminated Sites as a public health priority in Europe.

Work in the ICSHNet COST Action

The Action aims at establishing and consolidating a European Network of experts and relevant institutions, and developing a common framework for research and response through conferences, workshops, training and dissemination activities. In particular, the Action Network's goals are to: 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.

The COST action currently involves about 130 researchers and experts from relevant public health and environmental institutions and universities of 33 countries (<https://www.icshnet.eu/> and http://www.cost.eu/COST_Actions/isch/IS1408).

Among the goals of the COST Action, training is one of the most relevant. A First International Training School on Environmental health in industrially contaminated sites was held in Thessaloniki (Greece) in February 2017 in order to strengthen in-country capacity to face the environmental

health challenges posed by Industrially Contaminated sites (ICSs). Early-stage researchers are key to the success of this Action by spreading knowledge methods through different scientific communities. The Training course aimed to give them a good understanding of risk and uncertainty matched to a set of practical skills in facing the environmental health issues related to how to evaluate the health impact of industrially contaminated sites. https://www.icshnet.eu/wp-content/uploads/2017/02/ICSHNet_Programme-Training_School_3PC.pdf

Another major objective and task of the COST Action is to assess availability of data, research tools, methodologies, information and communication strategies in ICS in all participating countries.

A list of 100 ICS has been selected by participant countries with the objective to evaluate the capacity within and across countries to deal with ICS-related environmental health issues and to identify information needs and research gaps. This will greatly help to reach the COST Action goal to develop guidance and resources on health impact assessment and risk communication in ICS across Europe. the national list of ICS to be selected fulfilled the following criteria:

- POLICY RELEVANCE. Sites for which concern was raised by citizens, politicians, environment and health experts, scientists, media and other interested parties.
- AVAILABLE EVIDENCE. Sites for which local environmental contamination by industrial activities has been documented as dangerous or potentially dangerous for the possible health effects
- EXTENT OF EXPOSURE. Sites involving large or in any case non negligible size of the population directly affected by the contaminations .exposed or potentially exposed in the neighbourhood of the contaminated sites-

An Action Questionnaire (AQ) has been designed as main instrument to collect information among the selected ICS. The evaluation of needs and priorities as identified by the AQ will concern: 1) availability and quality of information on population, environmental and health data,2) methods and research tools used for exposure assessment, 3) experiences of health risk and health impact assessments, and 4) risk communication strategies. The above 4 groups of topics correspond to the activities of the 4 Working Groups (WGs) the Action is composed by.

The other parallel activity of the Action WGs is a critical analysis and review of the scientific literature in terms of availability of suitable research strategies and approaches. This activity is the basis to build up a list of tools and sound methodologies to face EH issues in ICS. Contrasting the knowledge developed about needs and priorities of participating countries (results of AQ in the selected list of ICSs) with the knowledge learned about availability of suitable tools and methodologies, will help to reach the final COST Action goal to develop guidance documents on health impact assessment and risk communication across Europe accounting for the heterogeneity of ICSs across countries.

Outcome of the Ostrava Ministerial Conference

The networking activities carried out so far Action, in close collaboration with WHO, contributed to the inclusion, for the first time, of Contaminated sites as a priority area in the Final Declaration of the Sixth Ministerial Conference on Environment and Health (Ostrava, Czech Republic 15 June 2017). The Ostrava Declaration includes a commitment towards

to preventing and eliminating the adverse environmental and health effects, costs and inequalities related to waste management and contaminated sites, by advancing towards the elimination of uncontrolled and illegal waste disposal and trafficking, and sound management of waste and contaminated sites in the context of transition to a circular economy

Interested Member States of the WHO Regional Office for Europe (53 of them) will address the topic in the coming years and consider it when developing their Portfolios for Action. The Annex 1 to the Declaration includes the following two general objectives:

- *preventing and eliminating potential adverse health impacts from waste management practices and contaminated sites*
- *supporting the transition to a circular economy using the waste hierarchy as a guiding framework to reduce and phase out waste production and its adverse health impacts through reduction of the impact of substances of greatest concern;*

and offers some examples of actions, such as:

- *Assess the extent of the most important waste management activities, compile a national inventory of contaminated sites and their likely emissions and human exposures, promote monitoring, and develop a response action plan.*
- *Identify priority sites for remediation/phasing out based on health impacts, starting from national inventories of landfills, obsolete waste facilities and contaminated sites.*
- *Adopt regulatory mechanisms implementing the polluter-pays principle and extended producer responsibility.*
- *Engage the health sector in the development of policies related to waste management at national and subnational levels, especially hazardous waste management.*
- *Enhance capacities at national and subnational levels to assess impacts and manage risks to health from waste, contaminated sites and improperly recycled materials.*
- *Support and develop partnerships to promote the exchange of experience, the strengthening of capacities and the uptake of the best available technologies.*
- *Promote exchange of best practices, including local and pragmatic approaches to preventing contamination from hazardous substances in the circular use of resources.*
- *Increase public awareness of the importance of sustainable waste management, circular economies and responsible consumption, including through education initiatives addressing children and youth and targeted communication.*

The Bonn meeting

Through presentations, plenary and working group discussions and a round table, the ICSHNet meeting in Bonn addressed questions along the following lines:

- Although rather sparse, is available evidence compelling enough to undertake the actions in the Ostrava Declaration (see below)? If so, which ones seem to be more relevant?
- What has been the experience so far?
- Ideally, we would like to address the issue in a proactive, broadly framed way (for example, considering sustainable production and consumption, circular economy); however, often environmental and/or health authorities are forced to respond to crises, involving controversy, jobs, angry citizens etc. How could we prevent such crises and move towards a proactive approach?
- The issue cuts across disciplines (epidemiology, toxicology, environmental sciences, etc) and competences (health, environment, industry sectors). Also, stakeholders are many. Are we equipped to undertake cross-sectoral, participatory work?
- To what extent the economic dimension comes into play?

The plenary session of the COST Action Conference agreed on a Consensus Statement, ultimately approved by the Action Management Committee, about contaminated sites and health, expressing a consensus view from the Action. Such statement is meant to be taken to the full group of the 53 Member States, taking advantage of the upcoming meeting of the EH Task Force, scheduled for 20-21 March 2018 in Bonn.