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Life surfing

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Deliverable Action D2. Participation and organization of networking and information platforms related to the project objectives

MEMORANDUM WITH THE MOST OUTSTANDING ASPECTS REACHED BY THE EXPERTS GROUP TO BE DELIVERED DURING THE LAST SEMESTER OF THE PROJECT

October 2023

14th International HCH and Pesticides Forum

21-24 February 2023

Zaragoza, Aragon

TABLE OF CONTENTS

ACKNOWLEDGEMENT

The 14th International HCH & Pesticides Forum was held in Zaragoza, Spain, 21 – 24 February 2023.

In 2015 the 13th Forum was also organized in Zaragoza. The Government of Aragon hosted these Fora, as Aragon is deeply involved and committed in finding solutions for one of the so called Megasites, being the former Inquinosa HCH production facility and the related Bailin and Sardas landfills in the Aragon region. Proper containment of these sites is important to avoid and manage migration of pollution in the surrounding environment and the river basin of the Gallego river.

The Forum was impressed to see how a relatively small region has made great efforts over the last 30 years to build a road map and model for the presence and spread of the contaminants, and to understand the related risks and the pathways for migration of contaminants.

One of the themes presented, based on the LIFE Surfing project, was the in-situ extraction and treatment of dense liquid contaminants in a complex fractured aquifer, in order to arrive at proper management of complex contaminants in a difficult and nonhomogeneous soil structure.

The complexity of the management of such a Megasite and the search to define adequate strategies was underlined in the presentations from Aragon.

All these investments in professional interventions are made with the awareness that 'solving' the problems related to this Megasite, estimated at half a billion EURO, exceeds the financing capacity of the Aragon region.

1. INTRODUCTION

This deliverable provides an overview of the highlights achieved by the Expert Group during the last period of the project, extended by 1.5 years. These key achievements represent the culmination of our efforts and contributions, and are essential for the successful completion of the project. The work was culminated during the celebration of the 14th HCH and Pesticides Forum held in Zaragoza from February 21-24, 2023, with recommendations and actions to clean up megasites (section 2).

The following activities have been carried out:

- In-depth research and analysis bringing together in-depth research and analysis from experts in their respective domains, contributing valuable insights to the project's overall knowledge base.
- Innovative solutions were explored to address challenges and obstacles, leading to the development of new perspectives and strategies for project success.
- Comprehensive recommendations were formulated and presented aimed at improving the project's results and ensuring its long-term sustainability.
- Collaborative efforts between experts fostered knowledge sharing, allowing us to leverage each other's expertise and create a more robust project framework.
- Actively participation in problem-solving activities, addressing unforeseen issues and finding practical solutions to maintain project momentum.
- Maintained strong focus on stakeholder engagement, fostering positive relationships and ensuring project objectives were aligned with their expectations.
- Actively engagement in training and capacity building activities to enhance our skills and competencies, which in turn added value to the project.
- The comprehensive documentation of the activities and results of the project guaranteed the transparency of the results.

These highlights together show the project's success and its ability to make a lasting impact. More detailed information will be incorporated into the "Forum Book" that includes specific findings and recommendations.

14 International HCH & Pesticides Forum

361 scientists and technical experts from 68 countries and 191 organizations gathered in Zaragoza, Aragon Region of Spain for a 4-day conference hosted by the Government of Aragon. Besides, 161 participants made use of the on-line facilities to attend. The conference heard reports and

+discussed findings and proposals for action related to the heavy residual contamination that blights the lives and environments of many regions in the EU and beyond.

The conference also discussed the wider health, environmental and economic burdens of obsolete pesticides, excessive pesticide use and the impacts of pesticides and other persistent chemicals, in particular PFAS.

There is much to do and much that can be done. Therefore, the participants of the 14th HCH and Pesticides Forum have made the following resolutions and recommendations:

2. RECOMMENDS CLEANING UP MEGASITES

At least 10 EU regions have to deal with the legacy of former pesticide production facilities, and many other regions outside the EU face the same issues. In the frame of this resolution Megasites is defined as 'large scale contaminated sites', being either large individual sites or large numbers of smaller sites related to the same source.

During the Forum the existence of these Megasites and the struggle of the related regions to deal with the huge problems they present was clearly demonstrated in sessions regarding the *LIFEPOPWAT* project, the EU LINDANET Interreg project, the EU Study "HCH in EU", the status report on the *FAO Central Asia POPs* project and the additional presentations on the strategy, infrastructure and monitoring of the Sabinanigo Megasite project in Aragon.

This calls for Action:

2.1. Action 1: Cooperation between Regions for clean-up of Megasites

Regions dealing with Megasites related to pesticide production to join forces in developing governance structures, strategies, management, knowledge, understanding of contaminant behaviour and remediation and containment technologies.

We call upon EU regions dealing with Megasites to set up and join this cooperation making use of the successful results from EU LINDANET and strive to enlarge understanding and commitment of their national governments, the EU Commission, EC DG Environment and EU Parliament that the problems of Megasites by definition cannot be solved at regional level and requires additional instruments on both national and EU level.

During the Forum the Aragon Region expressed commitment to coordinate this cooperation by promoting an annual interregional meeting among European regions with HCH Megasites. This meeting will be a platform to share experiences, progress and needs as well as to define strategies to draw the attention of the European authorities on the existence and complexity of the Megasites and the impossibility of restoring them without the support of the European Community. In the meantime, the Spanish regions of Galicia and the Basque Country and the region of Saxony-Anhalt (Germany) have shown their interest in joining this initiative.

Here follow the statements shared at the Forum opening by representatives of some of the European regions committed to cooperation:

Isabel García Muñoz:

The management of Lindane or HCH- production waste is a very serious problem for the environment, food safety and public health. That is why the EU banned it in 2020.

Thanks to the European project 'Lindane in the EU', co-led by SARGA, we know that between 1945 and 2000 up to 600,000 tons of Lindane were produced in the world, which presents more than 4,8 Million tons of HCH-waste that are still largely present in the world.

As a MEP from Aragon, I'd like to emphasize the Europeanist commitment by the Government of Aragon to find a solution for the Lindane problem. Its commitment has been materialized in its leadership in projects carried out at the European level. Firstly, the LINDANET project, funded by the Interreg program, has enabled the creation of an experience exchange network among public entities from different regions of Europe. Secondly, a pilot project to evaluate and tackle the presence of Lindane in the EU, endorsed by the European Parliament in two consecutive calls, has rendered it possible to have a road map with possible solutions, as well as good practices and remedies for the decontamination of soils affected by Lindane. *(Isabel García Muñoz, MEP, 21. February 2023, Zaragoza, Spain)*

One of the 4 contamination sites in Spain is situated in my region, Aragon. This is of great concern to both the people of Aragon and the regional government. Therefore, the Government of Aragon has made an enormous effort to tackle this very serious environmental challenge in each of its aspects: technical, economic, social, and political. Around 66 million Euros have been invested to tackle the problem of lindane in Aragon, of which only 16% is provided by the European Union. The economic and technical efforts that all this entails for a region like Aragon, with a little over 1,3 Million inhabitants, is enormous and exceeds the financial capacities of a regional government, even with a full institutional commitment like in the case of Aragon.

The Lindane problem can only be solved if there is a coordination on all levels: European, national, regional and even local. Obviously, it is not exclusively a problem of Aragon, there are many regions in the European Union that have to make the same journey.

I encourage all the stakeholders, in particular Members of the Parliament and the European Commission, to continue to join forces to fight together against the problem of Lindane contamination in Europe. *(Member of the European Parliament (MEP) Isabel García Muñoz, MEP, 16. November 2021, Brussels, Belgium)*

Sagrario Pérez Castellanos

In Galicia we were used to facing the problem with our own resources, very limited resources I have to say, which have been used for more than two decades, we are at a point where we still have much to do, it is therefore a very important to see that there are other regions in Europe other than Galicia citizens in Europe who are suffering the same problem and that encourages us to keep fighting to try to solve it.

We don't even have the solution, it is not just a money problem, it is a problem of will, it is a problem of pulling all the efforts of those of us in the same situation to mobilize funds, but also mobilize solutions.

The healthy Soil Strategy is an opportunity for this problem to reach a more than acceptable level of resolution. We cannot talk about by 2050, if we are not solving the problems of contaminated soils those, we call the issue of Orphan pollution. *(Ms. Sagrario Pérez Castellanos, General Director of Environmental Quality, Sustainability and Climate Change, Junta of Galicia, Spain) 21. February, 2023, 14th Int. HCH and Pesticides Forum, Zaragoza, Spain)*

Karolin Braunsberger Reinhold:

Saxony Anhalt is characterized by a long and successful history of the chemical industry. The chemical triangle around the towns Buna, Leuna and above all Bitterfeld-Wolfen, where I grew up, is known far beyond the borders of Saxony Anhalt, but until today the legacy of chemical production still has an impact on us humans and our environment. A prominent example is the HCH-contamination from the historical Lindane production. In the former chemical combine Bitterfeld, between 200 and 650 tonnes were produced annually from 1951- 1982. This resulted in at least 70,000 tons of waste which was dumped in open cast mining pits and discharged into subsequent river systems. In the past decades, the extensive remediation of old sites and contaminated soils was carried out with great commitment and high costs. Here I would expressly thank the LAF (Landesanstalt für Altlastenfreistellung), its managing director Jürgen Stadelmann

and his team. With the introduction with the EU Water Framework Directive, a change in the perspective of the assessment of water bodies has taken place. The studies show that the polluted floodplain areas contribute a considerable pollutant load and thus have an impact on the chemical and ecological status of water bodies. The HCH problem around the Mulde river between Bitterfeld and Dessau-Roßlau is an example of the impact these pollutants can have. And this influences not only the revitalization of the brownfields, but also the quality of the water bodies and adjacent farmland and floodplains. That is why the State of Saxony Anhalt has participated in the EU Projects Lindanet and HCH in EU. Within the framework of this cooperation, it has become clear that the Mulde is not an isolated case, but rather that floodplains are polluted in several regions in Europe and beyond.

The exchange with the international partners in Spain, Poland and Czech Republic and Italy has provided valuable food for thought and has generated initial projects and promoted international cooperation. These successes can only be the beginning. Lindanet and HCH in EU have created a momentum that must be used to initiate further European projects and implement measures in the regions. The regions will not be able to cope with these tasks alone and are therefore dependent on knowledge transfer and the resulting strategies. I hope that solutions will be found together. I will be gladly continuing to be at your disposal as a contact person in the European Parliament. Many thanks to you and your work (*Member of the European Parliament (MEP), Karolin Braunsberger Reinhold, 21. February 2023, 14th Int. HCH and Pesticides Forum, Zaragoza, Spain).*

The intention to join the cooperation initiative was also expressed by the Basque Country during the Forum development. In the case of Basque Country, the former BILBAO CHEMICALS company produced Lindane between 1947 and 1987. They belonged to the German merchant group Merck and Boehringer and was in the municipality of Barakaldo in the Basque Country. It is estimated that they generated around 75,000 tons of waste. Most of the waste and manufacturing residues was deposited, along with the waste produced by the second Lindane production facility in the Basque Country (Nexana Celamerck), in at least 40 different locations, causing an estimated area of contaminated land of 410 hectares. In the year 1993, The Basque Government carried out an inventory of the places where the residues of Lindane have been deposited. They remediated those places that posed a risk to human health. The demolition of the factory and the remediation of the soils where the factory was located, was completed in 2002. In total 4,000 tons of Lindane residues was eliminated. All the excavated soils, as well as the demolition waste, were transported, and deposited in the two security cells built for this purpose (see Cell of Loiu and Cell of Argalario). The clean-up carried out at this site was validated by the environmental administration of the Basque Government on 2002. The environmental monitoring of both security cells is continuing.

Despite this action, HCH continues to appear at specific sites and to affect the rivers of the Nervion-Ibaizabal basin. For this reason, the Basque Government continues to make progress in the search

for solutions for the treatment of soils contaminated by HCH, for which it is necessary to join forces and collaborate with other regions that have the same problem.

See more information *Explainer Action 1*

2.2. Action 2: Establishing a specific financing mechanism for Megasites

The EU Parliament and the EU Commission to establish a financing mechanism for the clean-up within one generation of Megasites stemming from the production of HCH.

We call upon The European Parliament take action for the development of such a financing mechanism as a logical complementary step to the envisaged EC proposal of the new EU Soil Health Law, the EU Chemicals Strategy for Sustainability and pending amendments of the EU Water Framework and Groundwater Directives. The EC study 'HCH in Europe' (2021) offers an actual overview of HCH contaminated sites and can be the basis for concerted action.

RECOMMENDS STRENGTHENING THE INTEGRATION OF CURRENT KNOWLEDGE OF HUMAN HEALTH EFFECTS

October 2020, the European Commission published a chemicals strategy for sustainability. This strategy is part of the zero-pollution ambition, a key commitment of the European Green Deal.

The EU's chemicals strategy aims to better protect citizens and the environment and boost innovation for safe and sustainable chemicals.

The strategy includes chemicals as lindane. In paragraph 2.5.1 reference is made to the Stockholm Convention (under which lindane is listed in Annex A). The strategy pays also Important attention to so-called endocrine disruptors, chemicals that can affect the hormone system. Lindane belongs to this group of chemicals.

During the Forum different researchers presented alarming results on the effects of endocrine disruptors on the (development of the) neural system. These results unveil the effects of these chemicals on the development of the neural system and the negative effects on intelligence and human behaviours. The researchers presented results of long-term research showing timelines of children which they followed from 10 weeks old foetus till the age of 14 years.

As the EU has the ambition to step up its international advocacy to meet the 2030 Agenda's goals and targets for the sound management of chemicals by having a leading role, the Forum calls upon the European Commission to:

See more information *Explainer Action 2*

2.3. Action 3: To select Lindane as a pilot chemical for an integral assessment of all the elements of the Chemicals Strategy for Sustainability and to define an action program to arrive at compliance with the goals and targets of the Chemicals Strategy

The arguments for the selection of Lindane are the following:

- Lindane is listed under Annex A of the Stockholm Convention as one of the endocrine disruptors
- The recent (2011) report of the EU study 'HCH in Europe' shows a well-documented overview of the production, waste and effects on the environment
- The existence of a number of Megasites in the EU member states and the active involvement of the regions concerned to deal with these issues creates a platform for share, develop and use research results
- The EU is already actively involved in research projects as LIFE SURFING, LINDANET, LIFEPOPWAT
- The EU can show the ambition of a leading role in sound management of chemicals by taking the comprehensive example of lindane and disseminate the results over the cooperation with GEF, FAO, and in the Stockholm Convention.

In such a pilot project subjects of importance will be:

- Re-assessment of the toxic effects of lindane and its degradation products by integrating the recent research results on endocrine disruptors.
- Re-assessment of the methodology of risk assessment for human health and environment based on the toxicological effects found.
- Re- assessment of the required level of protection for human health and the environment
- Re-assessment of the effect of these findings on the limit values.
- Re-assessment of the measures required to better protect the actual agricultural production of food and feed and the natural environment.
- Re-assessment of the potential effects of new findings on the existing containment and safeguarding measures for former production and waste sites containing lindane.

See more information *Explainer Action 3*

2.4. Action 4: Ensure public access to information on contaminated land

We call upon the European Commission to enforce the use of instruments (like GIM) to make information regarding the presence of chemicals (more) accessible for the public, including the possibility to propose additional information to be included in these systems (after verification).

RECOMMENDS ENSURING SYNERGIES OF POPs CONVENTIONS AND ACCESS TO INFORMATION

Large sites contaminated with POPs and mercury have been created the last 100 years by chloralkaline production and related organochlorine production at these sites. Sessions dedicated to mercury and chloralkaline production as well contamination with PFAS were included in the 14th Forum agenda.

Also, during the Forum, a comprehensive European wide inventory of PFAS contaminated sites was made available by the Media Partners of The Forever Pollution Project.

Healthy life depends on healthy soils. Biodiversity is adversely affected by polluted soils. Human health is affected by living on contaminated areas. Many farmers cannot produce crops anymore on clean land. It is important to advance initiatives directed at restoring soils, including research on cost-effective methods able to treat large volumes of contaminated soils, understanding how to scale up methods to industrial scale, developing concepts and strategies how various sets of methods could be used to clean up various types of contaminated grounds.

The Forum recommends exploring the synergies of conventions as for POPs (Stockholm Convention) and Mercury (Minamata Convention).

2.5. Action 5: Establish an integrated approach to manage areas and soils contaminated by POPs and mercury

We call upon the international community, and especially the GEF, to create the conditions for a strategy for sites where the presence of both POPs (Stockholm) and mercury (Minamata) requires an integrated approach.

and,

We call upon the BRS Secretariat, the Minamata Secretariat and the SAICM Secretariat to assess synergies in their agendas to support the management of contaminated soils and to better protect soils and water globally.

The European wide inventory of PFAS contaminated sites was made available by the Media Partners of The Forever Pollution Project during the 14th Forum. This makes the information about the presence of PFAS accessible for the public.

The availability of this kind of information for the public will become more important. It also complies with the Aarhus Convention, and the transparency policy of the EU.

At the same time the Forum notes that the results of the similar overview of HCH contaminated sites developed under the EC study 'HCH in Europe' are not yet after 14 months fully available to the public.

RECOMMENDS MANAGING LEGACY OBSOLETE PESTICIDE STOCKPILES AND REDUCE IMPACTS FROM PESTICIDES USE AND CONTAINER MANAGEMENT

The conference heard from Central Asian countries that legacy stocks of obsolete pesticides, including many burial sites, both managed as well as informal, and unrecorded sites, contain tens of thousands of tons of toxic chemicals.

The piecemeal approach of removing some chemicals for treatment in facilities in other countries is expensive, slow, complex and is not solving the problem. Lower- and Middle-Income Countries (LMIC) need comprehensive solutions for hazardous waste that is continuously generated also from sectors including industry, medical, agriculture, transport, military and others. Such solutions could also then absorb the relatively small and finite quantities of legacy obsolete pesticides and deal with annual arisings which will continue to occur.

See more information *Explainer Action 5*

2.6. Action 6: Support LMIC to develop comprehensive solutions for hazardous waste treatment

Support LMIC to develop comprehensive solutions for hazardous waste treatment that will allow environmentally sound and economically viable treatment of hazardous wastes from all sectors, including dealing with legacy stocks of obsolete pesticides where they exist. The toolbox of

solutions should be able to manage the different types and concentrations of wastes and contaminated soils in both a safe as well as economically realistic manner.

We call upon the Member Organizations of the Inter Organizational Programme for the Sound Management of Chemicals (IOMC) to prioritize advice, resource mobilization and project implementation for in-country infrastructure and facilities to treat hazardous waste and contaminated soils in an environmentally sound manner.

While the 14th International HCH and Pesticides Association Forum considered the many actions being taken to address contamination caused by pesticide production, storage, and use, it is important to recognize that these problems arose because of an over-dependence on pesticides in agricultural production.

The widespread continued dependence on pesticides for agricultural production is unjustifiable in the face of improved understanding about the harms of pesticide on health and the environment. The claim that pesticides are needed to ensure food security is both false and misleading, since pesticides undermine the natural processes in soil and ecosystems on which crop growth depends. Alternatives to chemical pesticides are widely available and new developments that include robotics, precision farming and a growing range of biopesticides create new commercial opportunities for LMIC.

The Forum also noted possible synergies to the International Panel on Chemical Pollution, www.ipcp.ch.

2.7. Action 7: Create advisory platforms to support transformations away from chemical pesticides

We call upon FAO to lead the establishment of a multi-stakeholder coalition to collate and disseminate experience and evidence about non-chemical pest management methods, tools, and strategies with dissemination particularly (but not exclusively) focused on pesticide regulators, agricultural extension services and farming organizations in LMIC.

Wherever pesticides are used, empty pesticide containers are generated in their millions. Only a minority of countries have proper systems in place to collect and treat empty pesticide containers and as a result many are reused inappropriately for storing food or water (generating health and food contamination risks), or are discarded in the environment, thus being a threat to flora and

fauna. Empty Container Management (ECM) is a component of Extended Producer Responsibility (EPR) and therefore should be led and supported primarily by pesticide producers, importers and vendors under national legislation that requires and supports such actions.

We call upon the pesticide producer organizations CropLife International and organizations representing generic pesticide producers to lead actions in every country in which they operate to ensure effective, compliant, and environmentally sound ECM.

Notes

Explainer Action 1

This Megasites initiative should create a long-term commitment for support at both the level of regional and national Government and at MEPs from the regions involved. These should develop concerted action towards the EU Parliament and the EU Commission in order to convince the EU Commission of the need for a specific programme for Megasites under LIFE.

We acknowledge that legislation exists, enforcement is improving including related strategies and policies. But these instruments cannot cope with the specific complexity of the massive and permanent effects of Megasites. Individual LIFE projects, now indicated by the EU Commission as the available mechanism for financing will not guarantee sufficient progress in developing preventive and curative measures and adequate management strategies for Megasites.

Anticipating the effort for creating 'living labs' within the Soil mission of RTD-funds within HORIZON Europe, we should realize that these Megasites can also be used as 'Gardens of Experiments'. The presentations in this 14th Forum about the research work done in bioremediation in Aragon is just one of the promising examples.

Explainer Action 2

The model for such a financing mechanism can be based on several models as developed and successfully implemented in the US (Superfund), the Netherlands (Large contaminated sites program in the last century), Germany (Altlastensanierungsgesellschaften), Italy (SIN, sites of national interest) and Denmark (specific program for generational contamination (= avoid heritage for future generations)).

This Megasite Financing mechanism is a logical and necessary step in the frame of the new EU Soil and Groundwater Directives and strategies, the importance of the long-term safeguarding of drinking water (also in the perspective of the effects of climate change), the quality of large river basins and the associated threats to biodiversity in these ecologically crucial areas.

In parallel we call upon World Bank and GEF to (re-)define a similar financing mechanism for non-EU countries. During the Forum the presentations from Central Asia showed important progress in the identification and concept development for Megasites in this region (see also Action 6 below).

Explainer Action 3

It has been obvious for many years that some of the big health issues can be related to the presence of chemicals. The interference of endocrine disruptors with the hormone system and the development of the neural system are major concerns. In recent years more and more evidence has been published. In the toxicology sessions in this 14th FORUM the latest research results on endocrine disruption were presented. The European Commission is aware of the importance and the outcomes of these important research studies and has organized since 2018 an Annual Forum on endocrine disruptors. The primary concern of the Commission is the authorization of chemicals. But we emphasize that these outcomes also have their effects on the limit values as the basis for environmental legislation. Apart from the dose-effect relations found it is also important to rethink the effects on pathways and levels of protection. We therefore propose to start with a first assessment of the impact of these research results on the legal framework, but also to define the actions to be taken to arrive at an adequate level of protection against the effects of chemicals that are present today in the environment. This impact assessment should also take into account the consequences of these scientific results for the aim of a circular economy in the EU.

Explainer Action 5

Former mercury cell chloralkali sites are increasingly becoming obsolete waste lands, especially in developing economies, where their former operators have not succeeded in the transition to other technologies. Due to their operations, these sites are contaminated with a wide array of pollutants including POPs (e.g., HCH, DDT), PCB, dioxins as well as mercury. The environmental pollution of these Megasites is too high of a burden for site owners and local authorities and the complexity of these sites require international support. In the current situation, international organizations focus on the contaminated sites management of specific contaminants; more specifically the contaminants addressed by the Stockholm or Minamata Conventions. Instead, a risk-based approach addressing the entire range of contaminants should be implemented.

Similarly, PFAS contaminated sites often contain PFAS listed as POPs (PFOS, PFOA and PFHxS) and other PFAS. Here the Synergy of chemical conventions and the Strategic Approach to International Chemical Management (SAICM) can be explored where all PFAS are an issue of concern.