COST Action
Final Achievement Report
(29/04/2015 to 28/04/2019)

IS1408: Industrially Contaminated Sites and Health Network (ICSHNet)

The Action was approved by the Committee of Senior Officials (CSO) on 13-11-2014 and has the MoU reference COST 108/14.

This report was submitted on 02-07-2019 by the Action Chair on behalf of the Management Committee in fulfilment of the requirements of the rules for COST Action Management, Monitoring and Final Assessment.

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Funded by the Horizon 2020 Framework Programme of the European Union

Action leadership and participants

Leadership positions

Position	Name	Contact details	Country*
Chair	Dr Ivano Iavarone	ivano.iavarone@iss.it +390649902217	Italy

Position	Name	Contact details	Country*
Vice Chair	Dr Giovanni Leonardi	Giovanni.leonardi@phe.gov.uk +01235825024	United Kingdom

Working groups

#	WG Title	# of participants	WG Leader	Country*
1	Environment and health data	26	Dr Piedad Martin-Olmedo piedad.martin.easp@juntadeandalucia.es	Spain
2	Methods and tools for exposure assessment	30	Dr Kees de Hoogh c.dehoogh@unibas.ch	Switzerland
3	Methods and tools for health risk and health impact assessment	30	Dr Otto Hänninen otto.hanninen@thl.fi	Finland
4	Risk management and communication	25	Dr Roberta Pirastu roberta.pirastu@uniroma1.it	Italy

Other key leadership positions

Position	Name	Contact details	Country*
STSM Coordinator	Dr Pietro Comba	pietro.comba@iss.it	Italy
GH Scientific Representative	Dr Ivano Iavarone	ivano.iavarone@iss.it	Italy

* The country displayed is:

- for the Action Chair, the country that nominated that person to the Management Committee before they were elected Action Chair;
- for the Vice Chair the country that nominated the person as a Management Committee Member,
- for all other leadership positions, if the person is a MC Member the country displayed is the country of nomination, otherwise it is the country of the person's primary work affiliation.

Participants

COST members having accepted the MoU

BE	02/02/2015	**BA**	09/05/2016	**BG**	26/01/2016	**HR**	12/12/2014	**CY**	23/05/2016
CZ	31/03/2015	**DK**	01/09/2015	**EE**	04/12/2014	**FI**	09/12/2014	**FR**	04/12/2014
DE	31/05/2016	**EL**	16/12/2014	**HU**	23/02/2015	**IS**	03/02/2015	**IE**	11/12/2014
IL	17/06/2015	**IT**	05/12/2014	**LT**	13/04/2015	**ME**	09/05/2016	**NL**	13/04/2015
MK	04/03/2015	**PL**	28/11/2014	**PT**	04/02/2015	**RO**	03/07/2015	**RS**	20/02/2015
SK	22/02/2015	**SI**	26/11/2014	**ES**	25/11/2014	**CH**	15/01/2015	**TR**	07/08/2015
UK	18/11/2014								

Other participants

Institution Name	Country
Albanian National Institute of Public Health	Albania
World Health Organization, Regional Office for Europe	International Organisations
European Commission - Joint Research Center	European Commission and EU Agencies
UNICEF	International Organisations
European Comission	European Commission
University of Tirana, Faculty of Public Health	Albania
Department of health policy & reforms, Public Health and Reforms Center of Ministry of Health	Azerbaijan

Summary

Main aim/ objective

The main objective of the Action is to 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 industrially contaminated sites.

The Action addressed this as described below

The COST Action on Industrially Contaminated Sites and Health Network (ICSHNet) since its inception in 2015 has been greatly contributing to consolidate collaborative work across Europe: the Action was officially supported by WHO, European Commission DG Environment and DG JRC, and involved more than 100 experts from about 50 environmental health institutions of 33 participating countries (https://www.cost.eu/actions/IS1408/).
The COST Action was organised in 4 Working Groups (WGs) dealing with Environmental and health data (WG1), Methods and tools for exposure assessment (WG2), Methods and tools for health risk and health impact assessment (WG3), and Risk management and communication (WG4).

One of the major objectives of the COST ACTION was to assess the availability of data in ICS in participating countries by means of an ad hoc designed Action Questionnaire (http://www.icshnet.eu/wp-content/uploads/2019/06/Action-questionnaire.pdf). The Action Survey highlighted the priority need to build up and strengthen or implement national health and environmental information systems in contaminated areas to feed programs to monitor changes in exposure and health profiles of affected populations.

The other milestone of the Action was to review and analyse research tools, assessment procedures, and sound methodologies available in the scientific literature. This target has been mainly achieved through a Monographic volume (Special Issue) entirely dedicated to environmental health challenges from industrial contamination, consisting of one editorial, seven papers and a commentary, and published open-access, in a peer-reviewed journal indexed in Medline (http://www.epiprev.it/materiali/suppl/2018/COST/Suppl_COST_WEB.pdf).

Integrating information obtained by the Action Survey and knowledge learned on suitable methodologies, allowed the identification of different approaches for characterising the impacts on health in ICS that can fit to the data and resources available in ICS scenarios across Europe. This last activity is summarised in the Action Guidance document (http://www.icshnet.eu/wp-content/uploads/2019/05/WHO-COST-Action-Guidance-Document.pdf).

The training school represents another milestone of the Action, created to strengthen the in-country capacity to respond to the environmental health challenges posed by ICSs (http://www.icshnet.eu/wp-content/uploads/2018/05/1stTS_Final_Report.pdf).
The international training school involved 46 students from 25 countries (17 inclusiveness target countries and one Near Neighbour Country(NNC), Azerbaijan). During the training school, students (87% early career investigators) presented and discussed 27 scientific posters to share their experience on ICS in their country in order to respond to specific country/area situations (http://www.icshnet.eu/wp-content/uploads/2018/05/1stTS_Posters.pdf).

As a main success, the Action contributed to the inclusion, for the first time, of "Contaminated sites and waste" as one of the seven priority areas in the Declaration of the Sixth Ministerial Conference on Environment and Health (Ostrava, Czech Republic 15 June 2017), signed by the Ministries of Health and of Environment of the 53 countries of the WHO European Region, with a commitment towards: ”preventing and eliminating the adverse environmental and health effects, costs and inequalities related to waste management and contaminated sites…..” (http://www.euro.who.int/__data/assets/pdf_file/0007/341944/OstravaDeclaration_SIGNED.pdf)

The 2018 Action Plenary Meeting produced a Consensus Statement (in English and in Russian) on

contaminated sites and health (https://www.icshnet.eu/news/cons-stat/), and it was recognised by the the European Environment and Health Task Force (EHTF) as a guiding example for Member States in preparing their national portfolios of action in this priority area (http://www.euro.who.int/__data/assets/pdf_file/0012/388389/EHTF8-version-ENG-14-Jan-2019.pdf?ua=1).

Action website

http://www.icshnet.eu

Achievement of MoU objectives, deliverables and additional outputs/ achievements

MoU objectives

The Action reported the following achievement of its specific objectives.

MoU objective	Level of achievement	Further information (hyperlink or other)
Expand and consolidate previously initiated collaborations and mechanisms for the collection of data and dissemination of information on environment and health in contaminated sites across Europe.	76 - 100%	The COST Action on Industrially Contaminated Sites and Health Network (ICSHNet) since its inception in 2015 has been greatly contributing to consolidate previous collaborations initiated by the World Health Organization (WHO) on environment and health in contaminated sites across Europe[1]. At the beginning of the first Grant Period -GP-(30/4/2015) the Action was able to include 22 countries and the number increased to 33 at the end of the second GP. The Action was officially supported by WHO, European Commission DG Environment and DG JRC, and involved about 150 experts from about 50 main public environmental health institutions of participating countries (https://www.cost.eu/actions/IS1408/). One of the early goals of the Action was to adopt an operational definition of industrially contaminated sites (ICS), building on the previous one proposed by WHO[1]. The adopted definition is: "*areas hosting or having hosted industrial human activities which have produced or might produce, directly or indirectly (waste disposals), chemical contamination of soil, surface or ground-water, air, food-chain, resulting or being able to result in human health impacts*" (http://www.icshnet.eu/news/ics-operational-definition/). In order to promote information seeking, identification, collection and/or data curation, the COST Action was organised in 4 Working Groups (WGs) dealing with Environmental and health data (WG1), Methods and tools for exposure assessment (WG2), Methods and tools for health risk and health impact assessment (WG3), and Risk management and communication (WG4). One of the major features of the Action has been the multidisciplinary composition of its participants, which allowed the identification of issues from different perspectives. The Action did count on experts and institutions from many different disciplines, with different mandates (primary etiologic research, risk assessment and management, health impact assessment, international coordination, food safety, air pollution, chemical safety, waste management, risk prevention and reduction, European chemical legislation, inequity, environmental justice, occupational exposures and risks, among the others). The Report of the First Action Plenary Conference, the first important deliverable of the COST Action, published online (http://old.iss.it/binary/publ/cont/16_27_web.pdf), well describes the way towards the development of a common understanding/definition of the subject matter identifying methodological issues related to the impact of ICS, including exposure assessment, environmental burden of disease, integrated environmental health impact, ecological public health, residential cohorts and geographic epidemiological studies based on *a priori* evaluation of the scientific evidence. Moreover, the report summarises 17 European case-studies from participating countries, describing examples of environmental health assessments, human biomonitoring surveys, risk management and remediation activities related to ICS. A further relevant example of the ability of the COST Action in expanding collaborations and mechanisms for the collection of data and dissemination of information on environment and health in contaminated sites across Europe, is represented by 27 scientific posters from 22 countries, presented and discussed during the training school in Thessaloniki (7-10 February 2017,

		http://www.icshnet.eu/wp-content/uploads/2018/05/1stTS_Posters.pdf), and by the 24 scientific posters from 13 countries presented during the final ICSHNet Plenary Conference (Rome, 21-22 February 2019). These scientific contributions in both the Action meetings covered the main research and public health issues: 1) Exposure science, 2) Epidemiology, 3) Risk assessment methods, 4) Health impact assessment, and 5) Risk communication. [1] Contaminated sites and health. Report of two WHO workshops: Syracuse,Italy, 18/11/2011; Catania,Italy, 21–22/6/2012 http://www.euro.who.int/__data/assets/pdf_file/0003/186240/e96843e.pdf
Identify needs and priorities on strategies to address environmental health impact and to promote interventions to protect and promote public health in contaminated areas.	76 - 100%	One of the major objectives and tasks of the COST ACTION was to assess the availability of data, research tools, methods and communication strategies that have been or are being applied in Industrially Contaminated Sites (ICS) in all participating countries. To this purpose an *ad hoc* Action Questionnaire (AQ) has been developed based on previous questionnaires used in different European projects, and on an expert consultation. A summary of the AQ structure and objectives is available at http://www.icshnet.eu/wp-content/uploads/2019/06/Objectives-and-structure-of-the-Action-Questionnaire.pdf The AQ, with 84 items organised in eight sections (http://www.icshnet.eu/wp-content/uploads/2019/06/Action-questionnaire.pdf), was adapted to an online version using the software “lime survey”. The survey was sent to 47 participants within the ICSHNet, over a list of 99 ICS previously identified. The AQ was then used as main tool to carry out an Action survey (http://www.icshnet.eu/wp-content/uploads/2019/06/AQ-paper.pdf). Information was gathered from 81 ICS from the initially selected 99, in 82% of participating countries in the ICSHNet. The predominant polluting activities were waste disposal (45.7%) and chemical industries (37%), affecting all environmental media but more extensively surface and groundwater (70%) and soil (68%). Main categories of contaminants affecting different media were heavy metals and chlorinated hydrocarbons, but also BETX and ambient air pollutants (e.g. particulate matter, SOx). Human health risk assessment was the most prevalent methodological approach for characterising impacts on health (32%), followed by epidemiological studies (26%), and health impact assessment (12.3%). For many aspects, both related to data availability or methodologies, respondents did not answer or were not sure how to reach that information. The Action Survey highlights the priority need to build up and implement national health and environmental information systems in contaminated areas so that they could feed programs to monitor changes in exposure and health profiles of affected resident populations. Stronger efforts should be also addressed to integrate risk communication strategies as essential elements of any approach for characterizing the impacts on health of ICS. These strategies should be implemented at all stages of the process and involve all potential affected stakeholders, putting emphasis on a better understanding of the results and its uncertainties. The relationship between scientific research, information and political decisions is very complex and a greater sharing and promotion of information among interested stakeholders in ICS is required. The most tangible output of this survey is the AQ that can be updated and used in contexts in which there is no information on environmental media and the health of the exposed population. The other major task of the Action, parallel to the Action survey, was to review and identify research tools and sound methodologies available to face environmental health issues in ICS. The results of this Action activity are

		summarised in a series of papers available at: http://www.icshnet.eu/news/environmental-contamination/ Integrating information obtained by the Action survey and knowledge learned on suitable methodologies, allowed the identification of a range of different approaches for characterising the potential impacts on health in ICS that can fit to the data and resources available in different regions and ICS scenarios across Europe. This last activity is well summarised in the Action Guidance document (http://www.icshnet.eu/wp-content/uploads/2019/05/WHO-COST-Action-Guidance-Document.pdf).
Map expertise and resources for responding to questions of different nature on contaminated sites and health (i.e., on analytical methods, interpretation, communication, policy advice).	76 - 100%	The Fourth ICSHNet Plenary Conference "Towards a consensus on industrially contaminated sites policy priorities and response" (Bonn, 20-21 February 2019, http://www.icshnet.eu/wp-content/uploads/2018/02/4thPC_Final_P.pdf) was the opportunity to consolidate the awareness and policy profile of contaminates sites towards the implementation of the World Health Organization European Environment and Health Process commitments and transition to the Sustainable Development Goals framework. Aiming to share and improve understanding of country experiences, available evidence and policy needs, the Report of the fourth Plenary Conference (http://www.icshnet.eu/wp-content/uploads/2019/06/COST-Action-Report-4th-Plenary-conference_website.pdf) outlines the key points and recommendations made by ISCHNet members and meeting participants in relation to this objective. Responding to questions of different nature on contaminated sites and health can also be addressed through capacity building programs. The COST Action contributed to this objective by organising the first international training school on Environmental health in Industrially contaminated sites and by supporting a program of Short Term Scientific Missions (STSM) across Europe. The training school represented one of the milestones of this Action, created to strengthen the in-country capacity to respond to the environmental health challenges posed by ICS, through the training of many early career investigators (ECI). It was held in Thessaloniki, Greece (7-10 February 2017, Report available at http://www.icshnet.eu/wp-content/uploads/2018/05/1stTS_Final_Report.pdf). Young researchers are essential for spreading knowledge methods through different scientific communities. The Action created a European "cohort" of investigators dealing with Industrial contamination and population health issues. The course aimed to provide these researchers with a scientific basis on knowledge of methods along with risk and uncertainty of the research, also matched to practical skills for evaluating the health effects and impact of ICS. Methods and tools were presented to: 1) examine the exposure and health profile of populations affected by industrial contamination; 2) estimate the health impact of living close to ICS; 3) identify public health priorities for research and preventive actions; 4) interact and communicate with relevant counterparts. The students represented a wide geographic spread, ensuring a uniform distribution across the ICS Network countries. 25 out of 33 countries involved in the Action (76%) participate in the training workshop. A total number of 46 trainees, well balanced by gender (54% females), attended the school, the majority were involved in research and 40 were early career investigators (87%). Teams from countries/regions with less capacity in the field of the Action were well represented among attendees, in particular from 17 out of 22 inclusiveness target countries (77%) and from Near Neighbour Countries (NNC) like Azerbaijan. During the training school, students shared examples of their experience on ICS research in their country. This facilitated learning from each other and discussing together how best to respond to different situations: specific country/area ICS, ICS exposure scenarios, epidemiological studies of people living near ICS; the health impact assessment; risk communication (http://www.icshnet.eu/wp-content/uploads/2018/05/1stTS_Posters.pdf).

		Furthermore, the COST Action during its life supported 21 STSM, mainly of young researchers from inclusiveness target countries (Cyprus, Lithuania, Montenegro, Slovenia,Serbia and Romania), and hosted by more research-intensive countries (Italy,Germany,Switzerland,Finland,Spain). A report of all STSM is available at: http://www.icshnet.eu/wp-content/uploads/2019/06/COST-ICSHNet-STSMs-report.pdf These STSM were an important tool to facilitate collaboration across countries in different issues like analytical methods, data interpretation, communication strategies, policy advice.
Promote with various counterparts (scientific, advocacy, policy) a consistent framework for carrying out health impact assessment, risk management, and risk communication in contaminated sites.	76 - 100%	Three main networking activities were carried out by the Action addressing the need to promote with different counterparts a framework for dealing with environmental health issues related to ICS. The first activity is the contribution of the COST Action in the Eighth Meeting of the European Environment and Health Task Force (EHTF) (Bonn, Germany, 20–21/3/2018, http://www.euro.who.int/en/health-topics/environment-and-health/pages/news/news/2018/3/environment-and-health-task-force-meeting-kicks-off-national-planning-in-7-key-areas), led by WHO, to collaborate on developing national portfolios of actions on environment and health issues related to the 7 priority areas of the Ostrava Declaration. These areas include for the first time "contaminated sites and waste", with a specific commitment on a commitment on "*preventing and eliminating the adverse environmental and health effects, costs and inequalities related to waste management and contaminated sites*". In the Final Report of the meeting (http://www.euro.who.int/__data/assets/pdf_file/0012/388389/EHTF8-version-ENG-14-Jan-2019.pdf?ua=1) WHO underlines the role of the COST Action, and states that: "*Member States preparing their national portfolios of action in that area could make use of the Industrially Contaminated Sites and Health Network (ICSHNet – https://www.icshnet.eu), launched by the European intergovernmental framework European Cooperation in Science and Technology (COST) in 2015 to identify sites requiring decontamination, share research and best practices and strengthen country capacities",* underlying that: *"In view of the commitments in the Ostrava Declaration, the 2018 Plenary Meeting of ICSHNet, which took place on 21–22 February in Bonn, produced a consensus statement (in english and in russian) on contaminated sites and health (https://www.icshnet.eu/news/cons-stat/".* The second Action activity promoting a framework for research and response, is the WHO/COST Action Consultation Meeting "Contaminated sites and health: developing guidance and tools" (Bonn,Germany, 15-16/1/2019). This meeting involved environment and health experts and country-level representatives with the aim to identify major aspects to be dealt with in a Guidance Document. The main feedback from meeting participants was that the guidance document needs to be as practical as possible, as this helps readers of the guidance document to have a clear step-by-step procedure for addressing challenges of assessing and addressing the health impacts of contaminated sites, including how to consider multiple exposures pathways and multiple health outcomes. The Report of the Meeting is available at http://www.icshnet.eu/wp-content/uploads/2019/05/Report-of-the-Consultation-Meeting.pdf The third activity concerns the Action Guidance on the human health impact of industrially contaminated sites, jointly developed by the COST Action and WHO. The document builds on the efforts of researchers and practitioners from different fields and provides a common framework for research and response around the health impacts of ICS. The document was mainly developed for professionals operating in public health and environment agencies and related

		research institutes, who need to respond on questions on ICS and health. Aiming to share and improve understanding of previous experiences, available evidence and policy needs, this document provides practical guidance to the environment and health sector on how to understand and report on the human health impacts of industrially contaminated sites. This document also synthesises the significant efforts of researchers and practitioners from different fields and provides a common framework for research and response. A pre-publication copy of the Guidance is available at http://www.icshnet.eu/wp-content/uploads/2019/05/WHO-COST-Action-Guidance-Document.pdf
Formulate priority research in the domain.	76 - 100%	One of the main expected goal of the COST Action, declared since its inception, was to review and analyse research tools, assessment procedures, and sound methodologies available in the scientific literature, to formulate research recommendations in the domain of industrially contaminated sites and health. This target has been achieved, thanks to the work carried out within the Action, through different contributions. A first contribution in this direction was the paper titled "Exploring available options in characterising the health impact of industrially contaminated sites", published in a peer-review journal during the second year of the COST Action (https://www.ncbi.nlm.nih.gov/pubmed/27999215), and available online at http://old.iss.it/binary/publ/cont/ANN_16_04_03.pdf The objective of this paper was to explore available options in studying the health impact of ICS, mainly referring to information provided by documents and activities developed by the WHO and the WHO Collaborating Center for Environmental Health in Contaminated Sites. A second important Action contribution is represented by a Monograph (Special Issue) entirely dedicated to “Environmental health challenges from industrial contamination”. This special issue has been published in open access, in the peer-reviewed journal indexed in Medline, “Epidemiol Prev”, that is entirely available at: http://www.epiprev.it/materiali/suppl/2018/COST/Suppl_COST_WEB.pdf. This special Issue consists of one editorial, seven papers and a commentary. The 7 original papers reviewed and analysed the available options related to: 1) Environmental and health data needed to develop national surveillance systems in industrially contaminated sites (http://www.epiprev.it/environmental-health-challenges-from-industrial-contamination_art1); 2) A review of exposure assessment methods for epidemiological studies of health effects related to industrially contaminated sites (http://www.epiprev.it/environmental-health-challenges-from-industrial-contamination_art2); 3) Addressing complexity of health impact assessment in industrially contaminated sites via the exposome paradigm (http://www.epiprev.it/environmental-health-challenges-from-industrial-contamination_art3); 4) Methods of health risk and impact assessment at industrially contaminated sites: a systematic review (http://www.epiprev.it/environmental-health-challenges-from-industrial-contamination_art4); 5) A scoping review of the epidemiological methods used to investigate the health effects of industrially contaminated sites (http://www.epiprev.it/environmental-health-challenges-from-industrial-contamination_art5); 6) Towards an assessment of the health impact of industrially contaminated sites: waste landfills in Europe)(http://www.epiprev.it/environmental-health-

		challenges-from-industrial-contamination_art6); 7) Cancer incidence in children and young adults living in industrially contaminated sites: from the Italian experience to the development of an international surveillance system (http://www.epiprev.it/environmental-health-challenges-from-industrial-contamination_art7). The last contribution, a commentary, deeply analysed the issue when epidemiological research is a helpful response to industrial contamination, providing guidance and recommendation on how to proceed in different real life ICS scenarios. Other important deliverables provided by the Action on how to formulate priority research in the domain of ICS are represented by two scientific papers which are in press in Epidemiol Prev 2019; 43 (3): 1) the first scientific paper, titled "*Human biomonitoring as a tool for exposure assessment in industrially contaminated sites (ICSs) - lessons learned within the ICS and Health European Network*" (http://www.icshnet.eu/wp-content/uploads/2019/06/HBM-paper.pdf), discusses challenges and experiences in addressing environmental health impact near ICS with human biomonitoring in order to identify needs and priorities for guidelines in European ICS; 2) the second paper, titled "*Methods and data needs to assess impact on health of chemicals in industrial contaminated sites*" (http://www.icshnet.eu/wp-content/uploads/2019/06/Methods-and-data-needs-paper.pdf), reviews the available information form human health risk assessment and form environmental epidemiological studies in order to identify the most suitable methodological approach for characterising health impacts of ICS.

Deliverables

The Action reported the following deliverables:

Deliverable	Timing of deliverable	Further information (hyperlink or other)
Creation of a brochure/folder, as material and tool for the promotion and dissemination of the Action objectives and networking activities concerning the first Action plenary meeting 1-2 October 2015 in Rome	Delivered	http://www.icshnet.eu/wp-content/uploads/2016/03/Brochure-Folder-COST-Action-1st-plenary-Conference.pdf
Creation of the Action WEB site, as material and tool for the promotion and dissemination of the Action objectives and networking activities (http://www.icshnet.eu/)	Delivered	http://www.icshnet.eu/
Programme, presentations and pictures of the second Core Group meeting, Rome 26-27 January 2016, available at http://www.icshnet.eu/news/2ndcg/	Delivered	http://www.icshnet.eu/news/2ndcg/
Creation of the Action Logo, as material for display or distribution of the Action aims. http://www.icshnet.eu/wp-content/uploads/2016/01/xlogo_ICSHNet-1.jpg.pagespeed.ic.CQIkEgSUtF.jpg	Delivered	http://www.icshnet.eu/wp-content/uploads/2016/03/ICSHNet-Cost-Action-Logo.pdf
Creation of a brochure/folder, as material and tool for the promotion and dissemination of the Action objectives and networking activities concerning the Second Action plenary meeting 3-4 March 2016 in Budapest	Delivered	http://www.icshnet.eu/wp-content/uploads/2016/03/Brochure-folder-COST-Action-2nd-Plenary-Conference.pdf
Development of a plan for the training school for early career investigators on environmental health in ICS to be held in the second GP. Teaching planning meeting for COST Action, 7-8 April 2016, London. Programme available at http://www.icshnet.eu/news/1st-teachplanmeet/	Delivered	http://www.icshnet.eu/wp-content/uploads/2019/06/Minutes-of-ICSHNet-teaching-meeting-7-8-April-2016.pdf
Open Access electronic publication: Industrially Contaminated Sites and health Network (ICSHNet). Report of the first plenary conference of the COST Action IS1408. Rome 1-2 October 2015, Istituto Superiore di Sanità, 2016.	Delivered	http://old.iss.it/binary/publ/cont/16_27_web.pdf
Leaflet on the Action objectives, tasks and Goals. http://www.icshnet.eu/category/diss-material/	Delivered	http://www.icshnet.eu/wp-content/uploads/2016/08/COST_ICSHNet_Leaflet.pdf
Report of the Short term scientific mission (STSM) - COST-STSM-IS1408-33716 - titled “Methods and tools for environmental health assessments in Industrially Contaminated Sites“, performed from 10 to 16 April 2016. Abstract available at: http://www.icshnet.eu/news/stsm-april-2016/	Delivered	http://www.icshnet.eu/short-term-scientific-missions/stsm-is1408-33716/
Report of the Short term scientific mission (STSM) - COST-STSM-IS1408-33687 - titled “Review of methods for Health Impact Assessment of Industrially Contaminated Sites in Europe“, performed from 5 to 20 April 2016.	Delivered	http://www.icshnet.eu/short-term-scientific-missions/stsm-is1408-33687/

Abstract available at: http://www.icshnet.eu/news/stsm-april-2016/		
Oral contribution at the 27th Conference of the International Society for Environmental Epidemiology -30 August–3 September 2015, São Paulo, Brazil, illustrating the COST Action activities in the presentation "Environmental Health Inequalities In Industrially Contaminated Sites In Europe". http://ehp.niehs.nih.gov/isee/2015-6475/	Delivered	https://ehp.niehs.nih.gov/doi/10.1289/isee.2015.2015-6475
Presentation of a Poster on "A harmonised approach to face the environmental health challenges posed by industrial contamination: the COST Action IS1408" at the 28th Conference of the International Society for Environmental Epidemiology -1-4 September 2016, Rome, Italy. http://www.icshnet.eu/news/abstract-isee2016/	Delivered	https://ehp.niehs.nih.gov/doi/10.1289/isee.2016.4369
Organisation of an international Symposium on "The health impact of industrially contaminated sites, a global environmental health challenge" at the 28th Conference of the International Society for Environmental Epidemiology -1-4 September 2016, Rome, Italy, introducing the main aspects of the COST Action. http://www.icshnet.eu/news/isee-2016/	Delivered	http://www.icshnet.eu/wp-content/uploads/2016/05/isee-2016-symposium.pdf
Contribution on "Health impact assessment in industrially contaminated areas" in the Report "Italy-Latin America cooperation. Health impact of contaminated sites: methods and applications", Published in "Rapporti ISTISAN, an open-access periodical of the Italian Institute of Health, number 15/32" available at http://www.iss.it/binary/publ/cont/15_32_web.pdf	Delivered	http://www.iss.it/binary/publ/cont/15_32_web.pdf
Open Access electronic publication: Contaminated sites: a global health issue. Ann Ist Super Sanità 2016, Vol. 52, No. 4. http://www.iss.it/binary/publ/cont/Preface_n.4_2016.pdf	Delivered	http://www.iss.it/binary/publ/cont/Preface_n.4_2016.pdf
Open Access electronic publication. Exploring available options in characterising the health impact of industrially contaminated sites. Ann Ist Super Sanità 2016, Vol. 52, No. 4. http://www.iss.it/binary/publ/cont/PasettoMonographic_4.pdf	Delivered	http://old.iss.it/binary/publ/cont/ANN_16_04_03.pdf
Preparation of a short Action Questionnaire on BASELINE INFORMATION ON INDUSTRIALLY CONTAMINATED SITES (ICS) IN COUNTRIES PARTICIPATING IN THE ACTION.	Delivered	http://www.icshnet.eu/wp-content/uploads/2019/06/short-questionnaire-on-baseline-information-on-ICS.pdf
Set up of the action group of early career investigators (http://www.icshnet.eu/ecis/) invited to participate to the second action plenary meeting in Budapest (3-4 March 2016)	Delivered	http://www.icshnet.eu/ecis/
Evaluation and update of the gender balance within the COST Action also by working groups (http://www.icshnet.eu/gender-balance/)	Delivered	http://www.icshnet.eu/gender-balance/

Oral communication on "Environmental health in industrially contaminated sites in Europe" reporting the interactions between the COST Action and the Mediterranean Scientific Association of EnvironmentAL Protection (MESAEP), at the 18th International Symposium on Environmental Pollution and its Impact on Life in the Mediterranean Region, September, 26-30, 2015, Crete, Greece	Delivered	http://www.icshnet.eu/wp-content/uploads/2019/06/MESAEP-18th-symposium.pdf
Programme, presentations and pictures of the third Core Group meeting, Budapest 3-4 March 2016, available at http://www.icshnet.eu/news/3rdcg/	Delivered	http://www.icshnet.eu/news/2ndpc/
Development of a working operational definition of Industrially contaminated sites (ICS)	Delivered	http://www.icshnet.eu/news/ics-operational-definition/
Objectives and structure of the ICSHNet Questionnaire for evaluating the availability of environmental health data and studies concerning selected ICSs in participating countries	Delivered	http://www.icshnet.eu/wp-content/uploads/2019/06/Objectives-and-structure-of-the-Action-Questionnaire.pdf
Development of the ICSHNet Questionnaire Sections on the availability in selected ICSs of: i) environmental, health and socioeconomic data (WG1); ii) exposure assessment data (including human and ecological bio-monitoring) WG2; iii) health risk and health impact assessment data (WG3); iv) communication and risk governance strategies (WG4).	Delivered	http://www.icshnet.eu/wp-content/uploads/2019/06/Action-questionnaire.pdf
Development of the training school programme for early career investigators on environmental health in ICS to be held in the second GP, based on the contribution of the 4 working groups of the Action.	Delivered	http://www.icshnet.eu/wp-content/uploads/2017/02/ICSHNet_Programme-_Training_School_3PC.pdf

Additional outputs/ achievements

The following outputs/ achievements also resulted from the Action:

The Action reported 15 publications on the topic of the Action, co-authored by at least two Action participants from two countries participating in the Action, and for which the Action networking was necessary.

Co-authored Action publications - peer-reviewed

1. doi:10.19191/EP18.5-6.S1.P076.090

Title	Cancer incidence in children and young adults living in industrially contaminated sites: from the Italian experience to the development of an international surveillance system
Authors	Ivano Iavarone; Carlotta Buzzoni; Giorgia Stoppa; Eva Steliarova-Foucher; SENTIERI-AIRTUM Working Group
DOI	doi:10.19191/EP18.5-6.S1.P076.090
Type	Journal article
Published in	Epidemiologia & Prevenzione
Published by	Inferenze scarl
ISSN	1120-9763

2. doi:10.19191/EP18.5-6.S1.P069.089

Title	Towards an assessment of the health impact of industrially contaminated sites: waste landfills in Europe
Authors	Gavin Shaddick; Andrea Ranzi; Matthew L. Thomas; Roman Aguirre-Perez; Maria Bekker-Nielsen Dunbar; Federica Parmagnani; Marco Martuzzi
DOI	doi:10.19191/EP18.5-6.S1.P069.089
Type	Journal article
Published in	Epidemiologia & Prevenzione
Published by	Inferenze scarl
ISSN	1120-9763

3. doi:10.19191/EP18.5-6.S1.P059.088

Title	A scoping review of the epidemiological methods used to investigate the health effects of industrially contaminated sites
Authors	Manuela De Sario; Roberto Pasetto; Simona Vecchi; Ariana Zeka; Gerard Hoek; Paola Michelozzi; Ivano Iavarone; Tony Fletcher; Lisa Bauleo; Carla Ancona
DOI	doi:10.19191/EP18.5-6.S1.P059.088

		Type	Journal article
		Published in	Epidemiologia & Prevenzione
		Published by	Inferenze scarl
		ISSN	1120-9763
4.	doi:10.19191/EP18.5-6.S1.P049.087	Title	Methods of health risk and impact assessment at industrially contaminated sites: a systematic review
		Authors	Kairong Xiong; Andreja Kukec; Isabell Katharina Rumrich; Tanja Rejc; Roberto Pasetto; Ivano Iavarone; Otto Hänninen
		DOI	doi:10.19191/EP18.5-6.S1.P049.087
		Type	Journal article
		Published in	Epidemiologia & Prevenzione
		Published by	Inferenze scarl
		ISSN	1120-9763
5.	doi:10.19191/EP18.5-6.S1.P037.086	Title	Addressing complexity of health impact assessment in industrially contaminated sites via the exposome paradigm
		Authors	Dimosthenis A. Sarigiannis; Spyros P. Karakitsios
		DOI	doi:10.19191/EP18.5-6.S1.P037.086
		Type	Journal article
		Published in	Epidemiologia & Prevenzione
		Published by	Inferenze scarl
		ISSN	1120-9763
6.	doi:10.19191/EP18.5-6.S1.P021.085	Title	A review of exposure assessment methods for epidemiological studies of health effects related to industrially contaminated sites
		Authors	Gerard Hoek; Andrea Ranzi; Ilir Alimehmeti; Elena-Roxana Ardeleanu; Juan P. Arrebola; Paula Ávila; Carla Candeias; Ann Colles; Gloria Cerasela Crișan; Sarah Dack; Zoltán Demeter; Lucia Fazzo; Tine Fierens; Benjamin Flückiger; Stephanie Gaengler; Otto Hänninen; Hedi Harzia; Rupert Hough; Barna Laszlo Iantovics; Olga-Ioanna Kalantzi; Spyros P. Karakitsios; Konstantinos C. Markis; Piedad Martin-Olmedo; Elena Nechita; Thomai Nicoli; Hans Orru; Roberto Pasetto; Francisco Miguel Pérez-Carrascosa; Diogo Pestana; Fernando

		Rocha; Dimosthenis A. Sarigiannis; João Paulo Teixeira; Christos Tsadilas; Visa Tasic; Lorenzo Vaccari; Ivano Iavarone; Kees de Hoogh
	DOI	doi:10.19191/EP18.5-6.S1.P021.085
	Type	Journal article
	Published in	Epidemiologia & Prevenzione
	Published by	Inferenze scarl
	ISSN	1120-9763

7. doi:10.19191/EP18.5-6.S1.P011.084

	Title	Environmental and health data needed to develop national surveillance systems in industrially contaminated sites
	Authors	Piedad Martin-Olmedo; Rebecca Hams; Michele Santoro; Andrea Ranzi; Gerard Hoek; Kees de Hoogh; Giovanni S. Leonardi
	DOI	doi:10.19191/EP18.5-6.S1.P011.084
	Type	Journal article
	Published in	Epidemiologia & Prevenzione
	Published by	Inferenze scarl
	ISSN	1120-9763

8. doi:10.19191/EP18.5-6.S1.P005.083

	Title	ICSHNet. Environmental health challenges from industrial contamination
	Authors	Ivano Iavarone; Roberto Pasetto
	DOI	doi:10.19191/EP18.5-6.S1.P005.083
	Type	Journal article
	Published in	Epidemiologia & Prevenzione
	Published by	Inferenze scarl
	ISSN	1120-9763

9. doi:10.19191/EP18.5-6.S1.P089.091

	Title	When is epidemiological research a helpful response to industrial contamination?
	Author	David A. Savitz
	DOI	doi:10.19191/EP18.5-6.S1.P089.091
	Type	Journal article
	Published in	Epidemiologia & Prevenzione
	Published by	Inferenze scarl
	ISSN	1120-9763

10.

ENVIRONMENTAL HEALTH EDUCATION IN ASBESTOS CONTAMINATED COMMUNITIES IN ITALY: THE CASALE MONFERRATO CASE STUDY

Available at: https://www.annalsofglobalhealth.org/articles/10.5334/aogh.2491/

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Journal: Annals of Global Health

Year of pubblication: 2019

ABSTRACT

Background. Environmental health education contributes towards increasing awareness of communities to prevent exposures to hazardous substances. Casale Monferrato is a prioritized asbestos contaminated site for remediation in Italy; given it was the operating site for the Eternit asbestos-cement factory from 1907 to 1986. The area is prone to severe asbestos-related diseases. About 50 cases of mesothelioma are diagnosed in Casale Monferrato annually; which have been shown to be caused by occupational, environmental and domestic asbestos exposure.

Objectives. The goal of this paper is to analyze the Casale Monferrato case study in terms of youth engagement in environmental health education initiatives on asbestos risk and health impact. The paper aims at underlining the lessons learned in order to share the success of this initiative with other communities living in asbestos contaminated sites in different countries.

Methods. Peer education methodology has been used through the Asbestos multimedia Classroom to involve teachers, students and other local stakeholders in training activities, selection of the contents for educational materials and interactive tools, as well as choosing the presentation process for the aforementioned knowledge sharing instruments.

Findings. From November 2014 to June 2018, 185 high school students and teachers were trained through the Asbestos multimedia Classroom. They trained 3,241 classroom' visitors to December 2018. The Classroom relies on an inclusive participative process in which young people play a key role in the network of relationships within their community.

Conclusions. The paper corroborates the importance of engaging the educational system in communication efforts aimed at fostering collective awareness on environmental risk and health-related impacts for communities living in industrially contaminated sites. Considering the global dimension of the asbestos contamination and disease burden, this experience might be of relevance both in countries that banned asbestos and in those where asbestos is not yet prohibited.

11.

Methods and data needs to assess impact on health of chemicals in industrial contaminated sites

Available at: http://www.icshnet.eu/wp-content/uploads/2019/06/Methods-and-data-needs-paper.pdf

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Journal, Issue number, Volume: Epidemiol Prev 2019; 43 (3) (in press)

publisher: Published by Inferenze scarl - ISSN 1120-9763

Abstract

BACKGROUND. Human exposure to mixtures of chemicals of toxicological interest, typically found on Industrial Contaminated Sites (ICS), has been associated with a broad range of different health outcomes. Deprived population groups endure most of the burden of disease and premature death associated to the exposure to those pollutants. Characterizing the impacts on health of ICSs is a challenging process. Currently the two main methodological approaches used are Human Health Risk Assessment (HHRA) and Environmental Epidemiological (EE) studies.

OBJECTIVE. Review existing guidance and scientific evidence for HHRA and EE studies applied to contaminated sites that orientate in selecting the most suitable methodological approach for characterising health impacts of ICS attending to the site characteristics, and the availability of environmental, health and socio-demographic data.

RESULTS. HHRA has evolved into a more holistic approach, placing more emphasis in planning, community involvement and adapting the dimension of the assessment to the problem formulation and to the availability of resources. Many different HHRA guidelines for contaminated sites has been published worldwide, and although they share a similar framework, the scientific evidence for deriving reference values and policy options can result in a wide variability of health risk estimates. This paper condenses different options with the recommendations to use those tools, default values

for exposure and environmental and toxicological reference values that most suit to the population and characteristics of the ICS under evaluation. Conducting EE studies provide a deeper insight into the problem of the exposure to industrial pollutants that do not require extrapolation from data obtained from toxicological studies or other population, addressing the community concern's more directly.

CONCLUSIONS. The suitability to use one or other approach to assess the impact of ICS on health depends on the availability of data, cost-benefit aspects and the kind of problem that needs to be answered. Risk assessment based on toxicological data can be very rapid and cheap, providing direct information when the intervention to protect the health of population is urgent and no suitable dose-response functions are available from epidemiological studies. Complementing the results obtained from different approaches, like for instance public health surveillance might also provide an efficient response in other specific settings.

12.

Human biomonitoring as a tool for exposure assessment in industrially contaminated sites (ICSs) - lessons learned within the ICS and Health European Network

Available at: http://www.icshnet.eu/wp-content/uploads/2019/06/HBM-paper.pdf

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Journal, issue,volume: Epidemiol Prev 2019; 43 (3) (in press)

Publisher: Inferenze scarl

ABSTRACT

The use of human biomonitoring (HBM) for impact assessment is increasing in Europe. A European initiative, HBM4EU, aims at developing a harmonised approach to organise HBM in Europe in order to support and feed European policy making, based on data of the general European population. However, the mixed nature of industrially contaminated sites (ICSs) leads to heterogeneity in exposure and health risk of residents living nearby, which is different from that of the general European population. Health, environment, and social aspects are strongly interconnected in ICSs, and local communities are often concerned about potential health impact and needs for remediation. Therefore, the COST Action IS1408 on Industrially Contaminated Sites and Health Network (ICSHNet) decided to reflect on the potential and limitations of HBM to assess exposure and early health effects associated with living near ICSs.

This paper intends to discuss challenges and lessons learned for addressing environmental health impact near ICSs with HBM in order to identify needs and priorities for HBM guidelines in European ICS

Based on the experience of the ICSHNet research team, six case studies from different European regions that applied HBM at ICSs were selected. The case studies were systematically compared distinguishing four phases: the preparatory phase; study design including sampling schemes; selection of the target population and biomarkers; study outcome and how results were communicated and finally the impact of the results at scientific, societal and political levels.

All six case studies identified opportunities and challenges for applying HBM in ICS studies. In all six case studies HBM was primarily used to assess internal human exposure to environmental pollution associated with the ICSs, triggered by local public concern or by elevated levels of contaminants measured in environmental samples. The selection of the study population was based on distance to the industrial site or based on environmental modelling to delineate areas of high

exposure. The contaminant specific results of the study population were compared with those of a control group or with national reference values. The HBM data often revealed other questions about health relevance, exposure routes or vulnerable sub-populations, which could be partially answered depending on the study design and the exploitation of questionnaire data that provided additional information on personal characteristics, life style and health status. Combining biomarkers of exposure with biomarkers of (early) biological effects, data from questionnaires or other environmental data enabled fine-tuning of the results and allowed for more targeted remediating actions aimed to reduce exposure. A smart choice of (a combination of) sample matrices for biomarker analysis produced information about relevant time-windows of exposure, that matched with the activities of the ICSs. Open and transparent communication of study results with contextual information, and involvement of local stakeholders throughout the study helped to build confidence in the study results, gained support for remediating actions and facilitated sharing of responsibilities.

Based on the identified positive experiences and challenges the paper concludes with formulating recommendations for a European protocol and guidance document for HBM in ICS. This could advance the use of HBM in local environmental health policy development and evaluation of exposure levels and promote coordination and collaboration between researchers and risk managers.

13.

Industrial contaminated sites and health: results of a European survey

Available at: http://www.icshnet.eu/wp-content/uploads/2019/06/AQ-paper.pdf

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Journal,issue,volume: Epidemiol Prev 2019; 43 (3)

Publisher: Inferenze scarl

Abstract

BACKGROUND. Industrially contaminated sites (ICSs) have been recognised as a major public health concern since they involve exposure to multiple environmental stressors, normally distributed unevenly within population. The COST Action on *Industrially Contaminated Sites and Health Network* (ICSHNet) comprises a European network of experts and institutions to clarify needs and priorities for better characterizing the impact on environment and health of ICS.

OBJECTIVE. Collecting and evaluating available data and experiences regarding ICS in participating countries within the network, with particular consideration to availability of environmental, health and demographic data.

METHODS. To evaluate the availability of data an Action Questionnaire (AQ) was developed based on previous questionnaires used in different European projects, and an expert consultation. The AQ, with 84 items organised in eight sections, was adapted to an online version using the software “lime survey”. The survey was sent to 47 participants within the ICSHNet, over a list of 99 ICS previously identified.

RESULTS. Information was gathered from 81 ICS from the initial 99, corresponding to 82% of participating countries in the ICSHNet. The predominant polluting activities were waste disposal (45.7%) and chemical industries (37%), affecting all environmental media but more extensively surface and groundwater (70%) and soil (68%). Main categories of contaminants affecting different media were heavy metals and chlorinated hydrocarbons, but also BETX and ambient air pollutants (e.g. particulate matter, SOx). Human health risk assessment was the most prevalent methodological approach for characterising impacts on health (32%), followed by epidemiological studies (26%), and health impact assessment (12.3%). For many aspects, both related to data availability or methodologies, respondents did not answer or were not sure how to reach that information.

CONCLUSIONS. Survey findings suggest that additional data collection and reporting efforts are required to meet the methodological requirement to better analyse the health impact of ICS.

14.

Searching for best and new emerging practices for involving youth in environmental health risk communication and risk governance. Public Health Panorama - Volume 3, Issue 2, June 2017. pp 337-345 - ISSN 2412-544X

Available
at:
http://www.euro.who.int/__data/assets/pdf_file/0005/341564/13_Review_HealthRisks_youth_ENG.p

df?ua=1

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Background: We aimed to analyse best and new emerging practices for involving adolescents in environmental health risk communication and risk governance by a selective international literature review. Methods: A time-restricted literature search was done as part of a scientific mission to identify existing best and new emerging practices in environmental health risk communication and risk governance involving young people. The Web of Science, PubMed and Google Scholar databases were searched for articles describing all types of studies into the evidence, experience or evaluation of capacity-building for young people and policy-makers published in English. Database searches yielded 450 abstracts and four additional papers were identified by hand-searching references and contacting experts, nongovernmental organizations and young researchers in the field. Following screening, 25 full papers were reviewed, of which six fulfilled the inclusion criteria. Data were extracted from all included papers and synthesized into a narrative review. Results: Only a small number of best and new emerging practices for involving youth in environmental health risk communication and risk governance for young people, policymakers and planners in European Region have been described. Decision-making that aims to maximize the health benefits of reducing or remediation of environmental contamination should also take wider considerations into account, including opportunities for individual health promotion activities related to improvements in the physical, social and economic environment. Conclusion: More effort is needed to improve methodologies for promoting the involvement of young people in the policy research process. This will provide the ideal opportunity for researchers and early career investigators to develop innovative solutions that uphold the rights of young people to engage in participatory communication and governance.

15.

COMMUNICATION PLANS IN CONTAMINATED AREAS AS PREVENTION TOOLS FOR INFORMED POLICY Daniela Marsili , Lucia Fazzo , Ivano Iavarone , Pietro Comba

PUBLIC HEALTH PANORAMA VOLUME 3 | ISSUE 2 | JUNE 2017 | 261-267 - ISSN 2412-544X

Available
at:
http://www.euro.who.int/__data/assets/pdf_file/0020/341543/8_PolicyPractice_CommunicationPlans_ENG.pdf?ua=1

Introduction: Communicating about environmental health is an important commitment for the scientific community involved in studying contaminated sites. In the last decade, international and national organizations in the WHO European Region have proposed theoretical approaches and practices for adopting effective communication strategies in contaminated areas. Methods: The aim of this paper is to propose communication plans as a tool for fostering mid- and long-term prevention actions in local contexts affected by natural and man-made contamination from industrial and agricultural production and waste management. Sharing responsibilities for strengthening social capacity building requires the effective commitment of relevant stakeholders in the communication process: experiences in two contaminated areas in Italy are presented here as examples. Conclusion: Lessons learnt from experiences with contaminated areas in Italy and elsewhere in Europe emphasize the need to adopt effective communication plans for engaging different stakeholders in the decision-making process, defining roles, and sharing responsibilities to foster informed policy and prevention initiatives.

Projects

"N/A"

Other outputs / achievements

The following other outputs/ achievements contributing to the COST mission resulted from the Action:

1. Contribution of the COST Action at the WHO expert consultation on “Waste and human health: evidence and needs”, held at the United Nations Campus in Bonn, Germany, on 5–6 November 2015 (http://www.euro.who.int/en/health-topics/environment-and-health/pages/news/news/2015/11/who-expert-consultation-on-waste-and-human-health-evidence-and-needs).

   The meeting involved 24 experts from 11 countries, and was aimed to: discuss data and evidence needs and gaps, and ways to address them; review current scientific evidence and practices; analyse how waste and health can be addressed as part of European countries' efforts on environment and health, and towards the Sixth Ministerial Conference on Environment and Health in 2017.
   Among the participating experts several members of the COST Action gave their contribution: actively contributed as Chair of the meeting (P Comba), giving a presentation on *The way forward: needs, opportunities, partnerships, Collaboration with COST Action* (I Iavarone); on the *Health effects of hazardous wastes* (L Fazzo); on the health effects of municipal waste (A Ranzi); italian Case study (C Ancona); Greek case-study (D. Sarigiannis); Exposome (D Sarigiannis); Burden of disease (A Ranzi);

   The consultation meeting allowed important direct discussion on the theme of contaminated sites, industrial waste and health with experts from the WHO Regional Office for Europe, and the WHO European Centre for Environment and Health Bonn – Germany.

   The Report is available at: http://www.euro.who.int/__data/assets/pdf_file/0003/317226/Waste-human-health-Evidence-needs-mtg-report.pdf

2. Contribution of the COST Action in a Meeting of Member States and experts on waste and health, held at the United Nations Campus in Bonn, Germany, on 4-5 October 2016 (http://www.euro.who.int/en/media-centre/events/events/2016/10/meeting-of-member-states-and-experts-on-waste-and-health).

   The meeting aimed to further describe the health impacts of waste in Europe building on previous WHO consultations and their implications for sustainability, and to identify possible health-friendly policy orientations, to be proposed for consideration at the 2017 Ministerial Conference on Environment and Health. Representatives from Albania, Armenia, Azerbaijan, Belarus, Bosnia & Herzegovina, Czech Republic, Finland, Georgia, Germany, Kazakhstan, Lithuania, Romania, Serbia and Tajikistan, as well as waste researchers, advisers, and other experts in waste, toxicology, hygiene and environmental health.

3. Three Memorandum of Understanding between the institution coordinating the COST Action (Istituto Superiore di Sanità) and institutions of countries involved in the ICSHNet COST Action, to promote scientific interchange on environmental health issues with a focus on ICS:

   1) ISIM, Public Health and Reforms Center, Azerbaijan (3/2017-3/2019);

2) International Institute for Environment and Public Health, Cyprus University of Technology, (7/2017-7/2019);

3) National Institute of Public Health, Albania (4/2018-4/2010).

4. The republic of Serbia was one of the inclusiveness target countries officially involved in the ICSHNet COST Action.

   The COST Action provided technical support to strengthening Serbian capacities to develop roadmap and portfolio for action on environmental health issue related to contaminated sites (https://www.icshnet.eu/news/technical-support-to-serbia/), contributing to:

   - Kick-off Meeting of the project (May 21-22, 2018, https://www.ikls.rs/sr/activities/events/87-kick-off-meeting.html)

   - Leaflet of the Serbian Project with the support of the ACOST Action (http://www.icshnet.eu/wp-content/uploads/2019/06/Leaflet-of-the-Serbian-Project.pdf)

   - 1st Stakeholders Consultation Meeting (June 29,2018 , https://www.ikls.rs/sr/activities/events/89-first-stakeholders-consultation-meeting.html);

   - Training Workshop in Environmental and Health impact assessment in industrially contaminated sites (October 10-11,2018) (http://www.icshnet.eu/wp-content/uploads/2019/06/SRB_QSP_trwshop_outline_and-program.pdf)

   - Final Conference (Progress Report Meeting, December 13, 2018, https://www.ikls.rs/en/activities/events/98-progress-report-meeting-13th-december-2018.html)

   The project aimed at developing a national framework and strategy for the sound management of contaminated sites, so as to eliminate/minimize and prevent risks for human health and environment. The project was based on multi-sectoral and multi-stakeholders approach, to improve the health of the population in the Republic of Serbia by prevention of negative impacts of contaminated sites and related hazardous substances on health with the pilot project in Bor. Specific objectives included:
   - Ensuring multi-stakeholders and multi-ministerial cooperation and information dissemination and exchange;
   - Identifying gaps in management of contaminated sites and policy to prevent new contaminated sites formation;
   - Strengthening the legal basis for contaminated sites management;
   - Awareness raising of contaminated sites risks and develop education program to reduce risks for exposed population;
   - Developing national policy and technical framework for contaminated sites management (including institutional, methodological and human capacities, inter-agencies and inter-institutional cooperation and information exchange);
   - Identifying priority actions in addressing contaminated sites at national and pilot regions scale for inclusion into national programme framework;
   - Ensuring effectiveness of developed methodologies and national framework in a pilot study (field work)

   The main partner in the project was the implementing agency, the Institute for Public Health of Serbia. An extensive network of national and international partners were mobilized and involved in various stages of the project. These include:

   - Ministry of Health;
   - Ministry of Environment Protection;
   - Ministry of Environment Protection;

- Serbian Environment Protection Agency, SEPA:
- Mining and Metallurgy Institute Bor, Bor;
- The National Health Insitute of Italy (ISS), and notably the WHO Collaborating Centre on Industrially Contaminated Sites and Health hosted by ISS: provided continuous technical assistance to data analysis and interpretation, supported all consultation meetings, supported training and capacity building, reviewed and advised on deliverables, promoted the project within the international community, notably through the ICSHNet COST Action.
- The University of Exeter (UK), the Utrecht University (NL), the Swiss Institute for Tropical Health (CH), the University of Thessaloniki (GR) were involved in capacity building and training.

5. Publication: Ann Ist Super Sanità 2016 | Vol. 52, No. 4: 516-523 DOI: 10.4415/ANN_16_04_10

   https://www.ncbi.nlm.nih.gov/pubmed/27999222

   A cross-disciplinary approach to global environmental health: the case of contaminated sites.

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   Abstract

   Cross-disciplinary approaches to Global Environmental Health are essential to address environmental health threats within and beyond national boundaries, taking into account the links among health, environment and socio-economic development. The aim of this study is to present a cross-disciplinary approach where knowledge and findings from environmental epidemiology and social research are integrated in studying environmental health issues, focusing on environmental health inequities, public and environmental health literacy, and international scientific cooperation. In the case of contaminated sites, environmental epidemiology can contribute investigating the multidimensionality of equity for sustainable development practices. These practices entail a better understanding of environmental contamination, health effects pathways and improved capacities of different stakeholders to identify policy options for environmental risk prevention, remediation and management that will foster informed participation in decisions influencing communities. International scientific cooperation frameworks adopting equity principles shared by scientific community, populations and decision-makers may be of valuable support to this task.

6. Publication: Environmental Justice in Industrially Contaminated Sites. A Review of Scientific Evidence in the WHO European Region

   Int J Environ Res Public Health. 2019 Mar; 16(6): 998.
   Published online 2019 Mar 19. doi: 10.3390/ijerph16060998
   PMCID: PMC6466395
   PMID: 30893943

   https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6466395/pdf/ijerph-16-00998.pdf

   Roberto Pasetto,1,2,* Benedetta Mattioli,3 and Daniela Marsili1,2

Abstract

In the WHO European Region the topic of contaminated sites is considered a priority among environment and health themes. Communities living in or close to contaminated sites tend to be

characterized by a high prevalence of ethnic minorities and by an unfavorable socioeconomic status so rising issues of environmental justice. A structured review was undertaken to describe the contents of original scientific studies analyzing distributive and procedural justice in industrially contaminated sites carried out in the WHO European Region in the period 2010–2017. A systematic search of the literature was performed. In total, 14 articles were identified. Wherever assessments on environmental inequalities were carried out, an overburden of socioeconomic deprivation or vulnerability, with very few exemptions, was observed. The combined effects of environmental and socioeconomic pressures on health were rarely addressed. Results show that the studies on environmental and health inequalities and mechanisms of their generation in areas affected by industrially contaminated sites in the WHO European Region are in their early stages, with exemption of UK. Future efforts should be directed to improve study strategies with national and local assessments in order to provide evidence for equity-oriented interventions to reduce environmental exposure and related health risks caused by industrial contamination.

7. Publication: Pasetto, R.; Iavarone, I. Environmental Justice in Industrially Contaminated Sites: From the development of a national epidemiological monitoring system to the birth of an international network. In Toxic Truths: Environmental Justice and Citizen Science in a Post-Truth Age, 1st ed.; Mah, A., Devis, T., Eds.; Manchester University Press: Manchester, UK, 2019; in press.

   This is a chapter reviewing and analysing issues of environmental justice in industrially contaminated sites (ICS). It is enphasised that there is a need to take into account complex interactions among the various pressure factors and their evolution. This requires adequate resourcing and a range of information, a combination which is unfortunately not very frequent. Some members of the communities living in contaminated sites are generally employed by the localindustries, leading to social and individual conflicts. Furthermore, in several contaminated sites, inequality of environmental exposures and social differences and their impact on health can be greater in ethnic minority groups who are in jobs with a high level of exposure, or in vulnerable groups such as women and children. The picture may differ according to the geographical area and depending on whether it is an industrialised or a low income country thus expanding the notion of Environmental Justice to a range of contexts. If appropriately fine-tuned, national epidemiological monitoring programmes can contribute to the promotion of Environmental Justice, offering the same opportunities to further develop and document the picture, especially in less favoured areas. Such monitoring programmes have a top-down Environmental Justice approach which enhances community awareness on the conditions of their area/territory by comparing their situation to the national picture, a process which will empower local communities in the decision making process aimed at eliminating or reducing risks for the environment and health.

   Thanks to the establishment of an International network, experience accrued in specific Sites or in a given country can be shared and compared with others. As a result this will favour local projects in countries that lack a background on the matter, but have the need to deal with it. Both in Europe and elsewhere, industrial contaminations are long term, and are often found in socially and naturally deteriorated environments. Communities living in industrially contaminated Sites lack the resources to plan a better future. Is there a way out? Remediation and decontamination may be an opportunity in such deteriorated environments. Remediation plans are a space to renew the social environment and its related symbols on top of reducing future health risks.

8. Publication: Original article Scand J Work Environ Health Online-first -article doi:10.5271/sjweh.3809 Proportion of mesothelioma attributable to living in industrially contaminated areas in Italy by Pasetto R, Zona A, Fazzo L, Binazzi A, Bruno C, Pirastu R, Comba P, Marinaccio A

   https://www.ncbi.nlm.nih.gov/pubmed/30815702

Objectives The aim of this study was to estimate the attributable proportion (AP) of mesothelioma resulting from living in or close to major Italian industrially contaminated areas. Methods For populations living close to 39 sites of "national priority for remediation", incident mesothelioma cases were extracted from the Italian National Mesothelioma Registry (ReNaM) in the period 2000–2011. Each site was classified in one of seven asbestos risk groups (RG) on the basis of the type of industrial plants. RG were ranked by the a priori evidence on asbestos risk. The AP for each RG was calculated as the meta-analytic estimate of AP of sites of the same group by gender and age class (0–64, 65–74, ≥75 years). The sex ratio (men/ women) was computed for each RG. Results Among men, the AP by age class had the same gradient in each RG, with the highest values in the age class 0–64 years and the lowest in the ≥75 class; in the age class 0–64 years, the AP was positive in each RG, >90% in the presence of asbestos cement factories and harbors with shipyards. Among women, the overall AP decreased by RG, with negative values in the last two ranked RG; the AP by age class was variable without a definite gradient. The sex ratio was close to one only in the RG "only asbestos-cement factories"; the highest value (9.6) was observed in the age class 0–64 years in the RG "harbors with shipyard". Conclusions The integration of a geographic- and case-based approach provides valuable insights into occupational and environmental determinants of mesothelioma risk in industrially contaminated sites. Key terms asbestos; attributable risk; contaminated site industry; environmental exposure; epidemiological monitoring; occupational exposure.

9. **Six publications in the monogrphic volume: Italy-Latin America cooperation. Health impact of contaminated sites: methods and applications/Cooperación Italia-América Latina. Impacto en la salud de sitios contaminados: métodos y aplicaciones.**
   Edited by/Editado por Daniela Marsili, Roberto Pasetto
   2015, viii, 212 p.

   http://old.iss.it/binary/publ/cont/15_32_web.pdf

   The volume has been produced within the framework of the international cooperation activities promoted by the Istituto Superiore di Sanità (ISS, the National Institute of Health in Italy) in the environment and health domain. This report focuses on current approaches and methods to study the global health issue of health impact of contaminated sites. The first section of the volume presents the cooperation approach and activities carried out by ISS in Latin America in the last years, mainly referring to training and dissemination activities. This section includes a contribution on the requirements to develop a centre for the prevention and control of diseases due to silica and asbestos exposure in mining and industrial sites. The second section shows the main approaches available for the health impact assessment of industrially contaminated sites such as health risk assessment methods and epidemiological studies. The third section presents the results of studies carried out in Italy applying the methods described in the previous section to selected contaminated sites.
   Key words: Contaminated sites; Health impact; International cooperation; Latin America /

   The volume contains several contributions from researchers involved in the COST Action like for instance:

   1) Health impact assessment in industrially contaminated areas Roberto Pasetto, Piedad Martin-Olmedo, Ivano Iavarone, Marco Martuzzi

   2) SENTIERI project: epidemiological study of residents in national priority contaminated sites in Italy Roberta Pirastu, Roberto Pasetto, Amerigo Zona, Carla Ancona, Ivano Iavarone, Marco Martuzzi, Pietro Comba

   3) Monitoring children's health in contaminated sites Ivano Iavarone, Roberta Pirastu, Pietro Comba

   4) Epidemiological studies on people living in Civitavecchia, an Italian industrial contaminated site Carla Ancona, Lisa Bauleo, Francesco Forastiere.

   5) Epidemiological study in an Italian industrial contaminated site with oil refineries and

petrochemical plants Lucia Fazzo, Francesco Tisano, Caterina Bruno, Marco De Santis, Amerigo Zona, Pietro Comba

6) Epidemiological surveillance in a district with soil and groundwater industrial waste contamination Roberto Pasetto, Andrea Ranzi, Aldo De Togni, Stefano Ferretti, Paolo Pasetti, Paola Angelini, Pietro Comba

10. Publication: Santoro M, Minichilli F, Pierini A, Astolfi G, Bisceglia L, Carbone P, Conti S, Dardanoni G, Iavarone I, Ricci P, Scarano G, Bianchi F, Group RS. Congenital Anomalies in Contaminated Sites: A Multisite Study in Italy. Int J Environ Res Public Health. 2017 Mar 10;14(3). pii: E292. doi: 10.3390/ijerph14030292. PMID: 28287452.

    Available at: https://www.mdpi.com/1660-4601/14/3/292

    Four of the authors of the paper are involved in the COST Action and the issue of congenital Anomalies in Contaminated Sites does contribute to the COST Mission.

    Abstract

    Abstract: The health impact on populations residing in industrially contaminated sites (CSs) is recognized as a public health concern especially in relation to more vulnerable population subgroups. The aim of this study was to estimate the risk of congenital anomalies (CAs) in Italian CSs. Thirteen CSs covered by regional CA registries were investigated in an ecological study. The observed/expected ratios (O/E) with 90% confidence intervals (CI) for the total and specific subgroups of CAs were calculated using the regional areas as references. For the CSs with waste landfills, petrochemicals, and refineries, pooled estimates were calculated. The total number of observed cases of CAs was 7085 out of 288,184 births (prevalence 245.8 per 10,000). For some CSs, excesses for several CA subgroups were observed, in particular for genital and heart defects. The excess of genital CAs observed in Gela (O/E 2.36; 90% CI 1.73–3.15) is consistent with findings from other studies. For CSs including petrochemical and landfills, the pooled risk estimates were 1.10 (90% CI 1.01–1.19) and 1.07 (90% CI 1.02–1.13), respectively. The results are useful in identifying priority areas for analytical investigations and in supporting the promotion of policies for the primary prevention of CAs. The use of short-latency effect indicators is recommended for the health surveillance of the populations residing in CSs.

11. Publication: Benedetti M, Zona A, Beccaloni E, Carere M, Comba P. Incidence of Breast, Prostate, Testicular, and Thyroid Cancer in Italian Contaminated Sites with Presence of Substances with Endocrine Disrupting Properties. Int J Environ Res Public Health. 2017 Mar 29;14(4). pii: E355. doi: 10.3390/ijerph14040355.

    available at: https://www.mdpi.com/1660-4601/14/4/355

    Three of the authors of the paper are involved in the COST Action and the paper content is relevante to the COST Action.

    Abstract

    The aim of the present study was to investigate the incidence of breast (females), prostate,

testicular, and thyroid cancer in the Italian National Priority Contaminated Sites (NPCSs), served by cancer registries, where the presence of endocrine disruptors (EDs), reported to be linked to these tumours, was documented. Evidence of carcinogenicity of EDs present in NPCSs was assessed based on evaluation by international scientific institutions and committees. Standardized Incidence Ratios (SIRs) were computed for each NPCS and cancer site between 1996 and 2005. Excess incidence of one or more cancer site studied was found in twelve out of fourteen NPCSs. Significantly increased SIRs were found for breast cancer in eight NPCSs, for prostate cancer in six, for thyroid cancer (both gender) in four, and for testicular cancer in two. Non-significantly increased SIRs were found in five NPCSs for testicular cancer and in two for thyroid cancer (males). In a small number of instances a significant deficit was reported, mainly for thyroid and prostate cancer. Although increased incidence of one or more cancer sites studied were found in several NPCSs, the ecological study design and the multifactorial aetiology of the considered tumours do not permit concluding causal links with environmental contamination. Regarding the observation of some excesses in SIRs, continuing epidemiological surveillance is warranted.

12. **Four publications on environmental health issues related to contaminates sites in a** Monographic section on Contaminated sites and Health (Edited by Pietro Comba, Roberto Pasetto, Daniela Marsili and Paola De Castro) in the issue: Ann Ist Super Sanita. 2016 Oct-Dec;52(4). Review. PMID: 27999215 (http://old.iss.it/binary/publ/cont/ANN_16_04_Contents.pdf) from COST Action members who contributed with the following papers:

    Pietro Comba, Ivano Iavarone and Roberta Pirastu. Contamined sites: a global issue. Preface. Ann Ist Super Sanita. 2016 Oct-Dec;52(4):472-475. DOI: 10.4415/ANN_16_04_02 (available at: http://old.iss.it/binary/publ/cont/ANN_16_04_02.pdf)

    Pasetto R, Martin-Olmedo P, Martuzzi M, Iavarone I. Exploring available options in characterising the health impact of industrially contaminated sites. Ann Ist Super Sanita. 2016 Oct-Dec;52(4):476-482. DOI: 10.4415/ANN_16_04_03 (available at: http://old.iss.it/binary/publ/cont/ANN_16_04_03.pdf)

    De Castro P, Pasetto R, Marsili D, Comba P. Fostering public health awareness on risks in contaminated sites. Capacity building and dissemination of scientific evidence. Ann Ist Super Sanita. 2016 Oct-Dec;52(4):511-515. DOI: 10.4415/ANN_16_04_09 (available at: http://old.iss.it/binary/publ/cont/ANN_16_04_09.pdf)

    Daniela Marsili. A cross-disciplinary approach to global environmental health: the case of contaminated sites. Ann Ist Super Sanita. 2016;52(4): 516-523. DOI: 10.4415/ANN_16_04_10 (available at: http://old.iss.it/binary/publ/cont/ANN_16_04_10.pdf)

    Environmental nickel exposure from oil refinery emissions: a case study in Ecuador.Ann Ist Super Sanità 2016 | Vol. 52, No. 4: 495-499. DOI: 10.4415/ANN_16_04_06 (available at: http://old.iss.it/binary/publ/cont/ANN_16_04_06.pdf)

13. Contribution of several members of the COST Action to the Fifth meeting of the European Environment and Health Task Force (EHTF) of the European Environment and Health Process (EEHP), held on **24–25 November 2015**, in Skopje, The former Yugoslav Republic of Macedonia (http://www.euro.who.int/en/media-centre/events/events/2015/11/fifth-meeting-of-the-european-environment-and-health-task-force-ehtf). The main purpose of the meeting was to take stock of the conclusions of the High-level mid-term review (MTR) in April 2015 and kick-off the preparations of the Sixth Ministerial Conference on Environment and Health to be held in 2017. Pietro Comba, a member of the COST Action, participated in the meeting and gave a contribution presenting the *Overview of topics discussed at the WHO Expert consultation on waste and human health (Bonn, Germany, on 5–6 November 2015).*

http://www.iph.mk/en/fifth-meeting-of-the-european-environment-and-health-task-force-ehtf-skopje-november-24-25-2015/

14. Contribution of the COST Action Chair on "Environmental health in industrially contaminated sites in Europe (COST Action IS1408)" in the Satellite event on Environmental Public Health Tracking: Experiences and Tools to Support Public Health Research and Decision-Making, organized by INPHET (International Network on Public Health & Environment Tracking) on August 31, 2016, during the 28th Conference of the International Society for Environmental Epidemiology held in Rome, Italy (1-4 September 2016).

    http://www.isee2016roma.org/environmental-public-health-tracking/

    The meeting was a relevant opportunity to consolidate interactions among networks on the environmental public health issues dealt with by the COST Action.

    The overall objectives of this satellite event was to take stock of how Environmental Public Health Tracking can be implemented in different countries and contexts and used to address scientific needs and the translation of science into action to better support public health decision-making. Another challenging aim was to lay the groundwork for a tangible development of the network arranged in a more pragmatic manner both in terms of activities and in terms of organization.

    The meeting contributed to help participants to:

    - Learn about international efforts to implement Environmental Public Health Tracking
    - Understand the basic principles of Environmental Public Health Tracking, technology requirements, and methodologies used to implement this type of surveillance
    - Understand the types of data, information, and analytic tools available and how they can be used by working through case studies
    - Identify opportunities for stakeholder involvement in development, enhancement, and evaluation of EPHT.

15. Contribution of the COST Action in the international workshop on “Setting research priorities in environment and health”, organized by the WHO European Centre for Environment and Health in collaboration with a Portuguese team from the Ministry of Health, the National Health Institute and the Medical School of the University of Lisbon. Hosted by the Municipality of Cascais in Portugal, the meeting was attended by 24 international experts and 10 observers, who gathered for two days on 27–28 April 2017, to discuss how to establish priorities in environment and health research.

    The meeting underlined that comparing and contrasting different thematic areas can inform the development of criteria in setting research priorities for the Agenda on environment and health. Eight main thematic areas emerged during the meeting, reflecting the vast spectrum of EH research. They include both traditional and emerging topics in EH ranging from risk factors to broad families of determinants, and from settings to analytical approaches: exposome, climate change, air pollution, water, soil and food, urban health, industrially contaminated sites, endocrine disruption, new toxicological screening, biomarkers. The meeting also highlighted that t here is limited information about mixtures – for example, concerning commercial products or industrially contaminated sites.

    Information and Report of Meeting are available at:

    http://www.euro.who.int/en/health-topics/environment-and-health/pages/news/news/2017/05/setting-research-priorities-in-environment-and-health

    http://www.euro.who.int/__data/assets/pdf_file/0020/340733/Binder1.pdf?ua=1

16. Interaction of the ICSHNet COST Action with other networks.

    The ICSHNet COST Action contributed with different presentations to the annual Symposia of the MESAEP, the Mediterranean Scientific Association of Environmental Protection, on Environmental Pollution and its Impact on Life in the Mediterranean Region: 18th International Symposium, September 26-30, 2015 Crete – Greece, and 19th International Symposium, October 4-6 2017, Rome – Italy".

    Contributions are described
    at: https://www.icshnet.eu/news/interaction-with-other-scientific-networks/:

    1) Environmental health in industrially contaminated sites in Europe, from Iavarone Ivano and Martuzzi Marco.

    2) Health impact assessment in industrial contaminated sites: Systematic review (COST Action IS1408), from Andreja Kukec, Kairong Xiong, Isabell Rumrich, Roberto Pasetto, Otto Hänninen, and Cost Action Is1408 Working Group 3.

    3) Health risk and health impact of European industrially contaminated sites: Current practices (COST Action IS1408), from Isabell Rumrich, Andreja Kukec, Kairong Xiong, Roberto Pasetto, Otto Hänninen, And The Cost Action Is1408 Working Group 3

17. Contribution of the COST Action to the 39th Annual IACR Scientific Conference Utrecht, the Netherlands, 17-19 October 2017

    http://www.icshnet.eu/wp-content/uploads/2019/06/IACR.pdf

    The contribution concerns SURVEILLANCE OF CHILDHOOD CANCERS IN INDUSTRIALLY CONTAMINATED SITES IN EUROPE

    Children's health represents a public health priority. Globally, 17% (7–42%) of all cancer disease burden in children under five has been attributed to environmental causes. Between the 1980s and 2000s incidence of childhood cancer in age 0–14 years has increased by 13% worldwide, and the increase concerns also Europe. Yet the aetiology of most childhood cancers is still unknown. A principal source of pollution in European contaminated sites is represented by industrial activities. The Italian Institute of Health (ISS) and the Italian Association of Cancer Registries (AIRTUM) analysed the cancer profile in children and young adults in 23 national priority contaminated sites (NPCSs). NPCSs are mainly located close to industrial areas, either active or dismissed, near incinerators or dumping sites of industrial or hazardous waste. Overall, 685 malignant tumours (MT) were recorded among 3,440,240 children aged 0-19 years living in 23 NPCSs from 1996 to 2005. In 15 NPCSs in Centre-Northern Italy, covering 1,754,585 person-years, excess risk of MT was found in the age 0-1 year (37 cases, SIR=1.47, CI90% 1.10-1.93) and of leukaemia in the age 5-9 years (31 cases, SIR=1.45, 1.05-1.95). 393 cases of MT aged 0-19 years, living in 30 Italian NPCS, were recorded in the period 2006-2013. In the age 0-14 years, these numbers translated in incidence rate of 172 per million.
    Contaminated areas may increase risk of cancer in children residing in their proximity. To protect child health, theses health hazards must be quantified. In a novel project proposal we will aim to evaluate systematically the cancer profile in children living in industrially contaminated sites in Europe. The project will build on the networking activities of the COST Action "Industrially Contaminated Sites and Health Network" (http://www.icshnet.eu), and childhood cancer studies coordinated at the International Agency for research on Cancer (IARC).

18. Contribution of the COST Action to the SIDE EVENT - Tackling soil pollution in Europe policies, indicators and assessments, Rome, FAO, 3 May 2018

This side event is co-organised by the European Commission (DG Environment and the Joint Research Centre) and the European Environment Agency (EEA). It presented the state of soil pollution in the EU, the policy and legislations at EU and Member States levels, existing knowledge (indicators, inventories, monitoring) in support of the European and global agenda to reduce soil pollution.

The COST Action was invited to describe its activities as European network dealing with soil pollution.

http://ec.europa.eu/environment/soil/pdf/GSOP18%20AGENDA%20side%20event%20final.pdf

https://www.icshnet.eu/news/tackling-soil-pollution-in-europe-policies-indicators-and-assessments-rome-fao-3-may-2018/

19. Consensus Statement produced during the 4th Plenary Conference of the Action (Bonn, 21-22 February 2018) prepared by the Action Members to stimulate further progress on the issues raised by the Declaration of the Sixth Ministerial Conference on Environment and Health (Ostrava, Czech Republic 15 June 2017), that for the first time includes a commitment towards:

    …"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".

    The main purpose of the Consensus Statement was to provide guidance and support to Interested Member States of the WHO Regional Office for Europe to address the topic in the coming years when developing their "Portfolios for Action". In fact, the COST Action on Industrially Contaminated Sites and Health Network (ICSHNet) brings together 33 of the 53 Member States and aims at establishing and consolidating a European Network of experts and relevant institutions, and developing a common framework for research to respond to the health implications of industrially contaminates sites.

    The Consensus Statement has been disseminated through the Action Website both in english (http://www.icshnet.eu/wp-content/uploads/2018/03/Cons_March_2018_Eng.pdf) and in Russian (http://www.icshnet.eu/wp-content/uploads/2018/03/Cons_March_2018_Russ.pdf).

Impacts

The Action reported the following impact(s):

Description of the impact, i.e. what will change, and for whom, as a result of what the Action achieved	Type of impact	Timing of impact
A very important scientific impact of the ICSHNet COST Action has been the first International Training School on environmental health in industrially contaminated sites, successfully held in Thessaloniki in February 2017 with the aim to strengthen in-country capacity to face the environmental health challenges posed by Industrially Contaminated Sites (ICS). 46 early career investigators from 25 countries participated in the 4-day workshop led by 21 lecturers, introducing concepts and methods used in epidemiology, exposure assessment and health impact assessment. As well as plenary and practical sessions, there was much student participation with most presenting posters showing real-life issues in their respective countries related to health and environmental pollution arising from ICSs. The course was well received with the evaluation scoring the course very highly. The report describing main characteristics of the training school and the list of scientific posters presented during the school is available at: https://www.icshnet.eu/news/3thpc-1stts/ The Action created a European “cohort” of investigators dealing with Industrial contamination and population health issues. The course aimed to provide these researchers with a scientific basis on knowledge of methods along with risk and uncertainty of the research, also matched to practical skills for evaluating the health effects and impact of ICS.	• Scientific / Technological • Societal	Foreseen two-to-five years

Dissemination and exploitation of Action results

Dissemination and exploitation approach of the Action

The Action's dissemination and exploitation approach as well as all activities undertaken to ensure dissemination and exploitation of Action results and the outcomes of these activities are described below.

The main dissemination approach is based on the presentation of the Action activities and results through the Action website. A leaflet of the COST Action describing the Action structure, objectives, tasks and Goals was produced as an early deliverable (http://www.icshnet.eu/wp-content/uploads/2016/08/COST_ICSHNet_Leaflet.pdf) specifically aimed at disseminating the relevant information among participating countries and institutions. The Action leaflet together with brochures/folders reporting details on all countries involved in the Action was prepared and distributed as material and tool for the promotion and dissemination of the Action objectives and networking activities during all the COST Action plenary conferences and dissemination meetings. All Action participants has been requested to disseminate the Action material in their countries. The following hyperlinks to the Action website are an example of the Action strategy to make publicly available its scientific and technical deliverables: - Action Questionnaire (http://www.icshnet.eu/wpcontent/uploads/2019/06/Action-questionnaire.pdf). - Results of the Action Survey (http://www.epiprev.it/materiali/suppl/2018/COST/Suppl_COST_WEB.pdf). - Action Guidance document (http://www.icshnet.eu/wp-content/uploads/2019/05/WHO-COST-Action-Guidance-Document.pdf). - Report of the Internationaltraining school (http://www.icshnet.eu/wpcontent/uploads/2018/05/1stTS_Final_Report.pdf). - Scientific posters discussed dutring the Training school (http://www.icshnet.eu/wpcontent/uploads/2018/05/1stTS_Posters.pdf). - Action Consensus Statement (in English and in Russian) (https://www.icshnet.eu/news/cons-stat/) - Action main scientific pubblications (https://www.icshnet.eu/category/publications/)

Dissemination meetings funded by the Action

The Action funded Dissemination Meetings as shown below:

Title	Sixth Ministerial Conference on Environment and Health		
Date	13-06-2017 to 15-06-2017	**Country**	Czech Republic
Event	The Sixth Ministerial Conference on Environment and Health was convened to explore, in a series of keynote addresses, panel discussions and 16 Side Events, the emerging environmental threats to health. The Conference adopted by acclamation the Ostrava Declaration on Environment and Health, in which Member States commit themselves to drawing up a tailored national portfolio for action in seven priority areas and endorse the new institutional arrangements for the European Environment and Health Process. One of these areas is represented, for the first time, by contaminated sites and waste (http://www.euro.who.int/__data/assets/pdf_file/0007/341944/OstravaDeclaration_SIGNED.pdf?ua=1). A side event (E11) was organised by the Action (http://www.icshnet.eu/wp-content/uploads/2019/06/EURO-Ostrava-2017-SIDE-EVENT-ABSTRACT-final.pdf		

Other dissemination activities

The Action also undertook the following dissemination activities:

Activity	Participation of the COST Action in the WHO expert meeting on Setting research priorities in environment and health (EH), Bonn, Germany, 30/11–1/12 2017 (http://www.euro.who.int/en/health-topics/environment-and-health/health-impact-assessment/publications/2019/setting-research-priorities-in-environment-and-health-2019) Specific objectives of this meeting include: identifying research priorities which would lead to fulfilment of the Ostrava Agenda; identifying further priority topical areas and cross-cutting issues for EH research; analyzing current and emerging research implementation frameworks and mechanisms, such as the European Union's Environment and Health Action Plan; identifying incentives for supporting more innovative, "high-risk" type of research; and addressing relevant cross-cutting issues such as uncertainty, conflict of interest, and dissemination needs in EH research.

Target	Main target audience: scientific and Academic community, Policy- and decision makers. The meeting highlighted that: 1) research has to be designed so as to facilitate translation of knowledge into action, and this requires intersectoral action. 2) evidence and research should be made available to different audiences and stakeholders at different stages of risk management. Moreover, science needs to adapt its role towards different stakeholders, including citizens, by studying how regulatory and academic science can complement each other.
Outcome	The meeting, thanks to the COST Action contribution, identified the following needs to advance the research agenda in the area of health and contaminated sites: 1) identify priority sites for remediation/phasing out based on health impacts, starting from national inventories of landfills, obsolete waste facilities and contaminated sites; 2) enhance capacities at national and subnational levels to assess impacts and manage health risks from waste, contaminated sites and improperly recycled materials. Special attention should also be addressed to the following aspects: 1) relevance of social inequalities in conducting EH research in waste and contaminated sites in order to securing great environmental sustainability; 2) sound methodologies able to integrate toxicological, epidemiological and other evidences under the guidance of multidisciplinary and inter-sectoral approaches; 3) A focus on children's health as a susceptible group even in complex exposure scenarios 4) undertaking comparable health impact assessments in critical sites involving different scenarios in Europe, so as to develop guidance on primary prevention actions, considering the best available technological and policy options.
Link	http://www.euro.who.int/__data/assets/pdf_file/0007/394198/rp-eh-eng.pdf

Exploitation activities

The Action undertook the following activities to ensure exploitation (use, in particular in a commercial context) of the Action's achievements:

No exploitation activities were reported by the Action.

Action Success(es)

The Action’s two most significant successes were the following:

- The Action strongly contributed to the inclusion, for the first time, of "Contaminated sites and waste" as one of the seven priority areas in the Declaration of the Sixth Ministerial Conference on Environment and Health (Ostrava, Czech Republic 15 June 2017), signed by the Ministries of Health and of Environment of the 53 countries of the WHO European Region, with a commitment towards: ”preventing and eliminating the adverse environmental and health effects, costs and inequalities related to waste management and contaminated sites…..” (http://www.euro.who.int/__data/assets/pdf_file/0007/341944/OstravaDeclaration_SIGNED.pdf) The 2018 Fourt Action Plenary Meeting produced a Consensus Statement (in English and in Russian) on contaminated sites and health available at: https://www.icshnet.eu/news/cons-stat/ and the Eighth Meeting of the European Environment and Health Task Force (http://www.euro.who.int/__data/assets/pdf_file/0012/388389/EHTF8-version-ENG-14-Jan-2019.pdf?ua=1) underlined that: 1) “Member States preparing their national portfolios of action in that area could make use of the Industrially Contaminated Sites and Health Network, launched by the European intergovernmental framework European Cooperation in Science and Technology (COST) in 2015, to identify sites requiring decontamination, share research and best practices and strengthen country capacities”....and that .... "In view of the commitments in the Ostrava Declaration, the 2018 Plenary Meeting of ICSHNet produced a consensus statement on contaminated sites and health”.
- Two other Action main successes are: 1) One of the most relevant goals of the COST Action, declared since its inception, was to review and analyse research tools, assessment procedures, and sound methodologies available in the scientific literature, to formulate research recommendations in the domain of industrially contaminated sites. This target has been achieved mainly through a Monographic volume (Special Issue) entirely dedicated to environmental health challenges from industrial contamination, consisting of one editorial, seven papers and a commentary, and published open-access, in a peer-reviewed journal indexed in Medline (http://www.epiprev.it/materiali/suppl/2018/COST/Suppl_COST_WEB.pdf). 2) The training school represents another milestones of this Action, created to strengthen the in-country capacity to respond to the environmental health challenges posed by ICSs, through the training of many early career investigators. Report available at http://www.icshnet.eu/wp-content/uploads/2018/05/1stTS_Final_Report.pdf). The international training school created a European “cohort” of young investigators dealing with industrial contamination and population health issues, and involved 46 students (87% early career investigators) from 25 countries (17 inclusiveness target countries and one Near Neighbour Country, Azerbaijan). During the training school students presented and discussed 27 scientific posters to share their experience on ICS in their country (http://www.icshnet.eu/wp-content/uploads/2018/05/1stTS_Posters.pdf).

Action Expenditure

The table below shows the budget allocated to the Action for each Grant Period:

#	Grant Period	Start Date	End Date	Budget allocated to Action (EUR)
1	CGA-IS1408-1	1-6-2015	30-4-2016	127,534.67 (EUR)
2	AGA-IS1408-2	1-5-2016	30-4-2017	135,999.60 (EUR)
3	AGA-IS1408-3	1-5-2017	30-4-2018	170,000.02 (EUR)
4	AGA-IS1408-4	1-5-2018	28-4-2019	205,999.51 (EUR)