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DEVELOPMENT OF APPROACHES TO REMOVE TOXIC SUBSTANCES FROM THE ENVIRONMENT: 1. HCH AND 2. OBSOLETE PESTCIDES IN EASTERN EUROPE AND CENTRAL ASIAN REPUBLICS

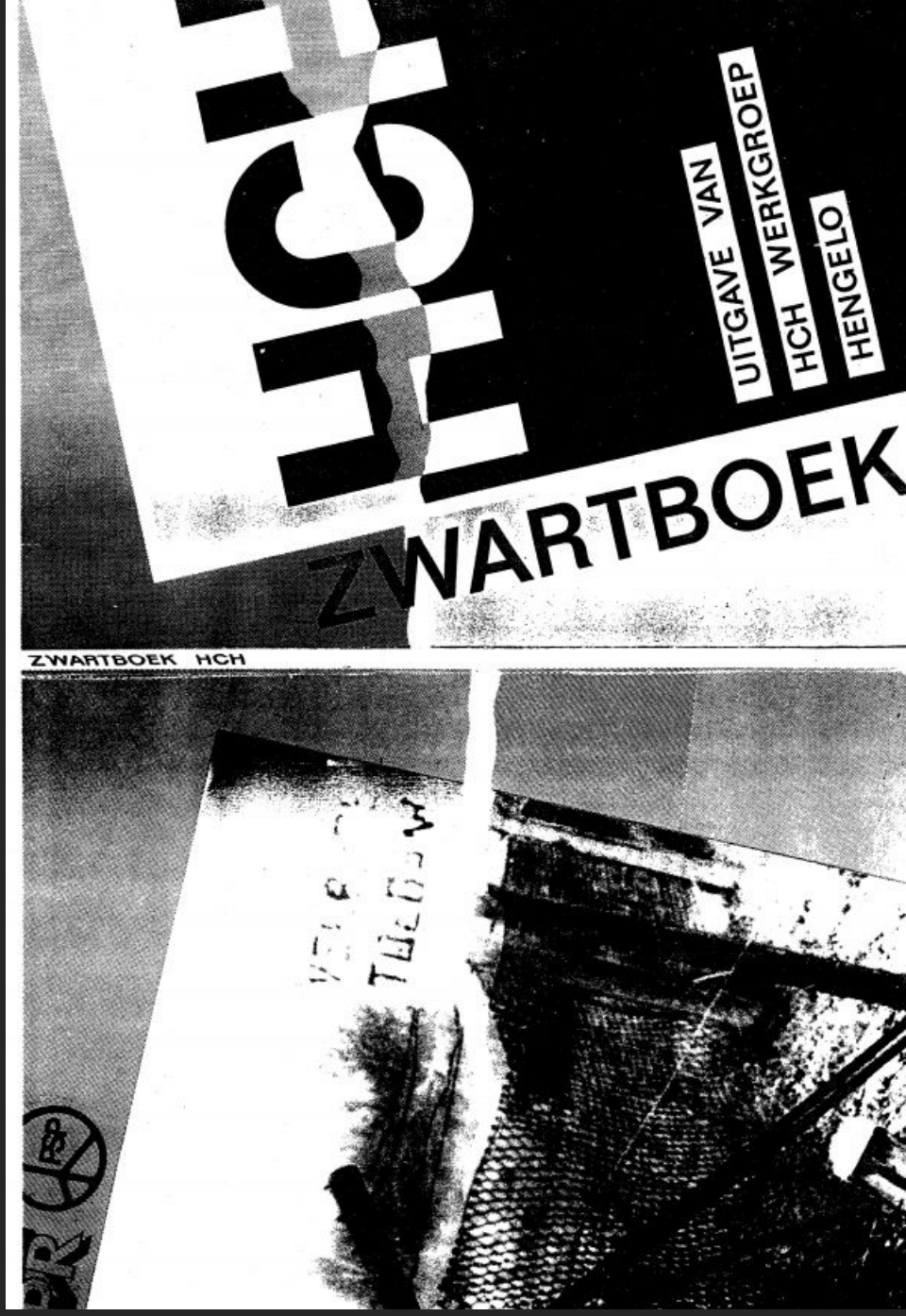
Author/s

1983 by Working group HCH Hengelo Netherlands

Civil Society strongly engaged & Authorities slowly getting engaged under pressure of civil society.

Great group work with excellent technical information in this Black Book.

A healthy critical voice of society & in combination with a committed authorities can lead to great achievements for all stakeholders



Historical development

cows got bankrupt, was disgraced by inhabitants and authorities and accused of not giving enough food to his cows!

See what he writes in the local paper: ”I do not drink my own milk”

When we remediated 10 years later his land, we found out that his cows had been grazing on top of land contaminated with pure HCH-waste!!!

Twents boerengezin gaat ten onder aan milieuschandaal

„MIJN EIGEN MELK DRINK IK NIET”

WEERSELO vrijdag Al geruime tijd wagen de Twentse veehouder Herman Peterman (48), zijn vrouw en twee zoons zich niet meer aan de melk van de eigen koeien. Hoewel ze sindsdien lichamelijk flink zijn opgeknapt, vormen ze geestelijk momenteel het trieste, menselijke middelpunt van een milieuschandaal dat in Overijssel stukjes bij beetjes boven water begint te komen.

door Eef Bos

Alle ellende blijkt, achteraf, in 1976 te zijn begonnen

Twentse collega's, door de regionale zuivelfabriek wèl al die tijd tot consumptiemelk werd verwerkt.

■BOER HERMAN PETERMAN: *„We hebben al enkele miljoenen guldens schade geleden. Straks gaan we buiten onze schuld nog*

consument mocht worden verkocht.

„Maar wat moet ik, ik heb al genoeg zorgen aan mijn hoofd. Uitzichtloze financiële

Toch lijkt er beweging in de zaak te komen, wat Peterman vooral toeschrijft aan nieuw, veel onthullender onderzoek (o.m. de TH Twente) en de activiteiten van de HCH-werkgroep Hengelo, die eind vorig jaar werd opgericht na de eerste berichten over mysterieuze veesterfte-gevallen.

Werkgroepwoordvoerder ir. J. Heins is zeer ontevreden over de antwoorden op recente vragen in de Tweede Kamer. „Het onderzoek zal veel wetenschappelijker moeten worden aangepakt.”

Inmiddels heeft het ministerie van Landbouw met o.m. boer Peterman afgesproken enkele percelen, waar HCH in de bodem is aangetroffen, voorlopig ongebruikt te laten.

Een woordvoerder van het ministerie zei verder dat de provincie Overijssel is begonnen de ware omvang van de

Just to compare: these are the cows as they were grazing in the 80s-90s in Basque Country

IARC 1974: International Agency for Research on Cancer

US production of BHC reached a maximum in 1951, when 16 companies produced 53 million kg containing 8 million kg of the γ-isomer (US Tariff Commission, 1952). By 1963, the last year for which production data were reported, the number of producers had dropped to five, and total combined US production of BHC and the pure γ-isomer (lindane) amounted to less than 3 million kg, the amount of γ-isomer being equivalent to 0.8 million kg

History Storck & Co Chemical Industries

- Production of HCH and Lindane 1948-1952
- 1948-1950 Technical HCH without any waste
- 1950 Lindane Production with related waste mountain
- 1970s Authorities requested legal successor AKZO to remove the **HCH waste** from the area, but unknown what happened to contaminated soils, building material and waste
- **Driver reports at night in Radio East dumping HCH waste at many locations**
- Fish mortality in Twente canal due to HCH
- 1975: AKZO repacked in drums and transported 4000 tons to Kali & Salz saltmines in Germany
- 1977 for the first time HCH contamination outside the area of the factory
- In the following years everywhere polluted locations found from the same producer

History continued

Inventory of sites

In nearly all towns around Hengelo HCH was found upto 20 km away from the source

Each town initiating investigations contaminations with the same source ---

Need for Creation of one big project

Province responsible applied for fl. 10 Million + project which was quickly approved by the Central Ministry VROM

Centrally organised inventory:

- 132 sites suspected
- Finally 42 sites been remediated
- Remediation possibilities:
- Estimate 150 000 m3 contaminated soils/waste

Pure HCH waste at the former production facility-southern Hengelo

- Just for comparison 100 000s of tons of pure HCH along the Rhine for decades- being spread in the water, air and soils. Only a couple of years ago totally remediated by Novartis on the other side of Basel in France*

•*from Martin Forter

Eastern region of the Netherlands, 42 sites soil contaminated with HCH at least 150 000 m³ increasing later to 200 000 m³

How to develop a concept that can be implemented very quickly?

No alternative deposits available

No soil treatment technology could deal with high contaminated soils due high chlorine content

Contaminated areas with agricultural production been taken out of production and farmers reimbursed

Farmers are concerned and want to see results

Politicians under pressure

Concept needs to be simple and dealing with intelligent remediation, temporary storage & final treatment over the next decade or more

1. Find **temporary deposal location** for at least 200 000m³ with approval of stakeholders & get permit

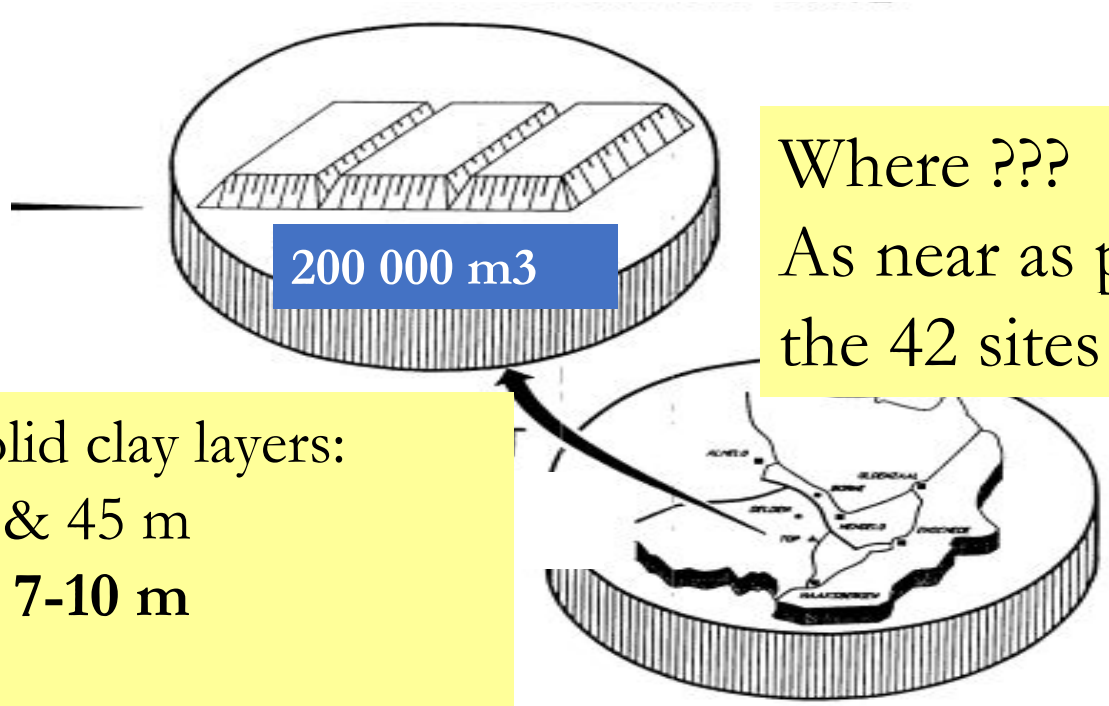
2. Set up of intelligent way to facilitate the easiest possible final treatment

3. Develop **strategy how to remediate 42 locations** so that various **separate treatment classes** are being transported to the disposal location

4. When sufficient volumes of contaminated soils are **separately stored**, start **pilot tests with the main treatment companies** to ensure that **Dutch remediation levels** could be achieved

Temporary specific project related disposal site

Find most suitable location: Geology + Economy + Stakeholders + Timing



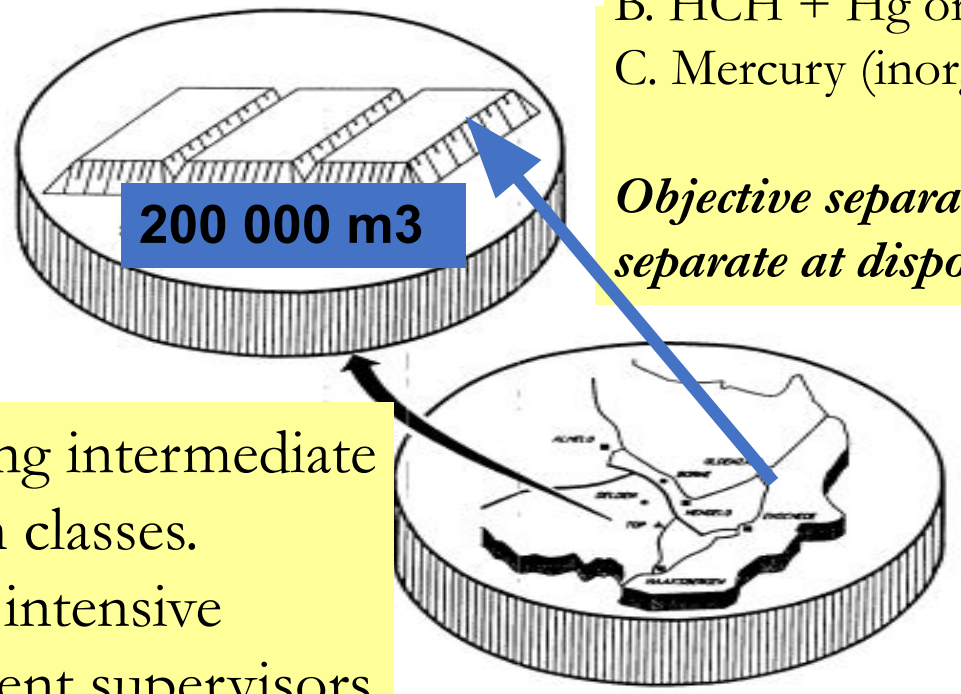
Where ???
As near as possible to the 42 sites

3 possible sites with solid clay layers:
2 with depth 25 & 45 m
One site depth 7-10 m

Stakeholder meetings with surrounding farmers on last site
Only vertical walls accepted but limited time accepted for waste storage

How to organise remediation – transport – intermediate storage

Test and improve different existing treatment plants



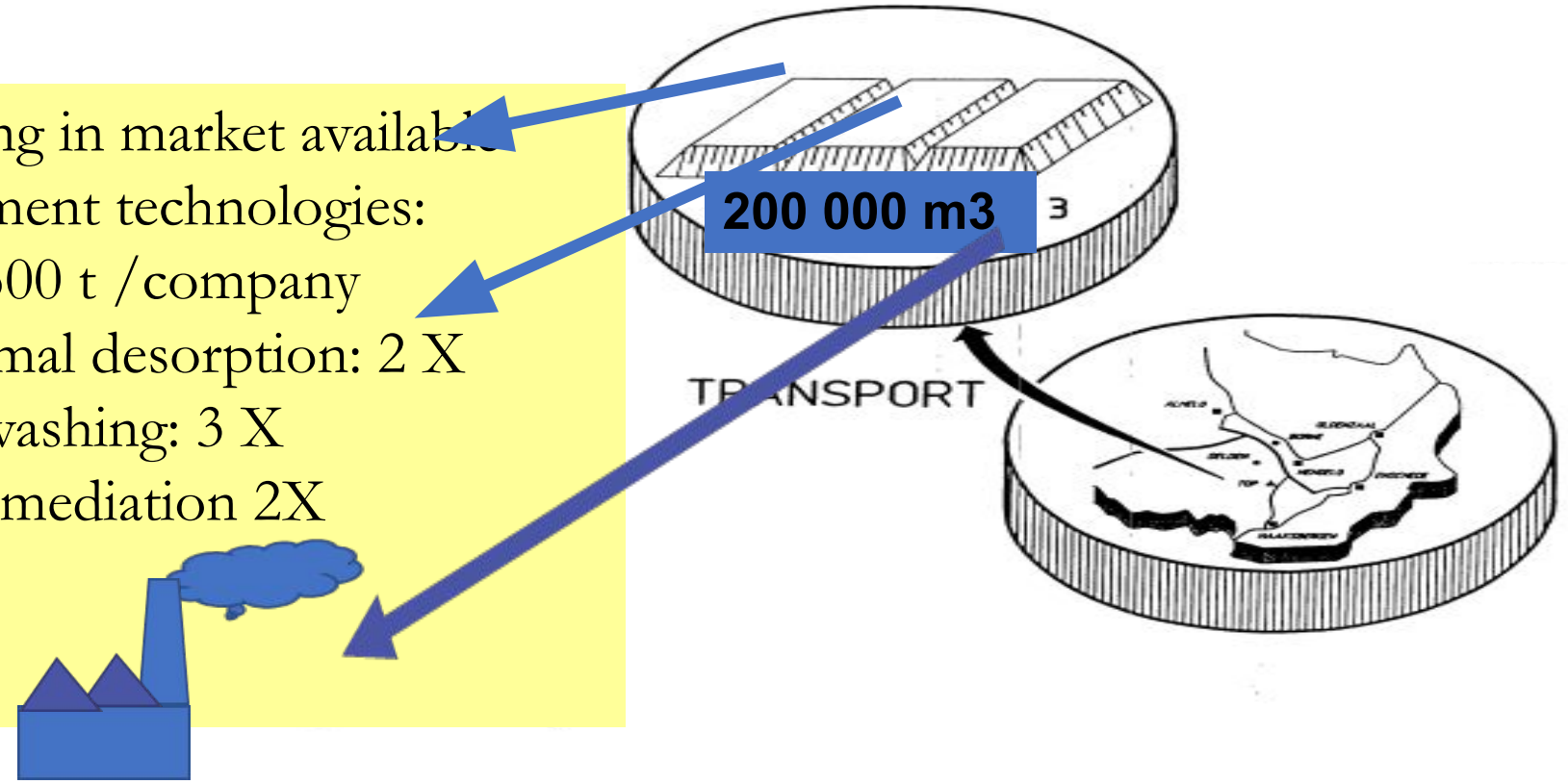
3 contaminated soil classes:
A. HCH organic
B. HCH + Hg organic + inorganic
C. Mercury (inorganic)

Objective separate during remediation and store separate at disposal site

Extensive sampling, analyzing intermediate depots decision making on classes.
Where necessary field lab – intensive logistic necessary and excellent supervisors organoleptic/visually on HCH

Treatment with pilot testing and later final treatment of large volumes

Testing in market available treatment technologies:
100-500 t /company
Thermal desorption: 2 X
Soil washing: 3 X
Bioremediation 2X



Ecotechniek Thermal Desorption Full scale treatment results

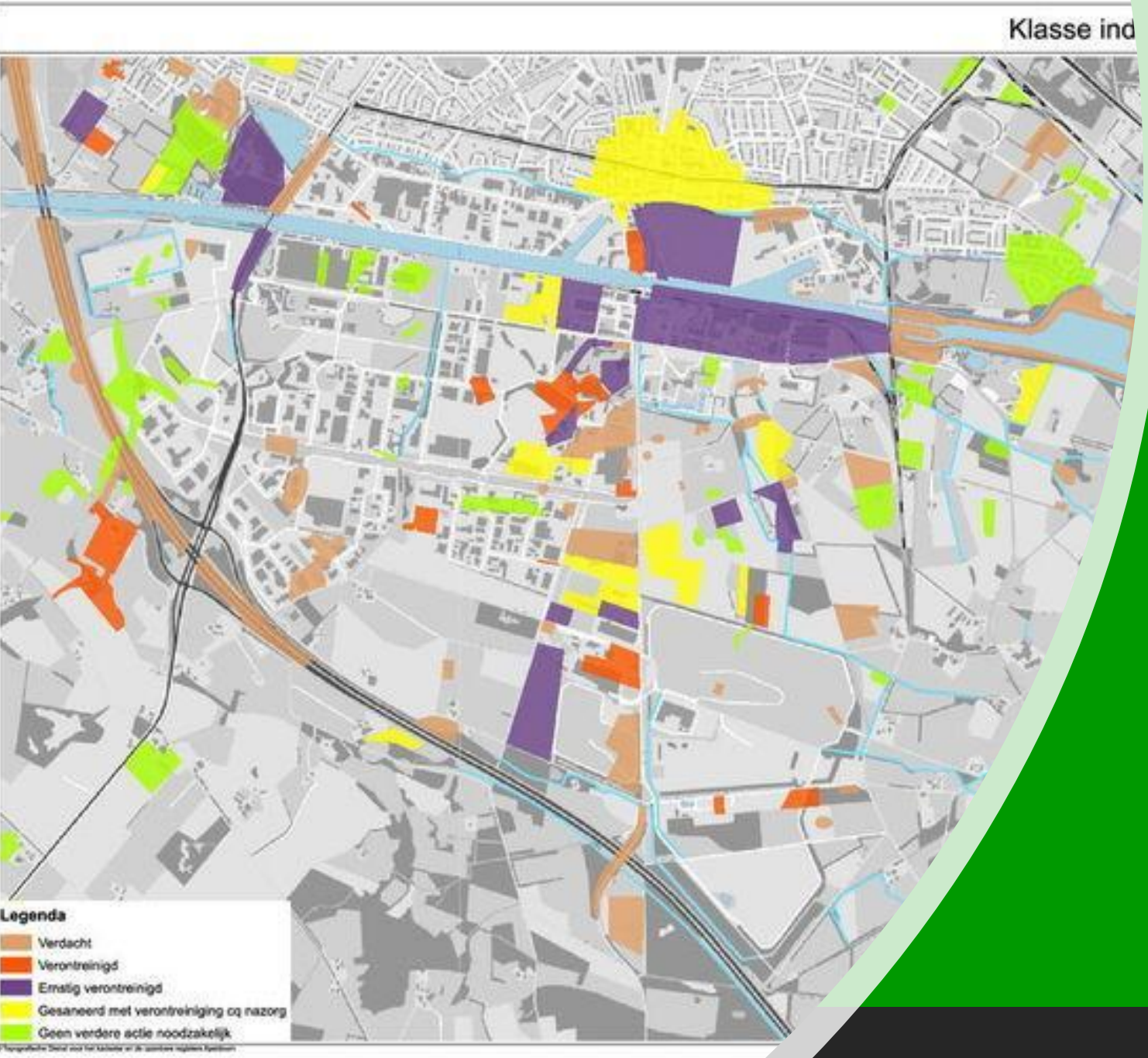
Full scale treatment 1200 tons HCH 1993

of soil tested	3,000 ton	
	input	output
	mg/kg d.m.	mg/kg d.m.
	70	< 0.1
	82	< 0.1
n	320	< 0.1
	24	< 0.2
aldehyde	510	< 0.2

Quantity of soil tested	1,200 ton	
Concentration	input	output
	mg/kg d.m.	mg/kg d.m.
alpha-HCH	2300	< 0.1
beta-HCH	550	< 0.1
gamma-HCH	< 1	< 0.1
delta-HCH	15	< 0.1

show that the average dioxin/furan (PCDD/F) concentrations in the smokestack
ge treatment of soil contaminated with chlorinated pesticides remain far below the

Around Hengelo City: Status HCH clean-up and contamination situation 2016



Obsolete Pesticides: Eastern Europe & Central Asia: Society Awareness

Please visit the exhibition on unwanted pesticides in the Forum

Sheep grazing on obsolete pesticides waste

directly into food chain

- Healthy food stored in a contaminated old store
- No control therefor Contamination of food

FAO started in 1990's first projects in Africa dealing with obsolete pesticides We learned (trained) all from them how to deal with the problem in Eastern Europe and Central Asia – see also Special session 2 on Central Asia in this Forum

Solutions: FAO dedicated to solve Obsolete Pesticides problems in Africa

Transfer of experiences from Africa to

Eastern Europe & Central Asia

Awareness Raising

Training to make inventories

Repackaging – Transport – Export to

dedicated Destruction Plant (EU)

At present Central Asia also:

Co-incineration in Cement kilns

Prevention of future obsolete pesticides

Excavation mogelnikis in Poland about 20 000 tons have been eliminated by the Polish government over more than a decennium

14th International HCH and Pesticides Forum

THANK YOU FOR YOUR ATTENTION

IHPA
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