Inventory results for Germany

Task 1 - EU wide inventory of HCH and Lindane sites

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HCH in EU project

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Actions Required

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Task 1 – The EU Wide Inventory

Objectives

EU-wide inventory of production sites, processing sites, waste deposits, storage sites, landfills and treatment centers of HCH and Lindane

- To know the magnitude of the Lindane and HCH problem in the EU member states
- To promote sustainable management of HCH and Lindane contaminated sites
- To achieve a higher priority on the political agenda in the various countries

Task 1 – The EU Wide Inventory

Inventory results - 299 sites in the 27 EU countries

- **54 Production sites** - Sites where Technical HCH and/or Lindane were produced
- **76 Processing sites** - Sites where Technical HCH and/or Lindane were processed/formulated into market ready pesticides
- **59 Waste deposits** - Sites where wastes have been dumped without any proper containment
- **29 Landfill sites** – Licensed landfill sites specifically intended for chemical waste disposal
- **16 Treatment centers** – Licensed sites where wastes have been treated and/or destroyed
- **34 Storage sites** - Sites with obsolete stocks of Persistent Organic Pollutants
- **31 Other sites** - These are sites that do not fall into one of the above categories
- In only 5 countries no sites could be identified

Task 1 – The EU Wide Inventory

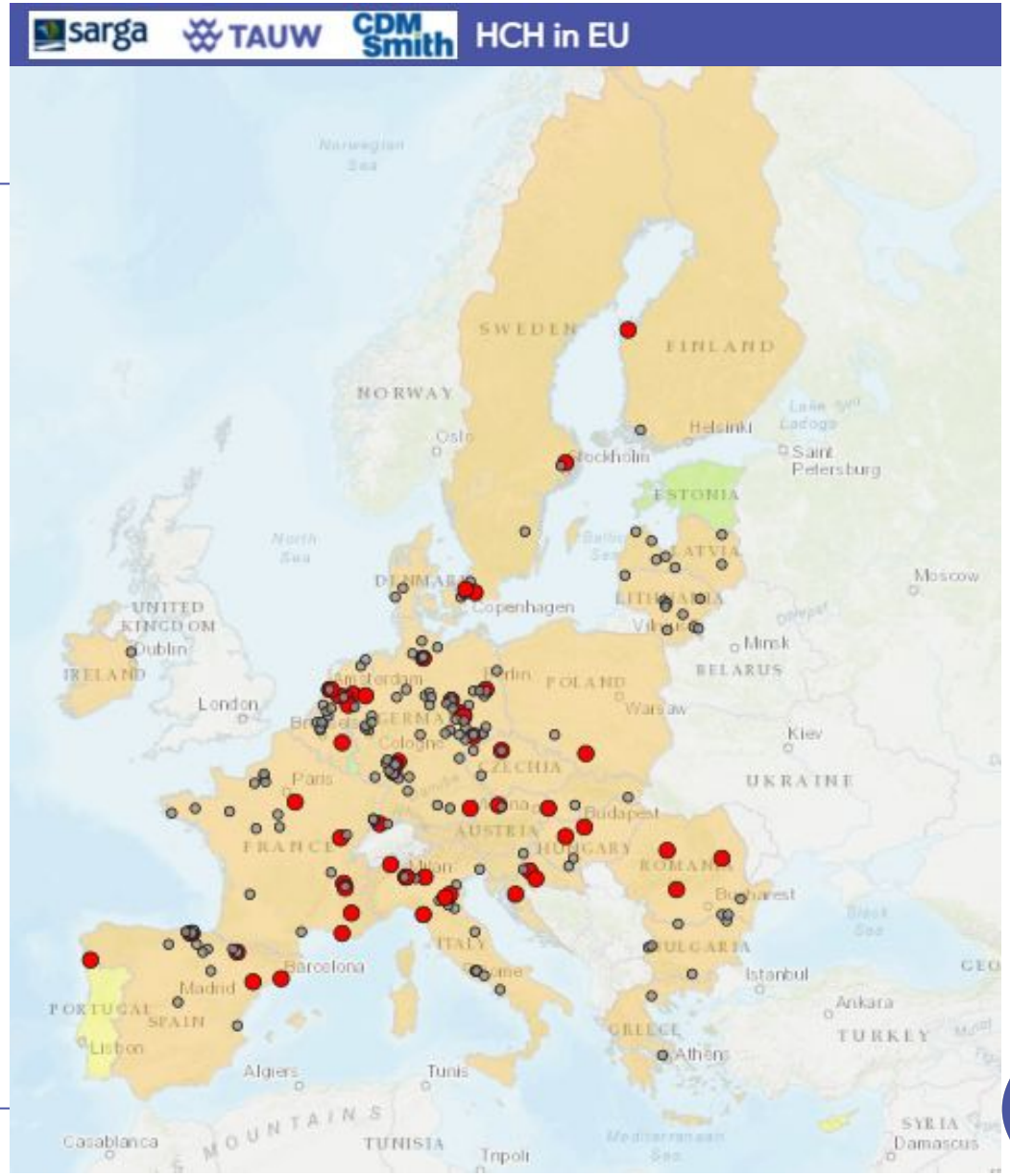
Geographic Information Model (GIM)

Database including all sites confirmed for handling HCH or Lindane

Included information:

- Site descriptions
- Reference documents connected to each site
- Country Reports with additional information

Delivered to EC for publication



Information for the Inventory

Site type, size, location

Time period of activity

Former/ current owner

Handled HCH volume

EU Inventory

Known contaminations

Waste volume, deposit

Aerial photographs

Remediation activities

Current site name	Site code (CC-CC-NN)	Country code (CC)	Former name	Region or province	City or municipality
Handelskade	NL-DE-01	NL	Noury & Van der Lande	Overijssel	Deventer
AAGrunol	NL-GR-01	NL	AAGrunol	Groningen	Groningen
Chemtura Netherlands B.V.	NL-AM-01	NL	Phillips-Duphar	Noord-Holland	Amsterdam
CP Bitterfeld-Wolfen	DE-BI-01	DE	VEB Chemiekombinat Bitterfeld	Saxony-Anhalt	Bitterfeld-Wolfen
BASF SE	DE-LU-01	DE		Rhineland-Palatinate	Ludwigshafen
Shell Chemicals	NL-RO-01	NL	Shell Chemicals	Zuid-Holland	Hoogvliet Rotterdam
Nouryon Industerial Chemicals	NL-HE-01	NL	Stork Chemie	Overijssel	Hengelo
Merck KGaA Darmstadt	DE-DA-01	DE		State of Hesse	Darmstadt
Merck KGaA Gernsheim	DE-GE-01	DE		State of Hesse	Gernsheim
Denkavit Netherlands BV	NL-VO-01	NL	Denka N.V.	Gelderland	Voorthuijzen
Rotterdam Vierhavensstreet	NL-RO-02	NL	Ligtermoet Chemie BV	Zuid-Holland	Rotterdam
Roosendaal Stepvelden	NL-RD-01	NL	Ligtermoet Chemie BV	Noord-Brabant	Roosendaal
Elst Industrieweg	NL-EL-01	NL	Luxan	Gelderland	Elst
Bunschoten Plecht	NL-BU-01	NL	Dagra	Utrecht	Bunschoten
Andreas-Meyer-Str. (parking lot)	DE-HA-01	DE	Boehringer Ingelheim GmbH (former Celamerck)	Free and Hanseatic City of Hamburg	Hamburg
Organika-Azot Chemical Plant	PL-JA-01	PL			Jaworzno

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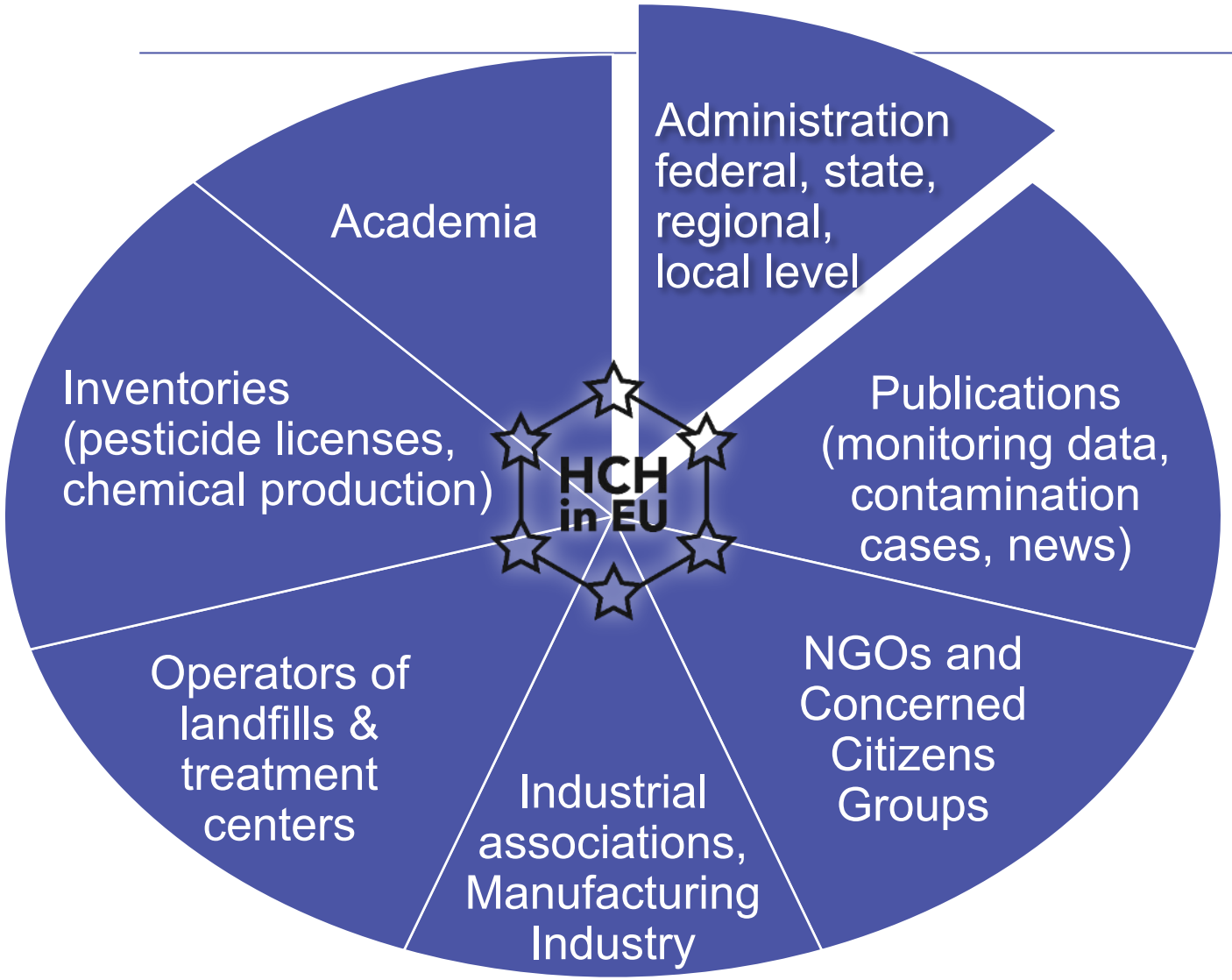
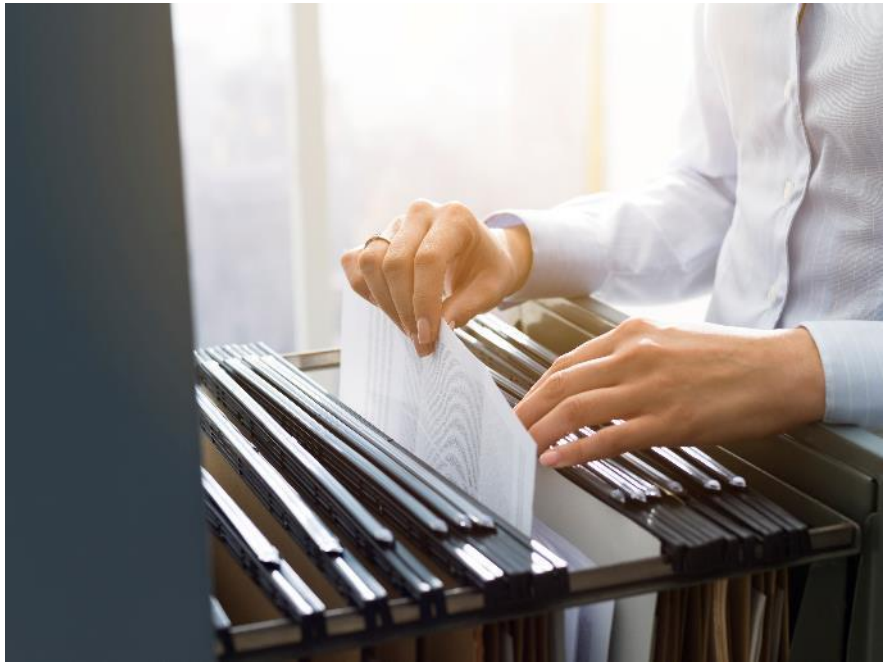
HCH in EU

Sources of Information for Germany





Research Germany

Challenges and uncertainties

- Federal system of Germany and differences in responsibilities at federal and state level.
- Lack of data (e.g. refusal to participate in the study, data use restrictions, liquidation of the company, print documents in local or regional archive, inaccurate and erroneous site data).
- Different history of chemical industry in the two parts of Germany FRG and GDR.
  - Renaming of the companies and repeated changes of ownership over the years (company splits, mergers, takeovers, liquidations or nationalization / privatization).
- Non-specific address details
  - Several existing production / processing sites, of which not all may be known; relocation of sites.
  - Spatial separation of production and administration.
  - Changes of street names (typical for the former GDR region after the Reunification).
- Missing distinction between formulator vs. supplier.

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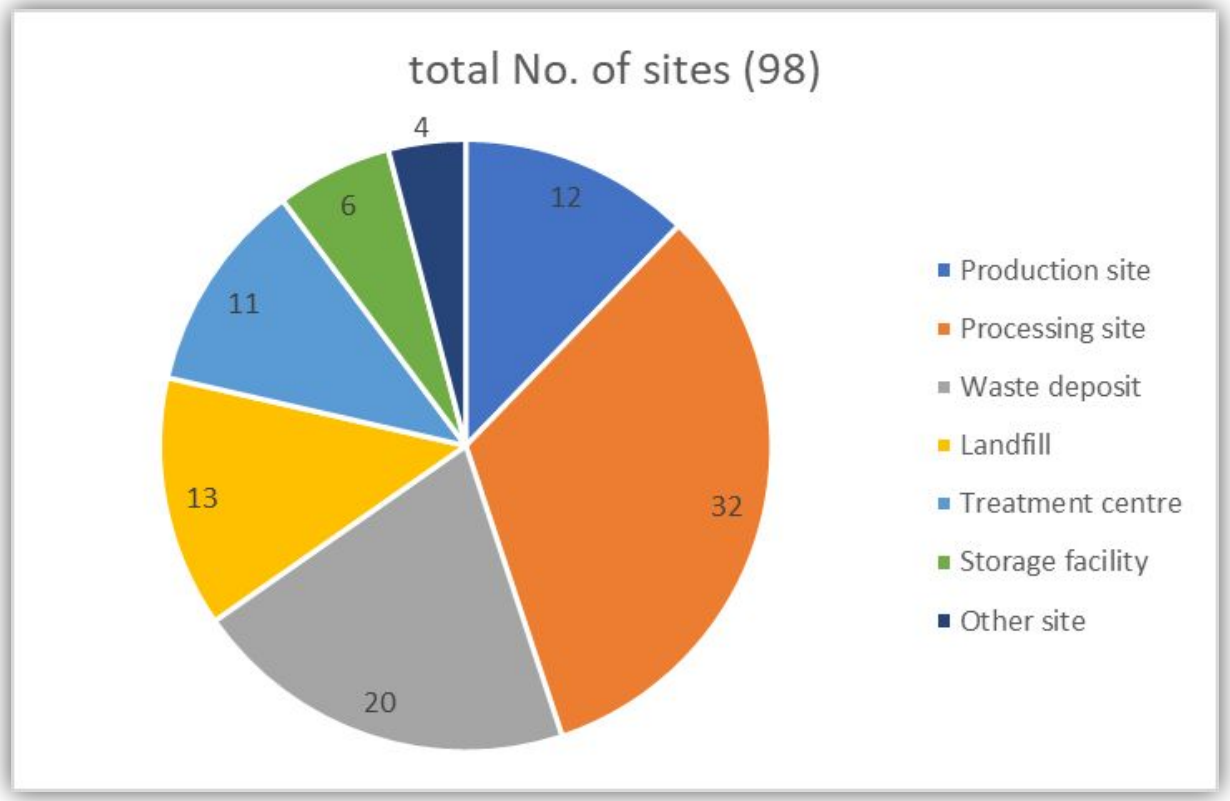
Inventory Results for Germany

98 individual sites, considering clusters: 69 sites



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Inventory Results for Germany

Celamerck GmbH & Co. KG (until 1987), Hamburg-Moorfleet, Hamburg area,

- Production site (red) between 1951 – 1984
- Waste deposits (yellow) spread over Hamburg Inventory: 5 proven + 2 suspected + 5 in other German states, proven
- Indications for network of processing companies in the vicinity
- Waste material was recycled to trichlorobenzene and –phenol, this led to dioxin formation. Elevated dioxin emissions caused closure of the site in 1984.
- Early remediation attempts failed (1994)
- Today: Underground concrete containment in place; pump&treat of groundwater plume

HCH in EU

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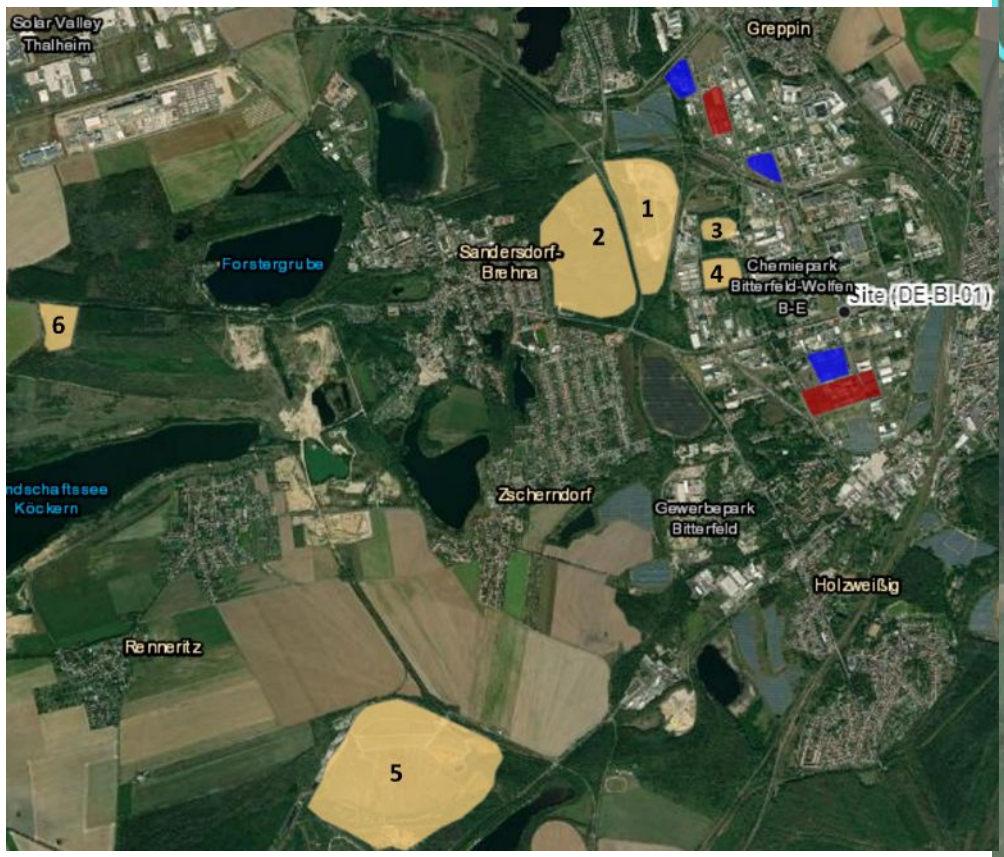
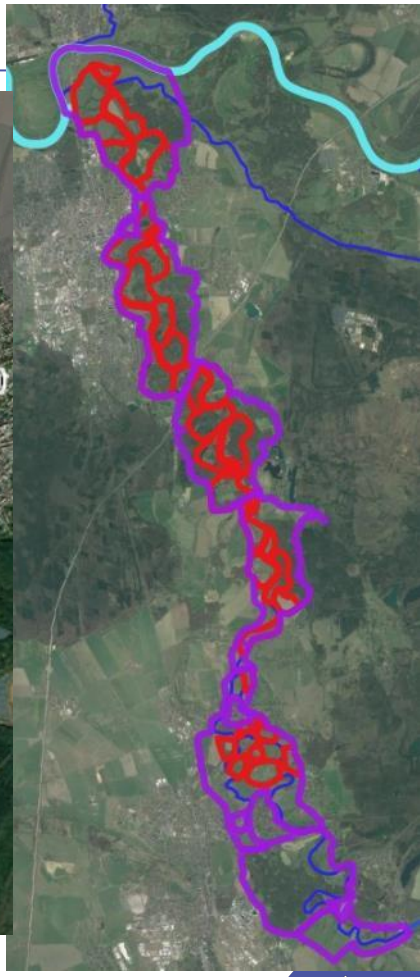
Inventory Results for Germany

Bitterfeld-Wolfen, Saxony-Anhalt

- Cluster site: Multiple waste dump sites, processing and production sites.
- Production between 1951 – 1982
- Between 1967 and 1982, a total amount of 72,954 tonnes of HCH and 5,407 tonnes of lindane were produced.
- Large area affected by runoff water: Floodplain of the Mulde River
  In the course of Task 2 of the project a GIS-Project / CSM with available data was setup.
- <u>Today:</u> Remediation ongoing





Inventory Results for Germany

Fettchemie Chemnitz, Chemnitz, Saxony

- Production site (red), detergent and chloro organic chemicals; between 1967 – 1977 production of 31,000 tonnes of HCH
- Many other organic contaminants as co-contaminants
- Today: Site is remediated and developed to an industrial estate
- Related HCH production site in Mohsdorf, remediated 2012 – 2016

Inventory Results for Germany

Desowag, Duesseldorf, North Rhine-Westfalia

- Multiple mergers and takeovers resulting in multiple site address information – no clear indication on production site location
- Plant protection product directories list products from 1954 – 1980
- Large volume producer of wood preservative paint Xyladecor and similar products
- 1991 – 1996 court case against Desowag took place, because for selling wood preservatives containing toxic substances (DDT, PCP and lindane)

Inventory Results for Germany

Merck KGaA Darmstadt, Hesse

- Production site (red) between 1946 – 1954; relocated to Gernsheim 1954 - 1972
- „Rieselfelder“ (grey) as treatment method for sewage water 1946 – 1952; soil removed in 1990s (wastewater treatment plant built in 1954)
- Waste material was stored on site for potential re-use
- <u>Today:</u> Hydraulic securing in place, soil contamination is removed stepwise

Gaps in German Inventory

HCH and Lindane have been extremely popular and therefore widespread

- **Large array of applications – Refer to Report on “Use of Lindane”**
  - Seed, plant and forest protection
  - Paints for wood protection (a.o. Xyladecor or Hylotox 59)
  - Hygiene products against lice and/or scabies
  - Treatment products for ectoparasites in veterinary and domestic animals
  - Explosives and detonators, light ammunition and pyrotechnics
  - **Additional potential sites expected, where these products were handled in larger volumes for storage, product transfer, mixing and application.**
- Cooperatives dealing products for agricultural needs (FRG) have no, or not easy accessible historic data on pesticide volumes at their numerous storage sites available.

The Inventory for Germany

Country Specific Report Germany

Find the comprehensive collection of our results in our Country Specific Report for Germany here:

https://op.europa.eu/en/publication-detail/-/publication/d92c0044-ab22-11ec-83e1-01aa75ed71a1/language-en

…and all the other project reports

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Conclusions for German Inventory

Number of potential sites is much higher

- A lot more information was gathered
- Not all gathered data suitable to be published as confirmed site
- Strong evidence for further **11 sites**
  (often second independent source missing to confirm exact location)
- Further **23 sites** where handling of HCH/Lindane could be confirmed
  (e.g., address unknown, data use restrictions)
- Another **81 sites** not clear, whether these sites were relevant for this inventory
  (e.g., no distinction between formulator and supplier)
- **For most identified sites (about 63 %) still existing questions and uncertainties**

Actions Required

Germany

- **Further research on sites to clarify existing questions and uncertainties**

- Although awareness is present at authorities and owners,
  lack of standard analytics for HCH at sites with pesticide handling
- Federal system hampers exhaustive overview and aligned strategy in sustainable management of contaminated sites – central database would be significant improvement

Europe

- **Project results are a necessary basis for follow-up steps in the EU countries**

- Technical solutions for handling HCH/ Lindane contaminations are available
- Connecting affected regions for knowledge transfer and long-term funding are elementary tools to progress in sustainable management of sites

HCH in EU

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