SACHSEN-ANHALT
Landesanstalt für Altlastenfreistellung

European Union
European Regional Development Fund

LINDANET

Interreg Europe

European network of Lindane waste affected regions working together towards a greener environment

PP4 State Office for Contaminated Sites

Action Plan Saxony-Anhalt

PGI05799 LINDANET

Environment & resource efficiency

Overview Partner information

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I. Abbreviation list

ALFF	Office for Agriculture, Land Consolidation and Forestry
CPG	Chemical Park Bitterfeld-Wolfen GmbH
EAFRD	European Agricultural Fund for Rural Development
ERDF	European Regional Development Fund
GDR	German Democratic Republic
HCH	Hexachlorocyclohexane
ITW	Interregional Thematic Workshop
LAF	State Office for Contaminated Sites
LAU	State Office for Environmental Protection
LHW	State Office for Flood Control
LK ABI	County Anhalt-Bitterfeld
LLG	State Institute for Agriculture and Horticulture
LSA	Region of Saxony-Anhalt
LVwA	State Administration Office
MWL	Ministry of Economy, Tourism, Agriculture and Forestry
MWU	Ministry of Science, Energy, Climate Protection and Environment
OP	Operational program
PCB	Polychlorinated biphenyls
PP4	Project partner 4 in LINDANET – LAF from Saxony-Anhalt
SARGA	Sociedad Aragonesa de Gestión Agroambiental S.L.U.
TBT	Tributytin compounds
UFZ	Helmholtz Center for Environmental Research
WWF	World Wide Fund for Nature

1. Introduction

1.1 The legacy of Lindane production in Europe

In the second half of the last century, the insecticide Lindane (ɣ-hexachlorocyclohexane / ɣ-HCH) was produced on an industrial scale and used worldwide. This led to more than 4 million tons of chemical HCH waste in Europe alone, with mainly carcinogenic and persistent properties analogous to Lindane (Milagros et al. 2016; Vijgen et al. 2011). At that time, however, little was known about the health and ecological risks of the insecticide and its production waste, and therefore the handling of the pollutants was extremely negligent from today's perspective. Thus, HCH production waste had been mostly disposed in unsecured dump sites close to the producing factories or was in some regions even used in road construction as filler material or in private gardens as a second-class pesticide. Additionally, water discharge from polluted wastewater also represented a prominent route for HCH into the environment.

As a result, large amounts of HCH production waste were introduced and dispersed into the environment in the past. Although an EU-wide ban on production and usage came into effect in 2009, to date the environmental damage caused has not been fully remediated or secured. Reasons for that are that remediation is technically demanding and cost intensive. In addition, the financial responsibility for the environmental damage as well as the distribution of the pollutants has not always been fully clarified. As a result, numerous sites contaminated with HCH still exist in the EU today, and their management and remediation pose major challenges for the affected regions (Milagros et al. 2016).

However, after a petition from Aragon (Spain) reached the European Parliament in 2013 asking the EU to address the HCH issue, several thematically related EU projects were launched (LIFE DISCOVERED (2014-2017), LIFE SURFING (2019-2022), LINDANET (2019-2023), HCH in EU (2020-2021), LIFE POPWAT (2020-2023)) (Gobierno de Aragon 2020b; LIFE 2019; Gobierno de Aragon 2020d; TAUW 2020; Technical University of Liberec 2020).

1.2 The Interreg Europe project LINDANET

The project started on August 1st, 2019 with a budget of 1.35 million euros and a duration of 3.5 years (co-financed by ERDF 85%). It aims to ensure a successful cooperation of regions confronted with HCH pollution. To this end, the six project partners from Spain, Germany, Poland, the Czech Republic and Italy regularly exchange experiences in dealing with HCH and thus build up an international network on the consequences of Lindane production.

Furthermore, public relations work and the establishment of a stakeholder network in each region are important components of the project. The stakeholders (regional interest groups from public administration, private sector, nature conservation and environmental protection associations as well as science) are involved throughout the entire duration and play a key role in the development of an Action Plan (see Fig. 1).

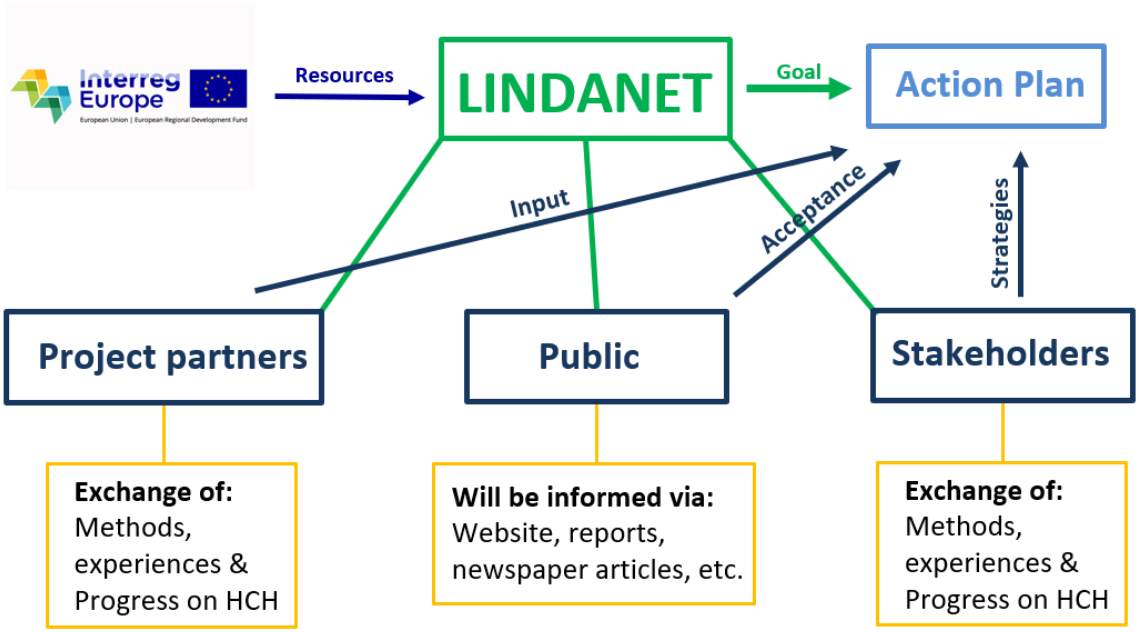

Figure 1: *Tasks and objectives of the EU project LINDANET.*

In this way, the public awareness of the HCH problem can be increased and an improved handling of HCH-contaminated sites is to be ensured. In addition, the reduction of HCH-contaminated sites in the affected regions is a general long-term goal of LINDANET. The State Office for Contaminated Sites (LAF) wants to build the base for the elaboration of an Integral Mulde Floodplain Management within the framework of the project.

To understand what an integral floodplain management in the Bitterfeld region is and why exactly it is the identified long-term goal of the LAF within the LINDANET project, an excursion into the regional HCH history is needed. Although Bitterfeld-Wolfen is not the only Lindane production site in Saxony-Anhalt, it is by far the most significant in the region and the origin of the large-scale and diffuse contamination of the Mulde floodplain (Milagros et al. 2016; Jacobs et al. 2015).

1.3 The Bitterfeld megasite

The Bitterfeld megasite is located in the southeast of the German state of Saxony-Anhalt, right next to the city of Bitterfeld-Wolfen. It covers an area of about 1,200 hectares. Chemical production began here as early as 1893 and continues to this day. However, industrial use of the area began decades earlier, when lignite mining was initiated here in 1839. Subsequently, an industrial area was established in the immediate vicinity of the lignite mines. The conditions for the development of a chemical site were perfect. Energy resources as well as land for private companies were abundant at the site and thus affordable. In addition, an infrastructure established during lignite mining including a well-connected rail network could be used.

Thus, one of the most important German chemical production sites developed in Bitterfeld, where over time more than 5,000 products were manufactured by at times more than 30,000 employees.

These included dyes, disinfectants, pesticides, detergents, synthetic gemstones, artificial leather, fertilizers, acids and many more. During the Second World War, state armaments were also produced in Bitterfeld, after which the site's operations were converted to consumer goods production for the German Democratic Republic (GDR) and thus acted on behalf of the state.

Over the course of history, several tons of production waste, some of it toxic, were produced annually and disposed of in disused opencast pits. In this way, numerous pollutants hazardous to the environment and health, including dioxins, furans, tributyltin compounds (TBT), polychlorinated biphenyls (PCBs), etc., were introduced into the environment. This caused extensive contaminations including a massive groundwater damage.

One pesticide that was synthesized on a large scale in Bitterfeld-Wolfen and used intensively in agriculture worldwide is the insecticide Lindane (ɣ-hexachlorocyclohexane / ɣ-HCH). Lindane or ɣ-HCH was produced in Bitterfeld between 1951 and 1982 at a rate of 200 - 650 tons per year. At least 70,000 tons of HCH waste (α-, β-, δ-, ε-HCH) were produced, which were primarily dumped in the former opencast mining pits Titanteiche and Antonie pit (cf. Figs. 2 and 3) (Karl Enders 2005).

Figure 2: *Disposal of chemical production waste at Antonie pit, 1983.*

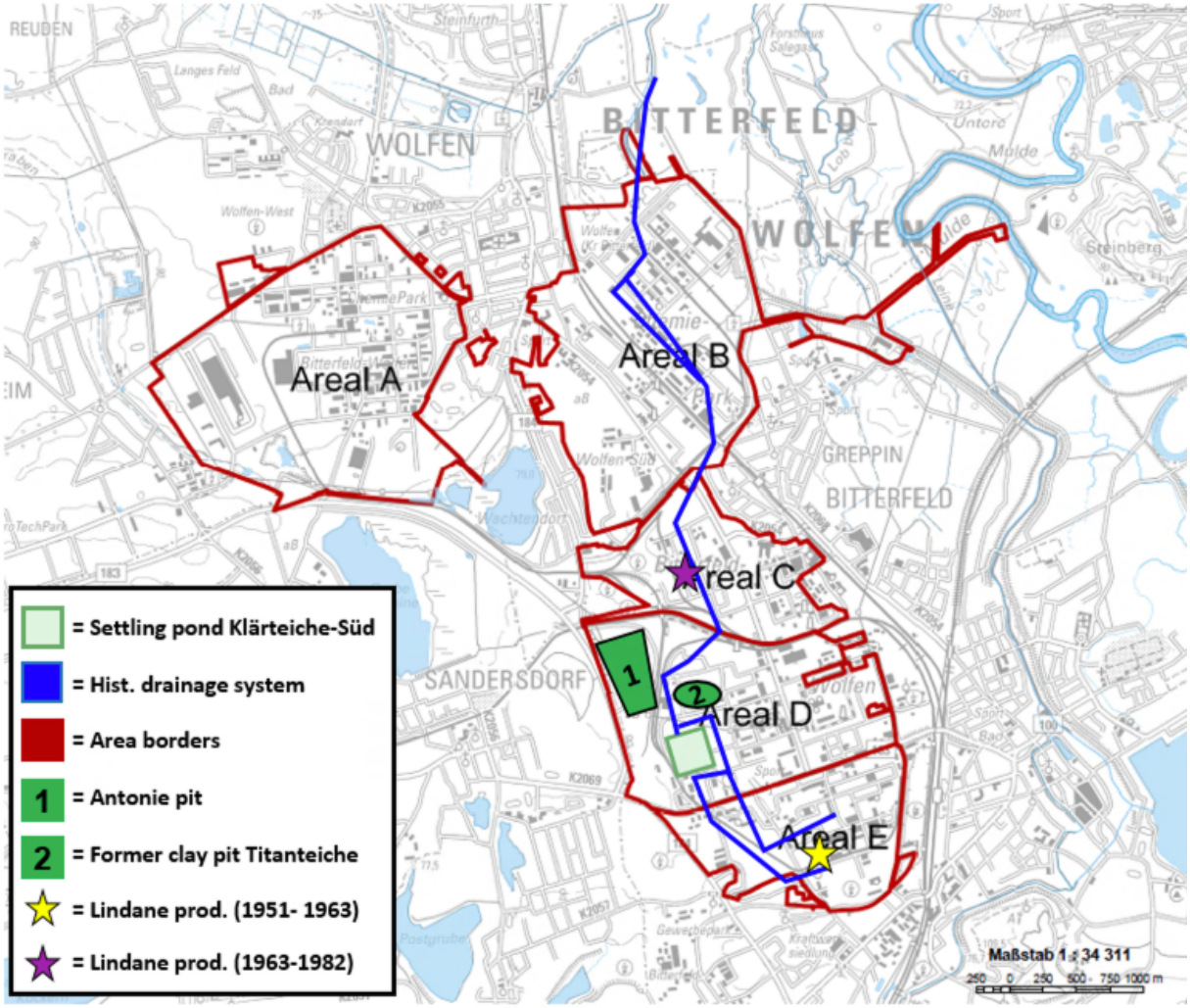

***Figure 3**: Historical site plan Bitterfeld megasite. Schematically shown are the former Lindane production sites, the historical drainage system and the two HCH landfills Antonie pit and Titanteiche.*

Historical HCH sources also represented former HCH transition sites, which possibly led to atmospheric deposition of HCH in nearby water bodies. In addition, during the production period, up to 2 tons per year of the carcinogenic and hormonally active pollutant HCH were discharged via wastewater into the Spittelwasser creek and from there into the Mulde River (Karl Enders 2006).

Since 1990, numerous investigation measures have been carried out at the Bitterfeld megasite and vicinity to assess the risk of soil and groundwater contamination and to develop remediation and safety measures. An initial comprehensive remediation framework concept was launched in 1995 for the site, which was declared a "major ecological project". On this basis the Antonie pit was secured (1993 - 2022), the Titanteiche were partial excavated (2005), former settling ponds Klärteiche-Süd had been covered (2012 - 2015) and numerous soil excavations on the site were carried out. In addition, since 1994, contaminated groundwater has been continuously pumped and treated. On this way beside numerous other pollutants, relevant quantities of HCH could have been removed from the groundwater (approx. 25-30 kg HCH per year).

Therefore, extensive measures have been carried out or are currently being implemented at the Bitterfeld megasite. However, the main problem in Saxony-Anhalt related to HCH today are the diffuse HCH-contaminated floodplain areas further downstream. Therefore, the water bodies are of particular relevance.

1.4 HCH-polluted Mulde floodplain downstream of Bitterfeld-Wolfen

For decades, HCH was discharged into the Mulde via the wastewater of the Bitterfeld megasite and spread in the floodplain areas in the course of flood events (see Fig. 4). As a result, the Mulde floodplain is nowadays largely contaminated with persistent organic pollutants, resulting in restrictions for the affected land users. In addition, the floodplain represents a diffuse source of pollutants, which leads to a deterioration of the water quality of the Mulde river. However, remediation of the floodplain could not be implemented so far. Firstly, due to the enormous size of the area with 4,779 hectares and secondly, because the exact HCH distribution in this area is mainly unknown till today (Leonhardt et al. 2021). In addition, previous investigations in the Mulde floodplain indicate a heterogeneous distribution of pollutants, which also behaves dynamically due to erosion and sedimentation processes during flood events.

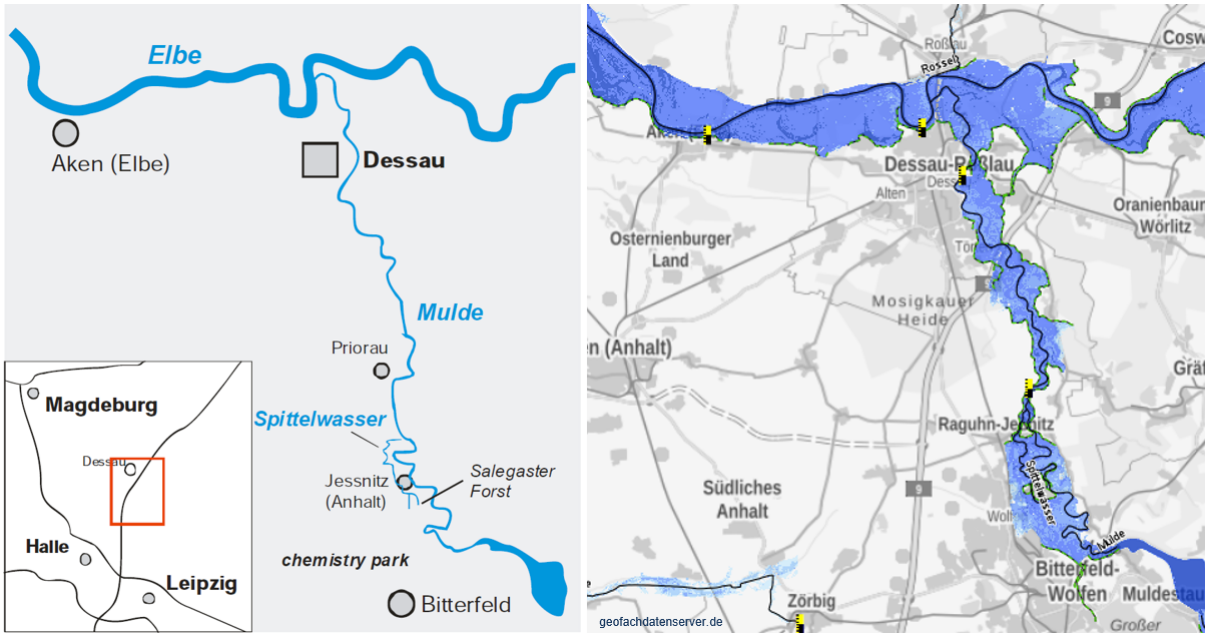

***Figure 4**: The location of the Mulde is shown graphically on the left, and the floodplains potentially contaminated with HCH in the event of a century flood are shown on the right. The floodplains colored in blue mark the Mulde floodplain potentially affected by HCH contamination with an area size of 4,779 ha. The area is bound laterally by dikes and to the north by the river mouth into the Elbe.*

Another challenge is posed by the numerous conflicts of interest in the floodplain, where goals of flood protection, nature conservation, the Water Framework Directive, tourism, agriculture and forestry compete with each other. The goal in the state must therefore be a jointly development of an integral floodplain management for the Mulde floodplain. Thus, a management concept that, on the long run, brings the grassland back to use, depending on the load in the floodplain, without jeopardizing the numerous competing objectives mentioned above.

The first important steps towards this goal have already been taken with organisation of a kick-off Stakeholder meeting in January 2020, as a close cooperation of the regional stakeholders is an essential part of the project and indispensable for solving the HCH problem in the Mulde floodplain.

***Figure 5**: Mulde floodplain near Dessau-Rosslau.*

Subsequently, further meetings were initiated and a collection of all regional and relevant data as well as reports on HCH were achieved. This way, it again was clearly recognizable that the cooperation in the LINDANET project works exceptionally well. However, it is imperative that this cooperation continues beyond LINDANET, which is why **Action 2** of the Action Plan focuses on this matter.

In addition, the environmental engineering company CDM Smith developed a study concept of the Mulde floodplain for the LAF using the collected HCH data. This is also a significant milestone in the on the way to the jointly development of an Integral Mulde Floodplain Management. The basis for this was the EU project HCH in EU (duration: 2020-2021). In this scope, the LAF, as an associated partner, received a work quota from CDM Smith for engineering services in the Mulde floodplain. The project thus represented the perfect complement to the communication and networking project LINDANET.

At the 3rd Regional Meeting on July 14, 2021, the investigation concept, which aims to clarify the distribution of contamination in the Mulde floodplain, was presented to stakeholders from LINDANET. Based on this, a technically and financially feasible remediation concept for the Mulde floodplain can be developed. However, the first step is to clarify the financing for the implementation of the study concept developed in HCH in the EU, which is why **Action 1** of the present Action Plan were initiated here.

2. Policy Instrument

In LINDANET, a policy instrument was selected by each partner at the time of application to be addressed in the project. The policy instrument selected by LAF in LINDANET is:

OP ERDF Saxony-Anhalt 2014-2020

Priority 4: Preserving and Protecting the Environment and Promoting Resource Efficiency.

Specific objective 11: Reduction of land use by supporting the inner-city development and by improving the use of brownfields and conversion areas in urban areas (Ministerium der Finanzen des Landes Sachsen-Anhalt 2020).

Measure: Restoration of brownfields and conversion areas in cities and the urban surroundings.

In addition, the Action Plan, Action 1 in particular, addresses the following policy instrument:

European agricultural fund for rural development (EAFRD)

Rural Development Programmes 2014-2020

FOCUS AREA 4B: Improving water management, including fertiliser and pesticide management (Ministerium der Finanzen des Landes Sachsen-Anhalt 2021).

3. Action 1 – Next steps on the way to an integral Mulde Floodplain Management

As explained in 1.4, the HCH isomers, which are detected at regular intervals in the Mulde, no longer originate primarily from the historical source, the Bitterfeld megasite, but from the diffuse HCH contaminated Mulde floodplain. However, possible consequences of existing HCH pollution are a continued deterioration of the water quality of water bodies, in this case e.g. the Mulde, as well as the maintenance of restrictions on the use of greenlands in the floodplain. In addition, the Water Framework Directive imposes a legal obligation to improve the water quality of the Mulde, which, however, and this was suggested by the most recent investigations from the periods 2005 - 2008 and 2009 - 2013, among other things, the HCH concentration is a parameter that contributes significantly to the poor or '*not good*' chemical status of the water body (designation: VM02OW01-00 - Mulde von Mündung in die Elbe bis Muldestausee) (Landesbetrieb für Hochwasserschutz und Wasserwirtschaft Sachsen-Anhalt - Gewässerkundlicher Landesdienst 2011, 2017; Jacobs et a. 2015).

Therefore, a monitoring concept was developed by CDM Smith as part of the EU project HCH in EU[1] for the State Office For Contaminated Sites, which aims to clarify the distribution of pollutants in the floodplain. The basis for the monitoring concept was a digital information map of the Mulde floodplain, which was also developed by CDM Smith, and which took into account data sets collected nationwide and compiled in LINDANET. The concept was presented on July 14, 2021 during the 3rd Stakeholder Meeting of LINDANET and handed over to the LAF in the last quarter of 2021. The concept aims to provide a data basis for the development of a pollutant-related remediation and utilization concept for the Mulde floodplain (so-called Integral Mulde Floodplain Management). Ultimately the Integral Mulde Floodplain Management should evolve into a new policy instrument to better manage HCH pollution in the Mulde floodplain.

Providing the necessary data basis is precisely the milestone that is the subject of Action 1 of the present Action Plan. In step 1 the financing of the Mulde floodplain investigation concept developed in HCH in EU was targeted. In a second step, the tendering, awarding and monitoring of initial sampling and analytic measures have to be carried out. Regarding step 1 all relevant documents of the concept were reviewed and an application for EAFRD funding of the package of measures was submitted on July 15th, 2021. The selected Focus Area represents 4B: Improving water management, including fertiliser and pesticide management. On 25th of November 2021 the LAF received the pledge dated 22nd of November 2021 for 471,009.14 EUR for the implementation of the concept elaborated in HCH in EU. Thus, step 1 has already been finalized in phase 1.

Therefore, the focus of Action 1 in the framework of Phase 2 of the LINDANET project lies mainly on the preparation of tender documents, carrying out the tendering process and awarding the contract for the necessary technical measures. The services that need to be tendered are sampling, analytics and the engineering support services. During phase 2 already the first sampling and analytic measures will be implemented (cf. Table 2). The final evaluation of the generated data will take place shortly after the end of phase 2 and thus will be the continuation of steps taken during LINDANET towards the final goal of developing the Integrated Mulde Floodplain Management.

***Table 2**: Timeline of Action 1 in LINDANET*

Measures	Time
Application for EARDF funds	15th of July 2021
Approval of EARDF funds	25th of November 2021
Preparation of tender documents	February - April 2022
Award of the study concept	May - July 2022
Implementation of field studies (sampling and analytics)	From August 2022

Connection to LINDANET

From the intensively pursued exchange of experience with the project partners, it repeatedly emerged that delaying measures in the context of HCH issues has negative financial consequences. The remediation and protection of HCH-polluted areas becomes more technically demanding and costly over time, as was shown in almost all regions represented in LINDANET, because the HCH isomers primarily continue to spread vertically and horizontally instead of being degraded naturally. The government of Aragon (Spain), on the other hand, shows a different path. There, extensive and ongoing investigation measures were already started in the 1990s and, derived from this, numerous measures were defined to contain the spread and secure the HCH formerly produced, deposited and still deposited in Sabinanigo (Spain). In addition to safeguarding and remediation measures, these measures also include permanent monitoring programs of the contamination situation as well as innovative pilot studies for the removal and handling of the HCH contamination areas on site. Subsequently, these were brought together in a strategic action plan worth approximately 550 million euros and extending to 2040 and made available to the population (Gobierno de Aragon 2016, 2020c).

Whether this path can be followed in a similar way in the Mulde floodplain cannot be foreseen at present. However, the approach from the lead partner to first get a complete systemic understanding concept and then, based on this, to develop efficient, far-sighted and reasonable measures serves the LAF clearly as a model. We are talking about the Integral Mulde Floodplain Management, which will be developed in the coming years together with the stakeholders from Saxony-Anhalt. For this purpose, the present action plan aims to build the basis and guideline. Therefore, LINDANET provided

numerous arguments our intended approach in the Mulde floodplain and consequently for approval of the EAFRD funds requested.

Funding

The costs for the implementation of Action 1 amount to up to 471,009.14 EUR and are financed by funds from the European Agricultural Fund for Rural Development (EAFRD).

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

As the exchange of experiences in LINDANET again clarified the ideal approach in the Mulde floodplain, the project also provided the input for Action 2 and 3 (cf. Chapter 6). During the regional meetings with the LINDANET stakeholders, but also in the exchange with the project partners, it became clear that regarding complex issues only a good cooperation with all stakeholders and decision makers can lead to the set goal. This is especially true for the Mulde floodplain, where numerous protection goals from flood protection, nature conservation, water framework directive, tourism as well as agriculture and forestry compete with each other. Essential for a common development of the integral floodplain management in the Mulde floodplain is therefore a continuation of the good cooperation already started in LINDANET in the state of Saxony-Anhalt.

Most likely the new policy instrument cannot be finalised within LINDANET, as the process towards this goal is quite an extensive undertaking. Nevertheless, it is very important to start with it already in phase 2, when the first data from the study concept in the Mulde floodplain can be expected and regional cooperation is still in place.

Therefore, Action 2 of the present Action Plan focuses on the establishment of a task force (so-called Taskforce Mulde Floodplain Management) with three subcommittees, which differ from each other in their composition and thematic focus in order to increase efficiency and minimize the time required for the stakeholders involved (cf. Tab. 3).

***Table 3**: Mulde Mloodplain Management task force with three committees including the respective organizations involved and issues addressed.*

1. Committee for Integral Mulde Floodplain Management	
Involved organizations	Decision-makers from technically competent authorities: Ministry of Science, Energy, Climate Protection and Environment (MWU); Ministry of Economy, Tourism, Agriculture and Forestry (MWL); State Administration Office (LVwA); State Office for Flood Control (LHW); State Institute for Agriculture and Horticulture (LLG); State Office for Environmental Protection (LAU); Office for Agriculture, Land Consolidation and Forestry - Anhalt (ALFF - Anhalt); County of Anhalt-Bitterfeld (LK ABI), City of Dessau-Rosslau, LAF
Topics addressed	Political decisions including the final approval of the Policy instrument "Integral Floodplain Management Plan for the Mulde".

2. Scientific committee	
Involved organizations	Institutions / departments working scientifically in Mulde floodplain: UFZ, LK ABI - Veterinary Office, City of Dessau-Rosslau - Veterinary Office, LAU, WWF, Biosphere Reserve Centralelbe, LAF
Topics addressed	Advise the 1st committee, initiate new research projects and collaborations, share new findings on HCH.

3. Stakeholder group Mulde floodplain	
Involved organizations	Stakeholders directly affected and operating in Mulde floodplain: LAU, WWF, Biosphere Reserve Centralelbe, City of Dessau-Rosslau, ALFF, LHW, LK ABI, farmers, hunters, residents and tourism associations, LAF
Topics addressed	Development and coordination of remediation measures and pollutant-related utilization concepts for the floodplain areas in the Mulde floodplain

Connection to LINDANET

The model for Action 2 is the lead partner in LINDANET, the government of Aragon, which has also established 3 committees for the joint management of the local HCH problem with a similar structure. These were presented in detail to the project consortium by the lead partner during ITW3. More information can be found in the good practice "Committees for the monitoring of the Lindane waste management" described in detail on the Interreg Policy Learning Platform (Gobierno de Aragon 2020a).

The exact timing of the actions in Action 2 is listed in Table 4.

***Table 4**: Timeline of the individual measures of Action 2 in LINDANET.*

Measures	Time
Presentation of 3 Committees during 5th Stakeholder Meeting	24th of February 2022
Coordination of Investigation Concept with 2. and 3. Committee	February - March 2022
Incorporating stakeholder feedback into the Monitoring Concept	February – April 2022
First meeting of all committees	End of 2022 at the latest

Funding

No costs associated with Action 2 are expected. No additional funding is required.

5. Action 3 – Preparation of a technical report on the Lindane heritage of the Bitterfeld-Wolfen region

In addition, LINDANET found that there is no pooled knowledge on the lindane legacy in the Bitterfeld-Wolfen region, similar to the "Strategic Environmental Action Plan against lindane waste contamination in Aragon" presented by the government of Aragon during ITW1 (Gobierno de Aragon 2016, 2020c). This however, would be a great benefit for cooperation and future projects related to HCH. One of the reasons for this is that although HCH was and is a component of numerous exploration and remediation measures in the Bitterfeld-Wolfen region, it is rarely the single focus. Information on HCH-related measures carried out is available in several reports from various authorities in the state, but so far there is no complete overview. However, a report would be essential in order to preserve the knowledge, which is often linked to the persons responsible, for future generations. In addition, a report on the regional lindane legacy could serve to inform stakeholders and interested citizens and thus significantly expand transparency regarding this issue.

Therefore, Action 3 focuses on the preparation of a document entitled "The Lindane Legacy of the Bitterfeld-Wolfen Region", which on the one hand provides a summary of the history of lindane production located in Bitterfeld, including the disposal of HCH waste, and on the other hand a brief overview of all local exploration and remediation measures as well as research and EU projects related to HCH. In addition, the report is to be designed to be continuous and to be updated beyond Phase 2 of LINDANET. The report is to be published at the end of Phase 2. The report will be in German language.

The timeline of Action 3 is shown in Table 5.

***Table 5**: Timeframe of Action 3 measures in LINDANET.*

Measures	Time
Preparation of the HCH Report Bitterfeld region	February – September 2022
Coordination of individual chapters with competent authorities	March - September 2022
Publication HCH Report Bitterfeld region	December 2022
Presentation at 6th Stakeholder Meeting in LINDANET	End of 2022 at the latest

Funding:

Similar to Action 1 - 2, the implementation of Action 3 will also be implemented by LAF staff. Additional funding is not necessary.

6. Abstract

In the second half of the 20th century, the pesticide Lindane (γ-HCH, γ-Hexachlorocyclohexane) was largely used in agriculture worldwide. In this scope, the production of the insecticide resulted in significant amounts of organochlorine waste compounds (α-, β-, δ-, ε-HCH etc.) with carcinogenic, persistent and endocrine disruptive properties and introduced into the environment via wastewater as well as inadequately secured landfills. Therefore, despite an EU-wide ban on the production and use of Lindane from 2009, local but also widespread contamination of soils and waters still poses a major challenge to many regions in Europe to this day.

The Interreg Europe project "LINDANET" started on 1st of August 2019 in order to jointly address this problem. With a budget of 1.35 million euros and a duration of 3.5 years (co-financed by ERDF 85%), the project aims to create a network of European regions, that are affected by HCH pollutions. For this purpose, the six project partners from Spain, Germany, Poland, the Czech Republic and Italy regularly exchange experiences in dealing with HCH and include also regional stakeholders from public administration, nature and environmental protection associations as well as research in the learning process. At the end of phase 1 (01/08/2019 - 31/01/2022), each partner will submit an Action plan approved by the regional stakeholder network, which should be derived from the project collaboration, implemented within Phase 2 (01/02/2022 - 31/01/2023) and promote decisively the region in dealing with local HCH issues.

In LINDANET, the State office for contaminated sites (PP4 in LINDANET) focuses on the HCH-polluted Mulde floodplain. The prevailing soil contamination was once introduced into the floodplain from the nearby Bitterfeld megasite during flood events. In the same way the chemical compounds can be remobilized and thus serve as a diffuse source of pollutants in this scope till today. This leads to a significant deterioration in the water quality and results in use restrictions of the greenlands in the floodplain. Therefore, the main objective within the framework of LINDANET is to create the basis for an integral floodplain management. To this end, a study concept for the Mulde floodplain must first be developed and implemented in order to subsequently obtain comprehensive information on pollutant levels in the various environmental compartments. At a later stage, this information can be used to develop a site-specific remediation and land use concept for the Mulde floodplain (so-called Integral Mulde Floodplain Management).

The study concept has already been developed for the LAF within the framework of the EU project "HCH in EU". Thus, this Action Plan starts at this point and with "Action 1 - Next steps on the way to an integral Mulde Floodplain Management" also explicitly deals with the financing, tendering, awarding and partial implementation of an investigation concept for the Mulde floodplain, while "Action 2 - Establishment of 3 committees for the joint development of an integral Mulde Floodplain Management" aims to ensure an efficient, optimally structured and time-saving continuation of the regional cooperation in the Mulde floodplain, which already functions well in LINDANET, in the long term. This is indispensable in order to be able to jointly develop a pollutant-related remediation and utilization concept with the specialist information data collected in the future as part of the investigation concept without disregarding the existing and partly competing protection goals here.

"Action 3 - Preparation of a technical report on the Lindane legacy of the Bitterfeld-Wolfen region" also aims to provide a clear summary of the regional Lindane production history and all the exploration and remediation measures carried out in Bitterfeld-Wolfen and the Mulde floodplain concerning HCH, as well as research and EU projects. This is intended to prevent a potential loss of knowledge due to the generational change in Saxony-Anhalt and to create an overview document to inform stakeholders and interested citizens. The report will also be regularly updated beyond the timeframe of LINDANET in order to provide interested readers with the latest information.

Saxony-Anhalt still has a long way to go with the HCH problem in the Mulde floodplain. But the first steps in the right direction have already been taken and are to be continued with this Action Plan.

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