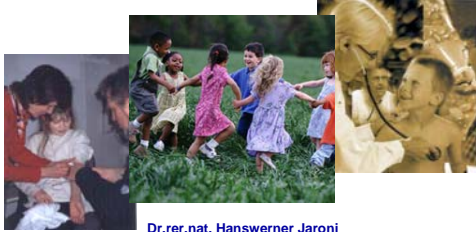


## WG 511 "Human monitoring"



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## WG 511 "Human monitoring"

The concepts "monitoring" or "Surveillance" mean in the core:

systematic and continuous observation of systems with the aim of stating deviations of the norm or an average and being able to react to it contemporarily.

In the context of health and environment "monitoring" and "surveillance" mean the observation of certain health relevant factors in time and space and for defined sections of the population. The analysis of the observations with the aim of recognizing need for action is tied into the definition.

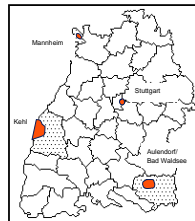
"Human monitoring" is an important instrument for measuring taken pollutants from different environmental media and making the health risks visibly connected with that. It provides data about effective inner pollution of the organism under consideration of oral, dermal and inhalative exposure pathways.



## Environmental Health Surveillance System

Systematic examinations on quite a long time periods at comparable populations give an early signal of environmental influences on the human health.

For such examinations in Baden-Württemberg an environmental health surveillance system was established in 1992 on behalf of the Ministry of Social Affairs consisting of 4 sentinel health departments.



\*Investigated areas:  
• two urban industrial regions (Stuttgart, Mannheim)  
• an industrial area in rural setting (Kehl)  
• a rural area (Aulendorf/Bad Waldsee)



## Environmental Health Surveillance System

The instrument

- four sentinel health departments
- specially trained survey teams
- survey manual (QM)
- QA/QC system for analysis
- scientific advisory board

The study population

- voluntary 4<sup>th</sup>-graders (age 9-11 years)
- approx. 10 000 children involved in monitoring surveys and special studies



LARGER than most of the other national and/or international studies !!!!



## Continuous Monitoring (since 1992)

Biomonitoring

- Heavy metals (Pb, Cd, Hg), As, Se
- Pesticides (HCB, DDE)
- PCBs and dioxins (PCDD/PCFD)

Effect monitoring

- allergies and respiratory diseases
- lung function
- allergy screening against inhalation allergens (SX 1)

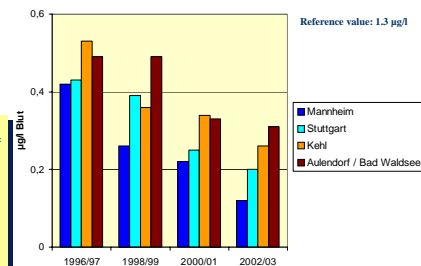
MORE COMPREHENSIVE than most of the other national and/or international studies !!!!

The main goals of the investigation:  
monitoring of magnitude and spatial differences as well as time trends in the body burden of environmental chemicals and health effects associated with environmental pollution.



## PCB (in blood)

Summe PCB 138, PCB 153 u. PCB 180 im Blut (Median)



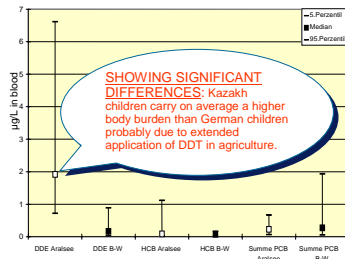
REVEALING SPECIAL EFFECTS in population subgroups

- Breast feeding main source of exposure
- decrease of levels over time
- no geographical differences



## DDE, HCB, PCB (comparison B-W with Kazakhstan)

German children compared to children of the Aral Sea area



**SHOWING SIGNIFICANT DIFFERENCES:** Kazakh children carry on average a higher body burden than German children probably due to extended application of DDT in agriculture.

PCB scores indicate that ubiquitous contamination with PCBs is the main reason for their uptake from the environment. PCB concentrations in whole blood samples from Kazakh children were nearly equal to concentration measured in samples from German children.

However, there are significant differences for DDE concentrations of blood samples for the two groups.



## Human Monitoring in Brazil



A project of the TU mountain academy Freiberg in common with the country public health department in Stuttgart and partners in Brazil: Environmental office FEAM, health authorities FUNED and water authority COPASA



As-concentrations in urine in µg Arsenic per liter

	Brumal	Mingú	Galo
min	0,6	1,6	3,6
max	46,0	59,0	50,0
mean '98	25,0	19,0	30,0
mean '99	11,0	11,0	20,0
mean '01	9,7	13,1	15,4
n 98/99/01	57/114/126	24/76/63	45/36/95

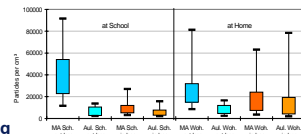
An increased contamination of the environmental media due to old mining activities can be established generally in this area. To answer the question, whether this burden effects on the human health of the local population, schoolchildren are examined at the age from 6 to 12 years.

More than 2500 children of the same aging step in Baden-Württemberg point out As-values between 0,3 and 93 µg L<sup>-1</sup>, medially 3—7 µg As L<sup>-1</sup>.



## Special Studies

- Indoor and outdoor particle exposure of children
- Traffic noise exposure (pilot study)
- Influence of ozone on lung function of children
- Recording of the body burden of the population with Caesium 137
- Biomonitoring of organochlorine substances in breast milk



The sentinel health departments are a suitable instrument for conducting special studies.



## Conclusions

- Baden Württemberg has an exemplary program and projects in the area of environmental health surveillance
- It can be offered as an example to follow in other EU regions and countries
- Program of Baden Württemberg has provided basis for preventive measures and public health actions and legislation on the national/federal level
- Further studies (e.g. noise, biological agents...) are currently under way
- IN THE AREA OF ENVIRONMENTAL HEALTH SURVEILLANCE AND PUBLIC HEALTH MONITORING BADEN WURTTENBERG HAS A LOT TO OFFER TO THE WG 511.



## Human biomonitoring projects

On the basis of the present various HBM projects on EU level the Implementation Group on human biomonitoring of the EU-commission has to establish a harmonized project which makes comparisons between the different countries possible.

The implementation group has primarily the following tasks:

- Acquisition of guidelines/recommendations (guidelines) for a harmonized HBM program
- Preparations for a pilot project
- Production of tools to the combination of the HBM data with other health and environmental data

For the preparations of the pilot project, which shall start at the end of 2006, a sub-working group was formed (Expert team to support biomonitoring: ESBIO). This group has to carry out a meeting about "State of the art of human biomonitoring within Europe" in Lisbon on March 19 - 21, 2006 and to prepare an inventory list of the existing monitoring programs in electronic form.



## Closing remark WG 511

A special challenge for the human monitoring consists in assessing the effects of different environmental factors on the health of the population.

This doesn't have to be done with systems, which work either only in the environmental area or only in the health area.

It is necessary to bring the data and information from environment and health together.

However, it still requires coordination efforts.

We are only at the beginning.

Thank you for your attention

