



*"Cross-Mediterranean Environment and Health Network (CROME)"*

**LIFE12 ENV/GR/001040**



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# **Cross-Mediterranean Environment and Health Network**

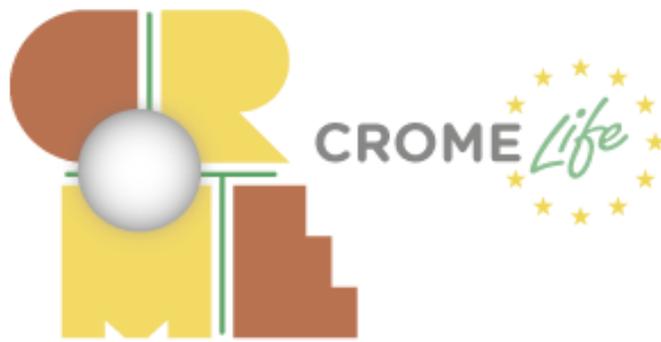
## **CROME-LIFE**

### **ANNEX 37**

After-LIFE Communication plan

**LIFE ENVIRONMENT PROGRAMME  
LIFE12 ENV/GR/001040**

<http://www.crome-life.eu>



# AFTER LIFE COMMUNICATION PLAN

Cross-Mediterranean Environment and Health Network

CROME-LIFE (LIFE12 ENV/GR/001040) was co-funded by the LIFE+ Programme of the European Commission that supports environmental and nature conservation projects throughout the EU and covered the period from July 2013 to December 2016.



## Description of the project



CROME-LIFE key objective was to demonstrate a technically feasible integrated methodology for interpretation of human biomonitoring (HBM) data that will allow to quantitatively assess the impact on human health due to acute/chronic exposure to chemicals acting as neurodevelopmental and neurological toxicants and/or human carcinogens such as toxic and organic substances (PCBs and PBDEs, organochlorine and organobromine compounds).

The health endpoints investigated were cancer (for organic carcinogens such as PCBs) and neurotoxicity (for metals and organic compounds).

The methodology applied couples environmental monitoring data with HBM and epidemiological observations using physiologically-based toxicokinetic (PBTK) and toxicodynamic (PBDT) models. These allowed us to mechanistically associate the observed concentrations of contaminants in environmental media (air, water and soil) with HBM data already existing within the consortium and collected through targeted field campaigns.

Via reverse modelling human exposure to the chemical substances were reconstructed. These estimates were used as indices of population exposure and of the environmental health burden due to the anthropogenic pollution in the project demonstration sites.

The CROME-LIFE approach showed the feasibility of environment-wide association studies by interoperably linking environmental, biomonitoring and health status data. Causal associations between the observed health outcomes and the measured/estimated markers of exposure were derived by means of advanced statistical models and causal diagrams.

The CROME-LIFE method and tool have been applied and integrated into the decision-making process of the competent authorities in the five demonstration sites (Greece, Slovenia, Italy Spain and Croatia) tackling different levels of environmental exposure, age windows, and socio-economic and genetic variability.

## Results



Operational demonstration of the use of novel integrated methodological framework linking environmental monitoring, human biomonitoring and health monitoring data for the identification of causal relations between exposure and health outcomes taking into account exposure and health effect modification due to intrinsic (such as genetic susceptibility) and extrinsic (such as diet and socio-economic status) factors.

Development of guidelines to support the reproducibility and generalized application of the methodology proposed. The guidance includes (i) identification of the methods and tools for the determination of the biomarkers that provide the best indication of the immediate and long term risks, (ii) recommendations of models that describe the different steps along the source-to-dose continuum and (iii) identification of the statistical methods recommended for an optimal interpretation of the environmental and biomarker data (iv) recommendations on the operational HBM framework including definition of strategy for recruitment, definition of national methods and related QC aspects for sampling specimen.

Identification and recommendations of specific measures to reduce exposure to toxic and organic substances (PCBs and PBDEs, organochlorine and organobromine compounds) proposed to national and local authorities in the demonstration countries.

Through continuous and proactive engagement of key stakeholders in the five demonstration areas raise the level of understanding among policy makers and increase awareness of the local public and competent authorities in the selected countries with regard to the possibility of using advanced biomonitoring and environment and health data analysis for efficient exposure assessment and health risk management resulting in a significant improvement of the decision-making processes.

A set of informative material to disseminate the project actions at a Regional, National and European level.

In the long term, expected impacts of CROME-LIFE will lead to potentially highly significant improvements in public health by:

reducing the uncertainty in exposure assessment and consequently the assessment of risk from environmental exposures; and

better elucidating the mechanistic links between environmental exposure and health outcome.



The LIFE logo can be seen on the website, roll ups and any other material.

Project Website: <http://www.crome-life.eu>

The website was initially developed and a fairly good positioning in google searches has been achieved. Articles, news and deliverables are available for anyone interested can be found on the website. News can be found on the blog. The project can be found on the social networks: Twitter: [#crome\\_life](#)

### Publications in scientific journals

The project has been active by publishing the achieved results in peer-reviewed international journals. Overall 27 scientific papers were published and other 3 were submitted at the time of the end of the project. Key publications include:

E. Vizcaino, J.O. Grimalt, B. Glomstad, A. Fernández-Somoano and A. Tardón. "Gestational Weight Gain and Exposure of Newborns to Persistent Organic Pollutants". **Environmental Health Perspectives** (2014), 122: 873-879.

D.A. Sarigiannis, S.P. Karakitsios, D. Zikopoulos, S. Nikolaki, M. Kermenidou. "Lung cancer risk from PAHs emitted from biomass combustion". **Environmental Research** (2015), 137: 147-156.

D.A. Sarigiannis, S.P. Karakitsios, M. Kermenidou. "Health impact and monetary cost of exposure to particulate matter emitted from biomass burning in large cities". **Science of the Total Environment** 524-525 (2015) 319-330.

J. Snoj Tratnik, I. Falnoga, A. Trdin, D. Mazej, V. Fajon, A. Miklavčič, A.B. Kobal, J. Osredkar, A. Sešek Briški, M. Krsnik, D. Neubauer, J. Kodrič, S. Stropnik, D. Gosar, P. Lešnik Musek, J. Marc, S. Jurkovič Mlakar, O. Petrović, I. Vlašić-Cicvarić, I. Prpić, A. Milardović, J. Radić Nišević, D. Vuković, E. Fišić, Z. Špirić and M. Horvat "Prenatal mercury exposure, neurodevelopment and apolipoprotein E Genetic polymorphism". **Environmental Research** (2017), 152: 375-385

### Attendances to conferences and events

The achieved results have been orally presented in more than 50 International/National conferences, scientific workshops and seminars both in Europe and worldwide including key conferences such as:

The 17<sup>th</sup> International Conference on Heavy Metals in the Environment (2014)

The 34<sup>th</sup> International Symposium on Halogenated Persistent Organic Pollutants (2014)

The annual conference of the International Society of Exposure Science (ISES) in 2014 and 2016;

The Annual Conference of the International Society for Environmental Epidemiology (ISEE) in 2014 and 2016

The European Congress of the European Societies of the Toxicology (EUROTOX 2016)

The International Conference on Human Biomonitoring (2016)

The 2<sup>nd</sup> International Conference on Mercury as a Global Pollutant (ICMGP 2015))

The 18<sup>th</sup> International Symposium on Environmental Pollution and its Impact on Life in the Mediterranean Region (MEASEP- 2015)

The International Conference on Children's Health and the Environment (INCHES- 2016)

A large number of meetings with stakeholders in the different countries where the CROME-LIFE project was implemented were organized to share and discuss the project methods, tools and results.

Among them the project team organized three interregional workshops respectively in Rome, Ljubljana and Barcelona to present and discuss with key national and local stakeholders the main results obtained as well as the methodology and tools applied.



## Dissemination material

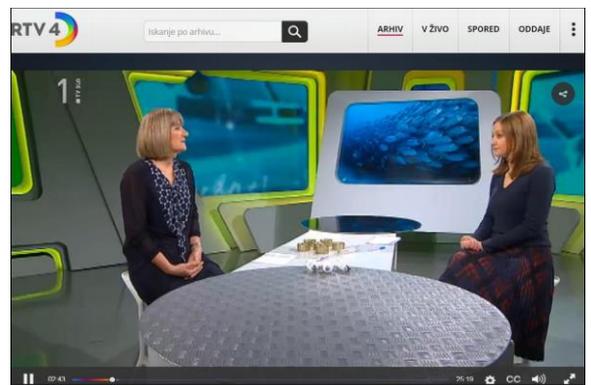
The project has prepared various type of dissemination material that has been distributed to the stakeholders, the scientific community and public in general.

The leaflet of the project has been produced in five different languages (English, Greek, Italian, Spanish and Slovenian) providing key information about the project including the objectives, expected results, problem targeted, main benefits for the population as well as information on the methodological approach followed

Informative panels have been edited and placed in visible places in every partner Institution.

## Press cutting overview

More than 15 Radio and TV interview were released by CROME-LIFE team members to illustrate the methodological approach adopted as well as to describe the main results obtained



## Project newsletters

Seven e-newsletters have been prepared and disseminated distributed via the project Website and in hard copy to targeted stakeholders. They provided information about the course of the project implementation, the main results and dissemination actions carried out.

### Participation to National / International Conferences

The main outcomes of the project after its end will continue through participation at the major international conferences and symposia such as the series of annual EUROTOX and the US Society of Toxicology (SOT) conferences, the bi-annual International Congress of Toxicology and International Society for Exposure Science (ISES) are the adequate fora to discuss with leading scientists the results of the CROME-LIFE project. In addition to global or Europe-wide events, special attention will be given to regional scientific meetings more targeted to the demonstration areas such as the biannual symposia of the Mediterranean Scientific Association for Environmental Protection (MESAEP).

### Guidelines

The results and conclusions coming out of demonstrations case studies in CROME-LIFE are collated into a guideline document for widespread dissemination and use after the end of the project.

The dissemination of project results both: (a) to the local and regional communities and industrial and institutional stakeholders (e.g. public administrations competent for environmental health issues); and (b) to interested stakeholders and the public at large at the national and international scales (Europe-wide) will be continued in order to ensure that the experience from the project can be duplicated in other areas in Europe.

### Training

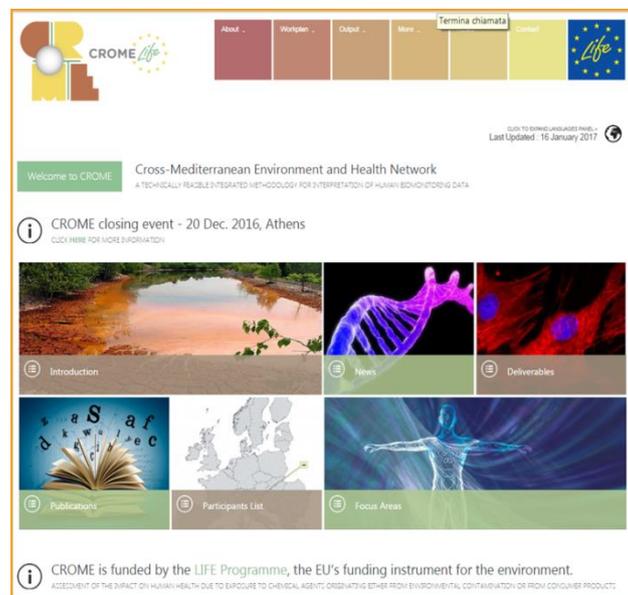
Scientific outcome of the project, both in terms of methodology development and in terms of tool construction will be entrained into relevant University curricula in order to make sure that the training potential of the project is realized.

### Publication in scientific journals

Publications to peer-reviewed journals of project results will continue after the end of the project. Other dedicated publications will be drafted and submitted for publication. Candidate journals are: Environmental Health Perspectives, Environmental Health, Journal of Exposure Science and Environmental Epidemiology, Regulatory Toxicology and Pharmacology, Risk Analysis.

### Project website

The CROME-LIFE website and the twitter accounts will be maintained during the next 5 years. Updates will be done according to the new information that will be generated.



### Dissemination material

That layman report will be uploaded to the website. This information will be shared in the social networks: project website and twitter.



[www.crome-life.eu](http://www.crome-life.eu)

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