The Rastatt case

measures to reduce the PFAS exposure via food and drinking water

Baden-Württemberg
Ministerium für Umwelt, Klima
und Energiewirtschaft



Introduction to diPAP & diSAmPAP

- macromolecule, contained in technical products in the paper industry to make paper water-repellent and greaseproof
- difficult to analyze
- slow decomposition process in the environment (many decades, with many intermediate products)
- end products are among others PFOA and PFOS
- example of good disposal practice: high temperature combustion
- example of bad disposal practice: application on agricultural land



Region of Mittelbaden

- between Karlsruhe and Strasbourg
- 150,000 inhabitants in the region
 - biggest cities are Rastatt & Baden-Baden
- known for its baroque castles, strawberries and asparagus, plums and wine
- the river Murg flows near Rastatt from the northern Black Forest with its numerous paper mills into the Rhine



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Unauthorized disposal of paper sludge on agricultural land by a composting company Discovery of PFAS in the drinking water plant Rauental



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Investigation of contaminated sites

image source: © Franziska Ebert, LRA Rastatt & Christoph Krakau, UM BW

2013

> 1,000 hectares of

contaminated area, strong

regional impact

2010

from diPAP zu known PFAS



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Main concerns & pathways

- lack of existing thresholds for PFAS in plants
- great uncertainty about uptake in agricultural products
- Problems with contaminated soil e.g. in construction projects
- Unclear extent of the PFAS plume in groundwater
- many affected drinking water plants

-> Quick and decisive action was essential



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plant cultivation studies



- the concentration of PFAS in plants depends on many factors
- these factors differ between
 - plant species
 - soil types
 - weather conditions
 - types of PFAS in soil
- extensive plant cultivation studies were carried out to derive risk categories



Source: © M. Zoska, LTZ Augustenberg

pathway into plants



- Close consultation and coordination with farmers required
- the farmers were given cultivation recommendations based on the results of the cultivation studies
- a pre-harvest monitoring examines the harvested products shortly before harvesting

-> Consumer safety is ensured despite cultivation on PFAS-contaminated areas \checkmark

pathway into groundwater

Phase 1:

- Investigation of all drinking water systems in the region
- Several wells for water supply had to be shut down

Phase 3:

- Creation of a complex groundwater model to predict the spread of the PFAS plume in groundwater
- enables early action if forecasts indicate an increase in PFAS concentrations at water wells
- the model is publicly accessible

Phase 2:

- Expensive treatment in the waterworks to remove PFAS
- Extensive groundwater investigations
- Scientific studies to improve understanding of the transformation and transport of PFAS in soil and groundwater



LUBW groundwater model

Consumer safety is ensured despite existing and spreading PFAScontamination in the groundwater √



measures to reduce the PFAS exposure via food and drinking water

consumer protection can be accomplished by

- broad collaboration and coordination among all stakeholders
- organizational bundling for the distribution of information
- intensive monitoring of plants, soil, groundwater & humans
- scientific research to address existing open questions

but it

- requires a lot of personnel
- requires high investments in analysis, treatment and research, predominantly covered by society
- represents a management, not a long-term solution

Thank you for your attention

Further information can be found at: https://rp.baden-wuerttemberg.de/rpk/abt5/ref52/stabsstelle-pfas/

