



LINDANET FINAL REPORT



European Union
European Regional
Development Fund

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LINDANET: EUROPEAN NETWORK OF LINDANE WASTE AFFECTED REGIONS WORKING TOGETHER TOWARDS A GREENER ENVIRONMENT

Lindane (γ -hexachlorocyclohexane or γ -HCH) was a pesticide widely produced during second half of the 20th century around Europe and worldwide. Lindane production generated a huge amount of waste consisting in other HCH isomers and other organochlorinated compounds. Lindane production and use has been prohibited in EU regulation from 2007, but lindane and its waste still constitutes a very important risk for the human health and European environment. An estimate of 4,000,000 tons of HCH waste are present in Europe in at least 299 polluted sites. LINDANET was a project of the Interreg Europe Programme that constituted the first network of regions affected by the HCH pollution committed to progress together towards the improvement of the HCH remediation solutions. With a budget of 1,3 M €, it started in August 2019 and finished in January 2023. The Interreg Europe Programme is addressed to policy makers with the purpose of improving public policies, in the case of LINDANET, related to the HCH waste management.

The consortium of regional bodies participating in the project was formed by the Government of Aragon (Spain, lead partner), Xunta de Galicia (Spain), the Regional Environmental Agency of South Bohemia (Czech Republic), the State Office for Contaminated Soils of Saxony-Anhalt (Germany), the Central Mining Institute (Poland), and the Zooprophyllactic Institute of Lazio and Toscana (Italy).

PROJECT DURATION

Phase 1: 1 August 2019 – 31 January 2022
Phase 2: 1 February 2022 – 31 January 2023

BUDGET

Total budget: 1.348.635,00 €
EU financing: 1.146.339,45€

Project Partners:


GOBIERNO DE ARAGON

Government of Aragon (ES)


RERA

Regional Development Agency of South Bohemia - RERA a.s. (CZ)


Landesamt für
Umwelt und
Klimaschutz
Sachsen-Anhalt

State office for contaminated sites, Saxony-Anhalt (DE)


XUNTA DE GALICIA

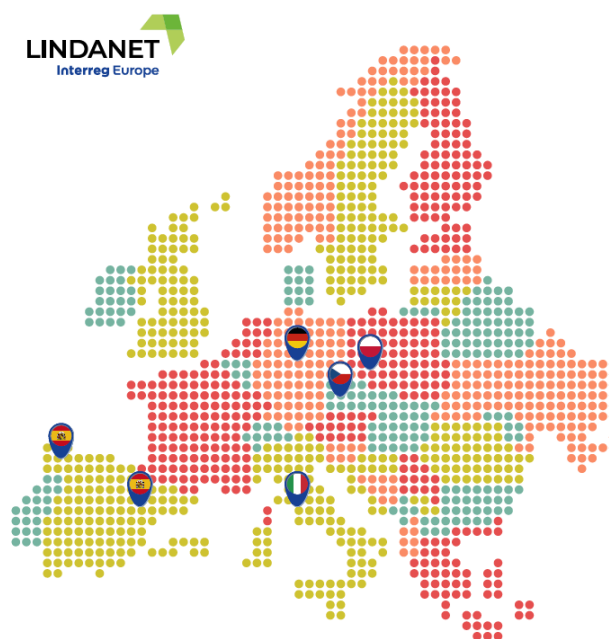
Government of Galicia - General Directorate of Environmental Quality and Climate Change (ES)


Istituto Zooprofilattico
Nazionale

Experimental Zooprofilattico Institute of Lazio and Toscana M. Aleandri - IZSLT (IT)


GiG

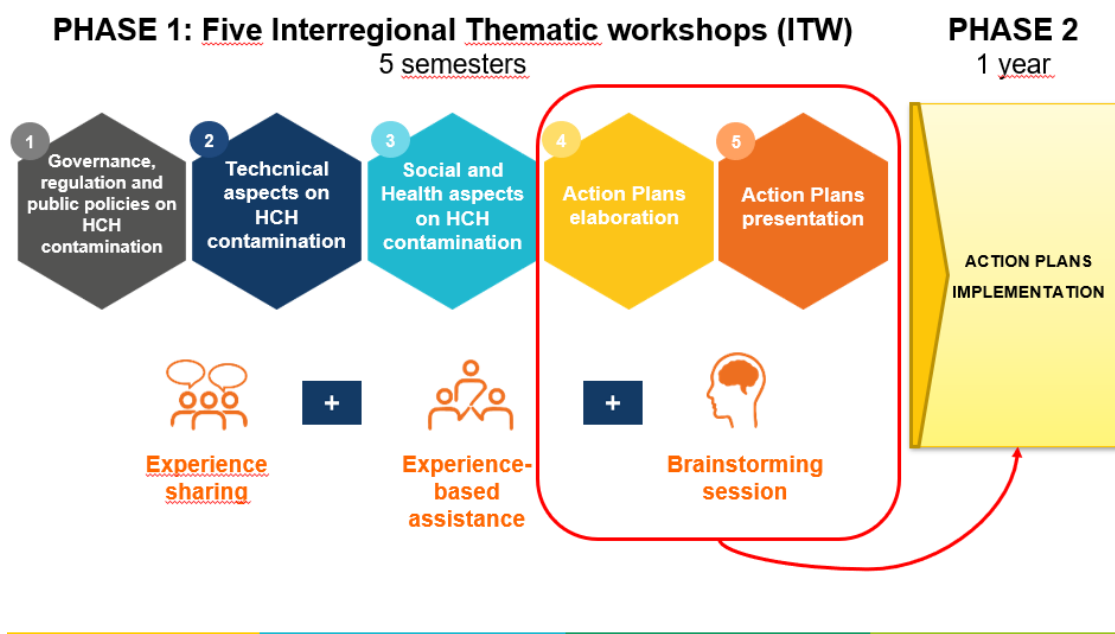
Central Mining Institute - GIG (PL)



The project was divided in two phases:

- Phase one, of five semesters duration, for the interchange of experiences and the interregional learning. Lessons learnt were used for the design of regional action plans whose aim were to improve a specific policy instrument.
- Phase two, of one-year duration, for the implementation and monitoring of the actions that each region had designed in one's action plan.

The regional stakeholder groups were involved and informed in both phases of the project. A description of the results achieved during the project is presented in the current report.



The total budget for the project was 1,35 M€, 85% funded by the European Union.

INTERREGIONAL LEARNING

The interregional learning took place during the five semesters of Phase 1. Each semester, the project partners met in a workshop, each one dedicated to a specific topic. Thus, during semester 1 the topic “Governance, regulation and public policies on HCH contamination” was discussed, during semester 2 “Technical aspects on HCH contamination” were shared and in semester 3 a dialog on the “Social and Health aspects on HCH contamination” took place. Semesters 4 and 5 were used to progress on the elaboration of the regional action plans. Every

semester, a number of good practices on the relevant topics were identified in a separate discussion.

In addition to the experience sharing, brainstorming sessions were organized and tools such as the SWOT analysis or scoring cards were used to assess the aspects to be improved in every region.

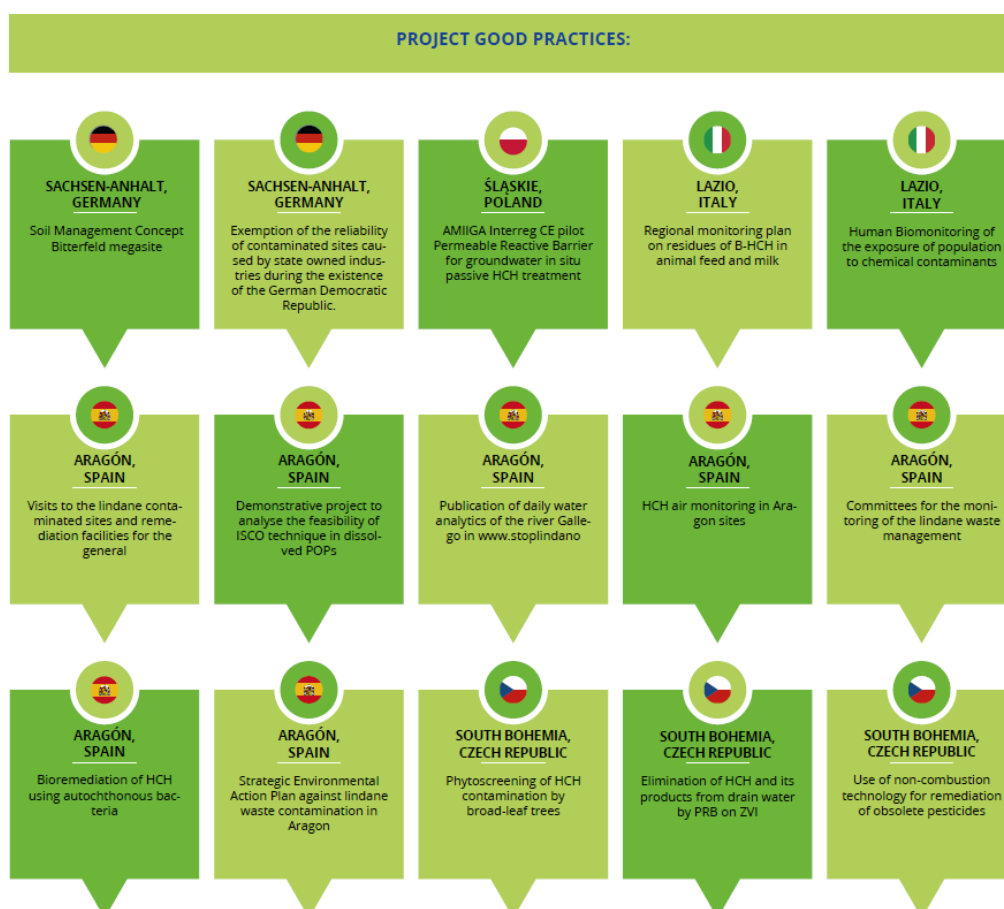
The results of the interregional workshops were presented by each partner to their regional stakeholders in a dedicated meeting.

The completion of the interregional meeting finished with the publication of six regional Action Plans – one per project partner –, which implementation started in Phase 2.

RESULTS

The initial remarkable milestone of the project was the creation of the first network of European regions affected by HCH pollution. This network has increased the knowledge on HCH management for all the project participants and set the basis for future networking or collaboration.

A result of the interregional learning process, was the identification of fifteen regional actions as good practices for the project (<https://projects2014-2020.interregeurope.eu/lindanet/good-practices/>), seven of them selected to be included in the Policy Learning Platform of the Interreg Europe Programme (<https://www.interregeurope.eu/policy-learning-platform>), a platform to boost EU-wide policy learning and builds on good practices related to regional development policies.



The second outstanding result was the elaboration of 4 Joint Studies:

- METHODOLOGY OF REGIONAL MONITORING OF THE SPREAD OF HCH POLLUTANTS AND RELATED COMPOUNDS, TAKING INTO ACCOUNT 3 ELEMENTS OF THE ENVIRONMENT: GROUNDWATER, SURFACE WATER, BOTTOM SEDIMENTS _ CENTRAL MINING INSTITUTE IN KATOWICE
- JOINT STUDY ON SITUATION OF RESEARCH OF RESEARCH ON HCH WASTE REMEDIATION IN EUROPE _ GOVERNMENT OF ARAGON
- PRACTICAL SAFETY GUIDE FOR WORK AT HCH-CONTAMINATED SITES _ GOVERNMENT OF ARAGON
- GUIDELINES FOR THE DEVELOPMENT OF ACTION PLANS & POLICY INSTRUMENT RECOMMENDATIONS _ GOVERNMENT OF ARAGON

The third outstanding result of the project was the elaboration and implementation of the regional action plans. **Six Action Plans** (<https://projects2014-2020.interregeurope.eu/lindanet/action-plans/>) have been approved and developed in the project framework, one per each participant region. Action Plans are composed by one or more actions, to be developed in the corresponding region, that involves a change for the improvement of the public policies related to HCH management. A general description of the developed action plans can be found in the following table:

LINDANET ACTION PLANS

ACTION PLAN FOR THE ARAGON REGION	ACTION PLAN FOR THE GALICIA REGION	ACTION PLAN FOR THE SOUTH BOHEMIAN REGION	ACTION PLAN FOR THE SAXONY-ANHALT REGION	ACTION PLAN FOR THE ŚLĄSKIE VOIVODESHIP REGION	ACTION PLAN FOR THE LAZIO REGION
ACTION 1: Redesign of the HCH website	ACTION 1: An Improved Governance Structure for Lindane Management in Galicia	ACTION 1: Increasing capacity and professional knowledge of involved staff.	ACTION 1: Next Steps on the way to an integral Mulde Floodplain Management	ACTION 1: Establishing the regional task-force group for solving the HCH problem at Wąwolnica Valley in Jaworzno	ACTION 1: Study on the absorption of HCH by fruit crops in polluted areas
ACTION 2: Study of the forest mass of the former Bailin landfill site	ACTION 2: A transparency policy on the communication (top-down and bottom-up) of lindane polluted spots and their risks.		ACTION 2: Establishment of 3 committees for ensuring the long-term goal: The joint development of an integral Mulde Floodplain Management		
ACTION 3: Health and safety application, for automatic control of PPE (Personal Protective Equipment) and health surveillance	ACTION 3: Early warning and action protocol in cases of lindane waste detection.	ACTION 2: Treatment and remediation methodology for POPs contamination	ACTION 3: Preparation of a technical report on the Lindane heritage of the Bitterfeld/Wolfen region.		
ACTION 4: Creation of a documentary collection on HCH, to be housed in the Pirenarium's "POPs Reference Centre"	ACTION 4: Periodic monitoring of the security cell of Torneiros.				

ACTION PLAN FOR THE ARAGON REGION

ACTION 1: Redesign of the HCH website

Benefits: Increase to 30 million of potential visitors per year, increasing the number of projects (better access to public procurements) and improving communication channels with citizens and HCH experts

ACTION 2: Study of the forest mass of the former Bailín landfill site

Benefits: Minimize Forest risk in the site, Reducing risks for site workers and citizens from vicinities

ACTION 3: Health and safety application, for automatic control of PPE (Personal Protective Equipment) and health surveillance

Benefits: Improvement of H&S management of more than 40 workers and 200 external people

ACTION 4: Creation of a documentary collection on HCH, to be housed in the Pirenarium's "POPs Reference Centre"

Benefits: Facility that optimize the personnel resources, useful for the large amount of studies and pilots done within the projects funded by the Policy Instrument

ACTION PLAN FOR THE GALICIA REGION

ACTION 1: An Improved Governance Structure for Lindane Management in Galicia

Benefits: Efficient coordination and development of future initiatives.

ACTION 2: A transparency policy on the communication (top-down and bottom-up) of lindane polluted spots and their risks.

Benefits: Creation of a new communication strategy, not available before.

ACTION 3: Early warning and action protocol in cases of lindane waste detection.

Benefits: enable the identification of affected areas, clarifying responsibilities and being useful for monitoring, control and remediation projects.

ACTION 4: Periodic monitoring of the security cell of Torneiros.

Benefits: Anticipation on the effects potential impacts on the environment.

ACTION PLAN FOR THE SOUTH BOHEMIAN REGION

ACTION 1: Increasing capacity and professional knowledge of involved staff.

Benefits: Positive impact on how hazardous HCH substances are dealt with in case of their discovery in the environment.

ACTION 2: Treatment and remediation methodology for POPs contamination

Benefits: up-to-date methodology about lindane and HCH and remediation

ACTION PLAN FOR THE SAXONY-ANHALT REGION

ACTION 1: Next Steps on the way to an integral Mulde Floodplain Management

Benefits: Building of the basis and guidelines for the future Mulde Floodplain Management.

ACTION 2: Establishment of 3 committees for ensuring the long-term goal: The joint development of an integral Mulde Floodplain Management

Benefits: Cooperation among all stakeholders and decision makers for a common and efficient development of the integral floodplain management in the Mulde floodplain.

ACTION 3: Preparation of a technical report on the Lindane heritage of the Bitterfeld-Wolfen region.

Benefits: Establish a pooled knowledge on the lindane legacy in the Bitterfeld-Wolfen region, not available before

ACTION PLAN FOR THE ŚLĄSKIE VOIVODESHIP REGION

ACTION 1: Establishing the regional task-force group for solving the HCH problem at Wąwolnica Valley in Jaworzno

Benefits: Clarifying the responsibilities among the competent authorities in Silesian Voivodeship, improvement of the efficiency of decision-making on HCH remediation actions, and increase in the number of national projects for the HCH control and remediation.

ACTION PLAN FOR THE LAZIO REGION

ACTION 1: Study on the absorption of HCH by fruit crops in polluted areas

Benefits: Providing data to promote a selective cultivation throughout the river valley at least in the areas furthest away from polluting sources

LINDANET'S NUMBERS



CONCLUSION

An important number of experiences have been shared during the LINDANET project, starting from the situation regarding HCH pollution and management at each site. The project has shown that every site has a different casuistry, none of them easy to be solved. The interregional cooperation has provided a broader view on the HCH management with real examples, and it has also arisen new ideas that were product of the common workshops and discussions.

LINDANET project is the proof that European cooperation allows policy makers to improve the public policies. It is also a sign of the commitment that many European regions have on the search of a solution for the HCH remediation, as well as a demonstration of the willing of current and future cooperation.

www.interregeurope.eu/lindanet/ #lindanet