

Contaminated site assessment from an European perspective

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CONTENTS

European philosophy

- Results from networking
- Consequences/ near future

Human exposure comparison

Note to Swedish ecological standards



CARACAS

Concerted Action on Risk Assessment for
Contaminated Sites in the European Union



**CONCERTED ACTION ON RISK
ASSESSMENT FOR CONTAMINATED SITES
IN THE EUROPEAN UNION
(1996 - 1998)**

PURPOSE/ DELIVERABLES

Overview:

- **State-of-art tools for risks assessment**
 - **National legal frameworks**
- in regard to contaminated sites**

[Http://www.Caracas.at](http://www.Caracas.at)



CLARINET



**CONTAMINATED LAND REHABILITATION
NETWORK
FOR ENVIRONMENTAL TECHNOLOGIES
(1998 - 2001)**

PURPOSE

- **Towards management of contaminated land ('problem solving')**
- **Improve technical and scientific basis**
- **Interaction between policy, practice and scientific knowledge**

DELIVERABLES

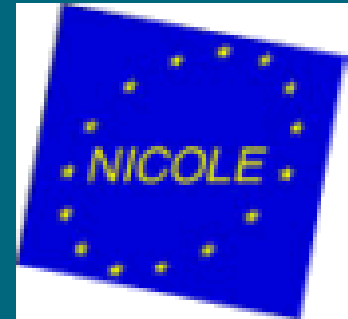
Risk Based Land Management (RBLM):

- Fitness for use
- Cost-efficiency
- Triangle: policy, research and practice
- Involvement stakeholders
- Sustainability (long term)



[Http://www.Clarinet.at](http://www.Clarinet.at)

NICOLE



The Network for Industrially Contaminated
Land in Europe

(since 1995)

NICOLE

Promoting co-operation between industry, academia and service providers

Good practices, practical and scientific knowledge and ideas to manage contaminated land

[Http://www.Nicole.org](http://www.Nicole.org)

EU THEMATIC SOIL STRATEGY

In progress: since 2001

In accordance with Water Framework Directive?

BOUNDARY CONDITIONS

Among others: soil contamination

“Integrated”/ “holistic”/ “cross-sectoral”
approach

Sustainable environment

Coordination of research within the EU

RESULTS UNTILL 2005

Most likely: no quality standards in the EU

Probably: no “Soil Framework Directive”

Possibly an European “Strategy on Soil Management”

CONCLUSIONS EUROPEAN COMMUNICATION

Knowledge exchange!

Agreement on several issues

Policy: quite general

⇒ Probably: a lot of “national freedom”

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SENTIMENTS ON SITE ASSESSMENT, TODAY

Soil remediation: sometimes expensive
and radical

Approach: practical/ pragmatic

Also: cost-efficiency/ socially acceptable

Fitness-for-use

SENTIMENTS ON SITE ASSESSMENT, TODAY

Sustainability (long term!/ soil ecosystem)

Technically:

- Not too conservative (scientists)
- Tiered approaches

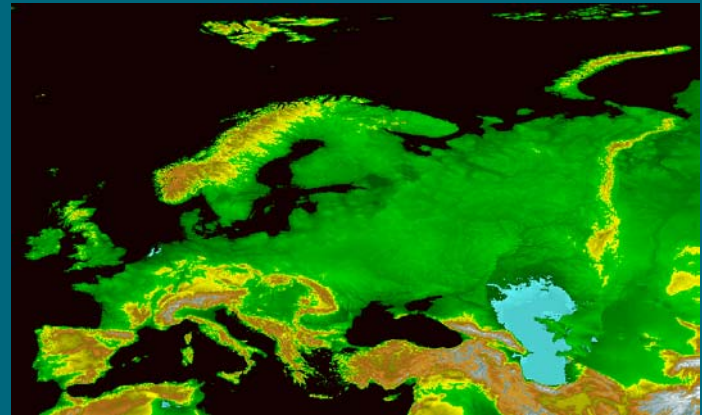
Harmonisation!

SENTIMENTS ON SITE ASSESSMENT, TODAY

Communication! With all relevant parties:

- scientists
- governmental bodies
- consultancies
- problem owners

EUROPEAN HARMONISATION?



One set of soil quality standards?

→ No!

One procedure? → Yes and no

EUROPEAN HARMONISATION!

- Toolbox, including
- standardised tools
 - flexible tools
 - manual



FIXED TOOLS

E.g. reference dose for exposure,
Species Sensitivity Distribution (SSDs)

FLEXIBLE TOOLS

political, ethnological, geographical differences



E.g. building construction (exp. via inhalation),
amount of home-produced vegetables

OPTIONS



E.g. amount of soil ingestion,
Correction formulae for bioavailability

AND FINALLY A MANUAL



rivm

National Institute
for Public Health and
the Environment

HERACLES

Acronym for:

“Human and Ecological Risk
Assessment
for Contaminated Land in Europe”

(DG JCR (Joint Research Centre) of the EU)

PURPOSE

Towards a European Common
Framework
for Risk Assessment of Contaminated
Sites

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NoName Sweden

Cetox-
human

CLEA

CSOIL

Vlier
humaan

NoName
France

r



ROME

EXPOSURE SCENARIOS

Soil type: sandy soil/ clay soil

Soil use: residential/ industrial

contaminant:

- B(a)P
- Cd
- Atrazine
- Benzene
- Trichloroethene

⇒ 20 Scenarios

CONCLUSIONS - 1 -

Variation in calculated exposure:

Exposure via Soil ingestion <

Exposure via Crop consumption <

Exposure via Inhalation

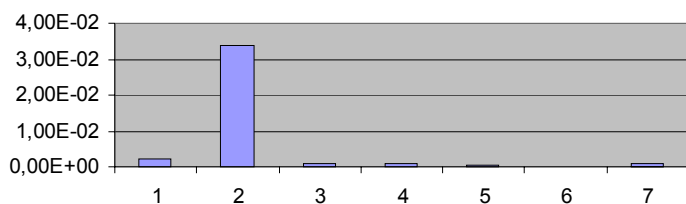
CONCLUSIONS - 2 -

Variation in calculated exposure:

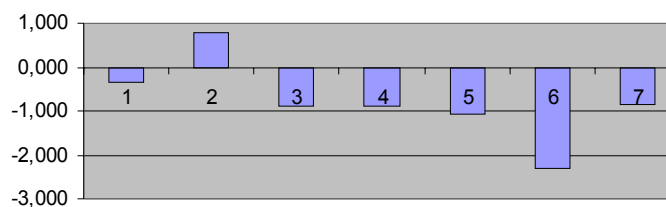
Input parameters < model algorithms

soil type < soil use << contaminant <
model

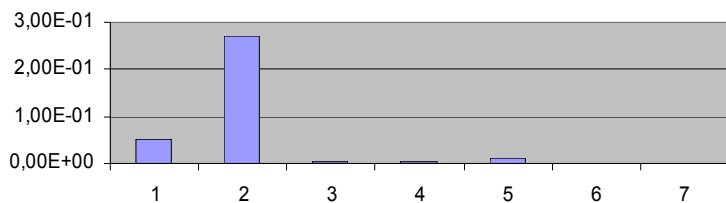
**Total Exposure, adult; B(a)P,
residential, sand**



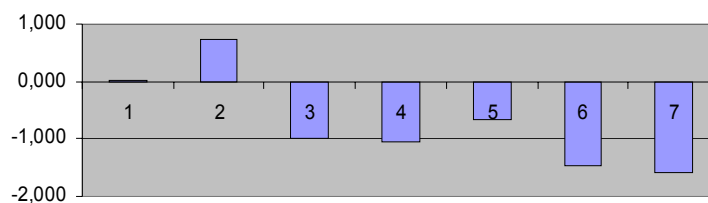
**Total Exposure, adult; B(a)P,
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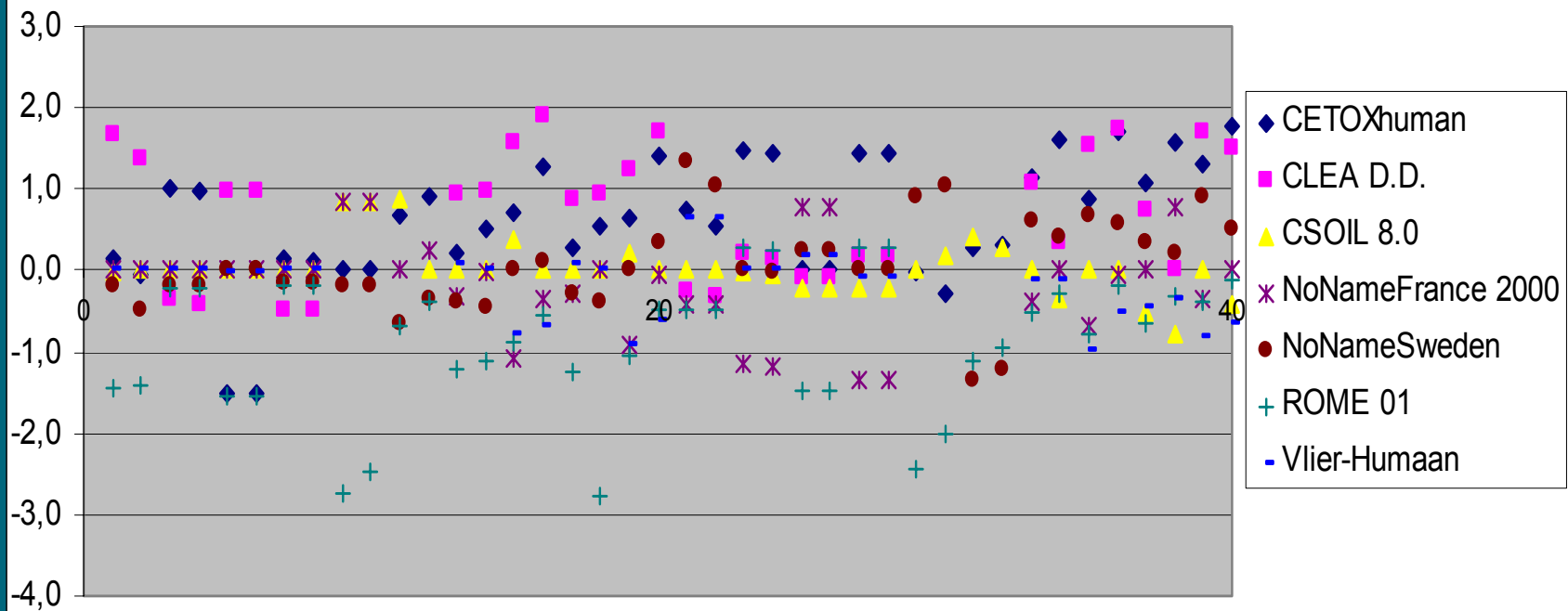
**Total exposure, adult; TCE,
industry, clay**



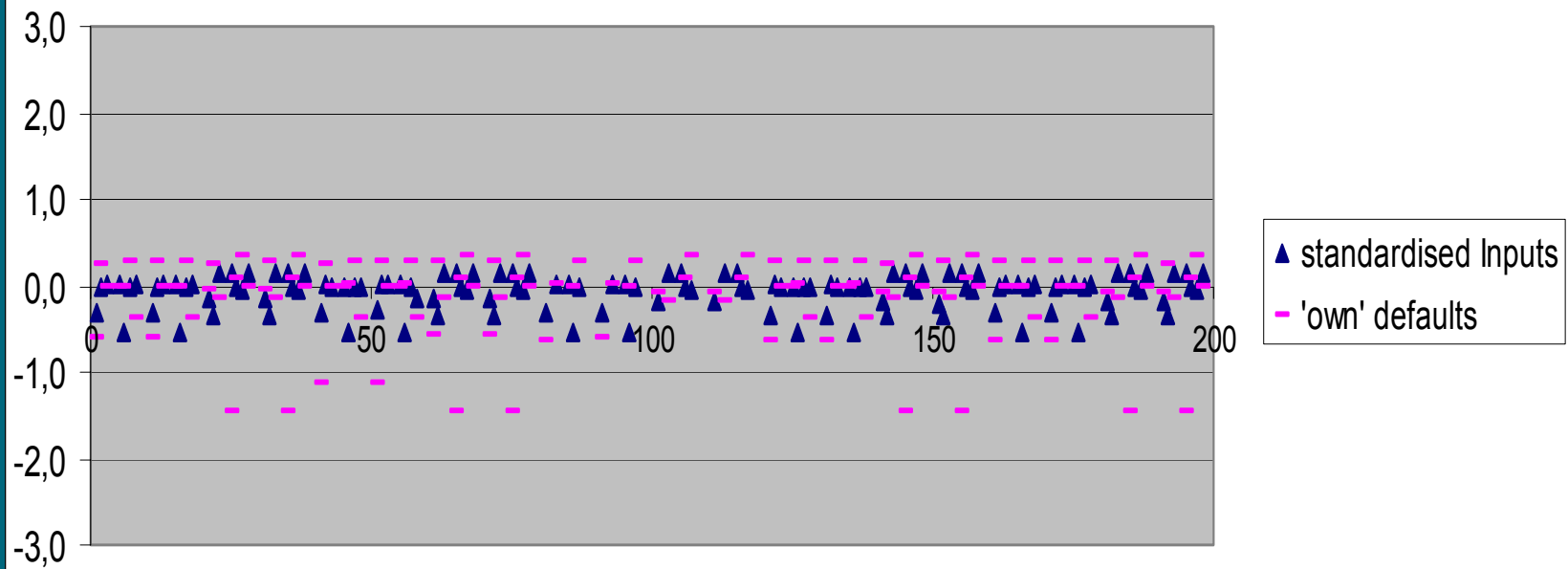
**Total exposure, adult; TCE,
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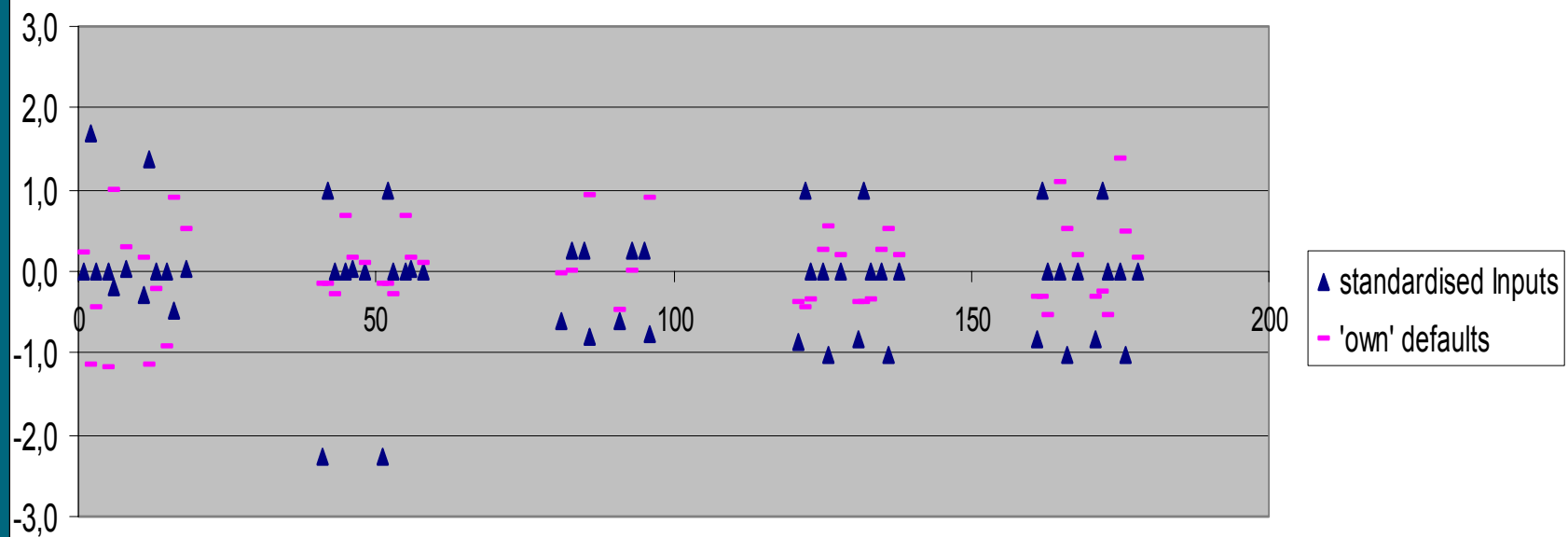
Total Exposure, adult



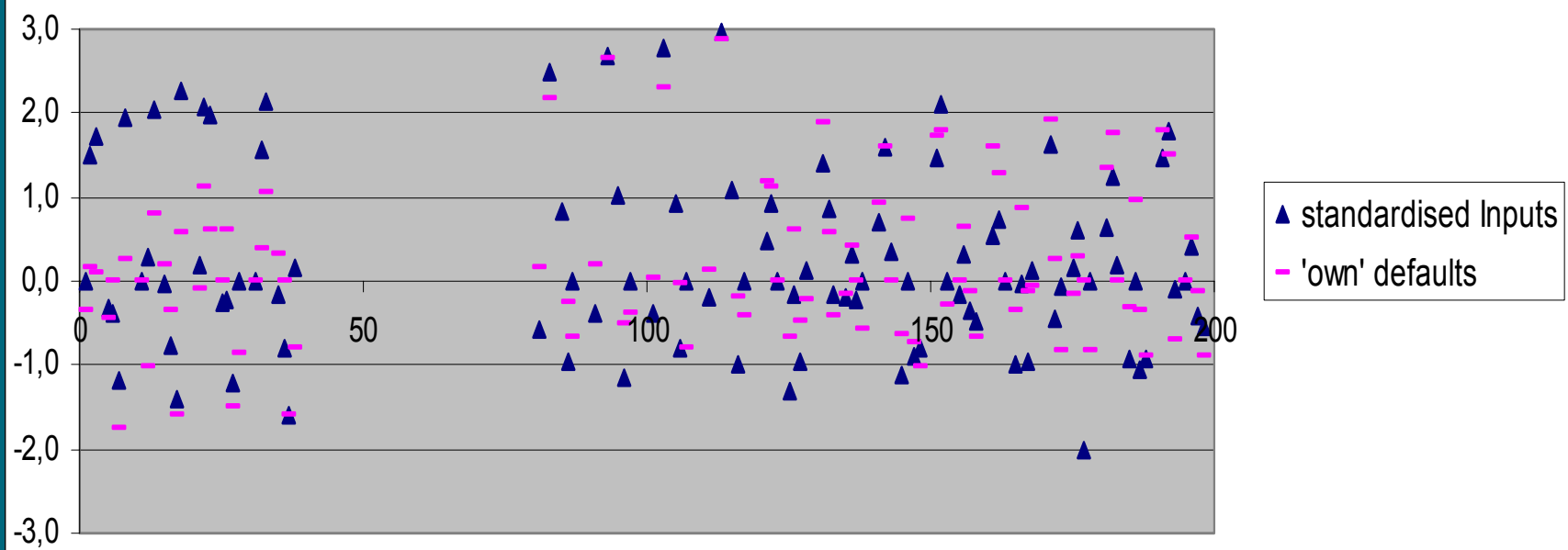
Exposure soil ingestion, adult



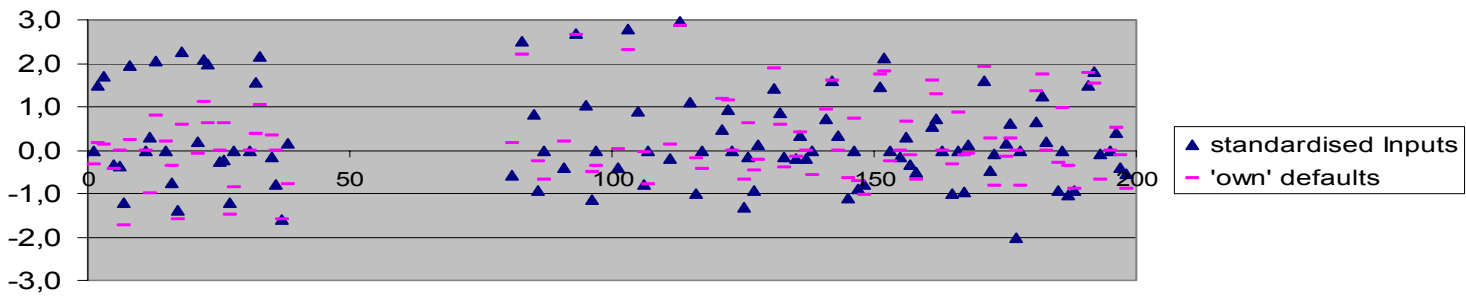
Exposure crop consumption, adult



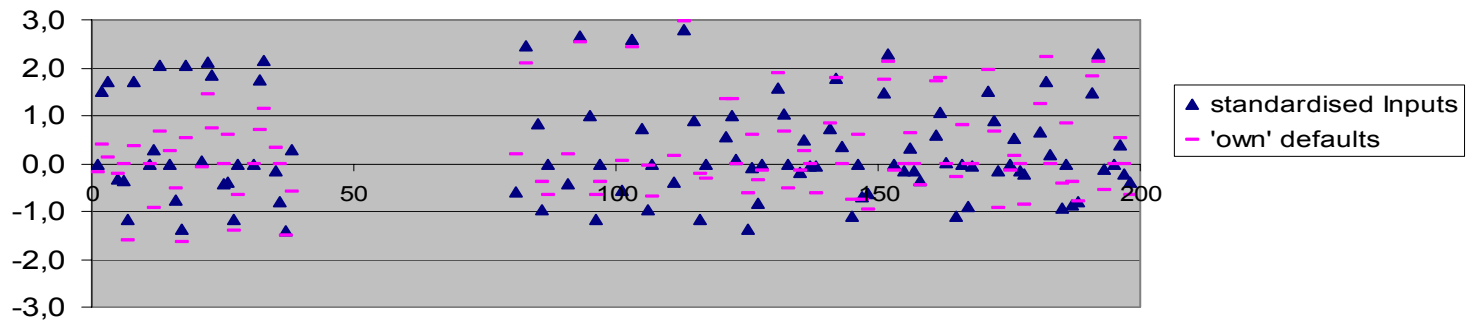
Exposure indoor air inhalation, adult



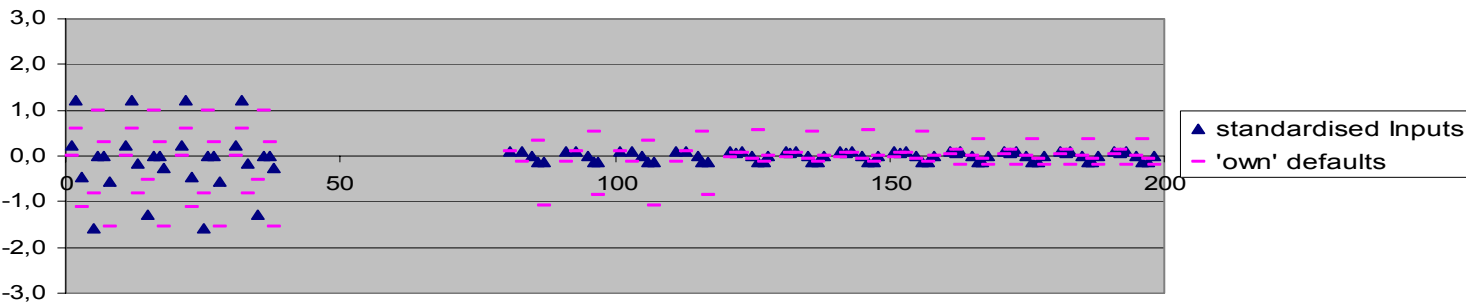
Exposure indoor air inhalation, adult



Concentration indoor air



Concentration soil air



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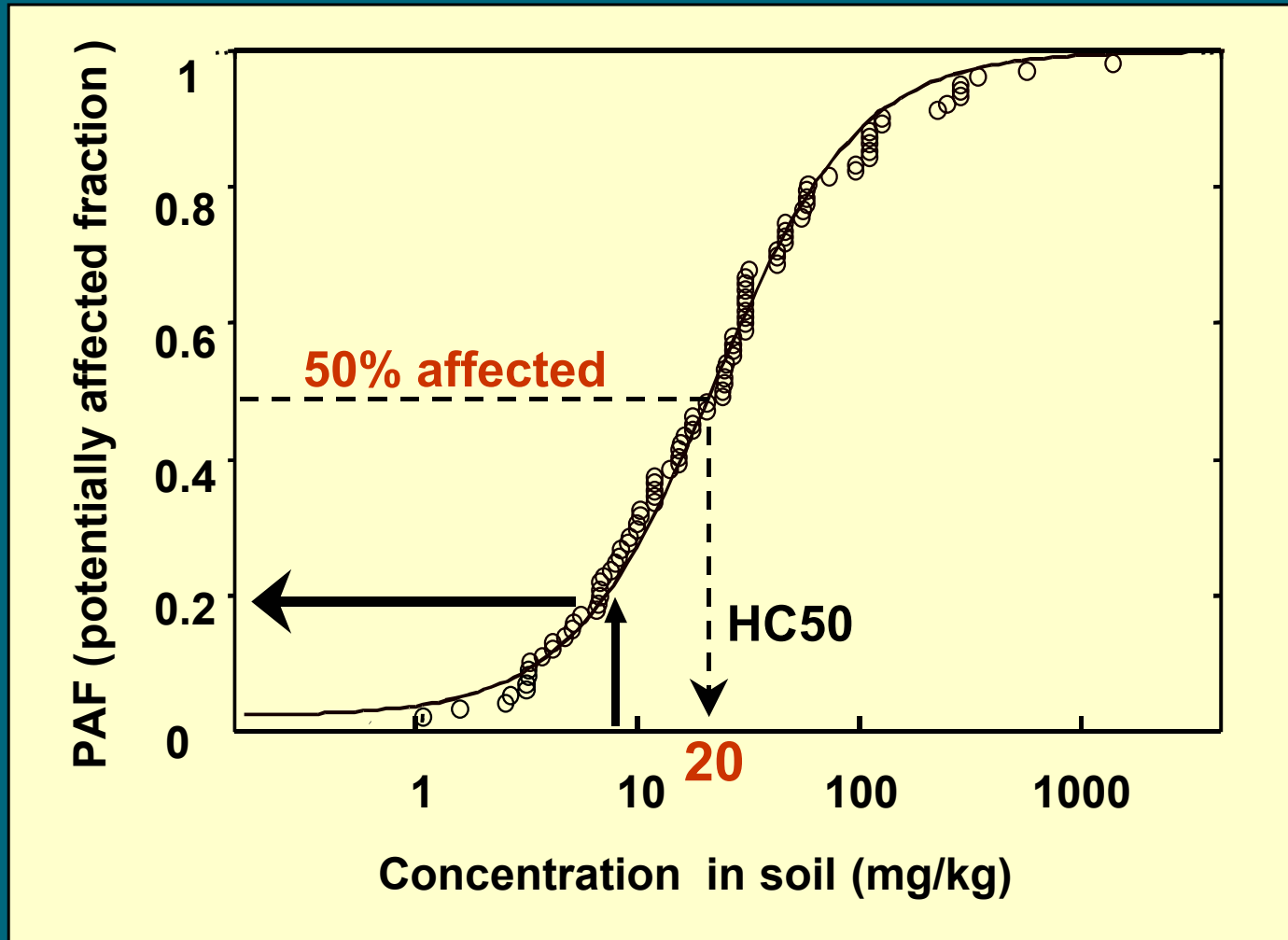
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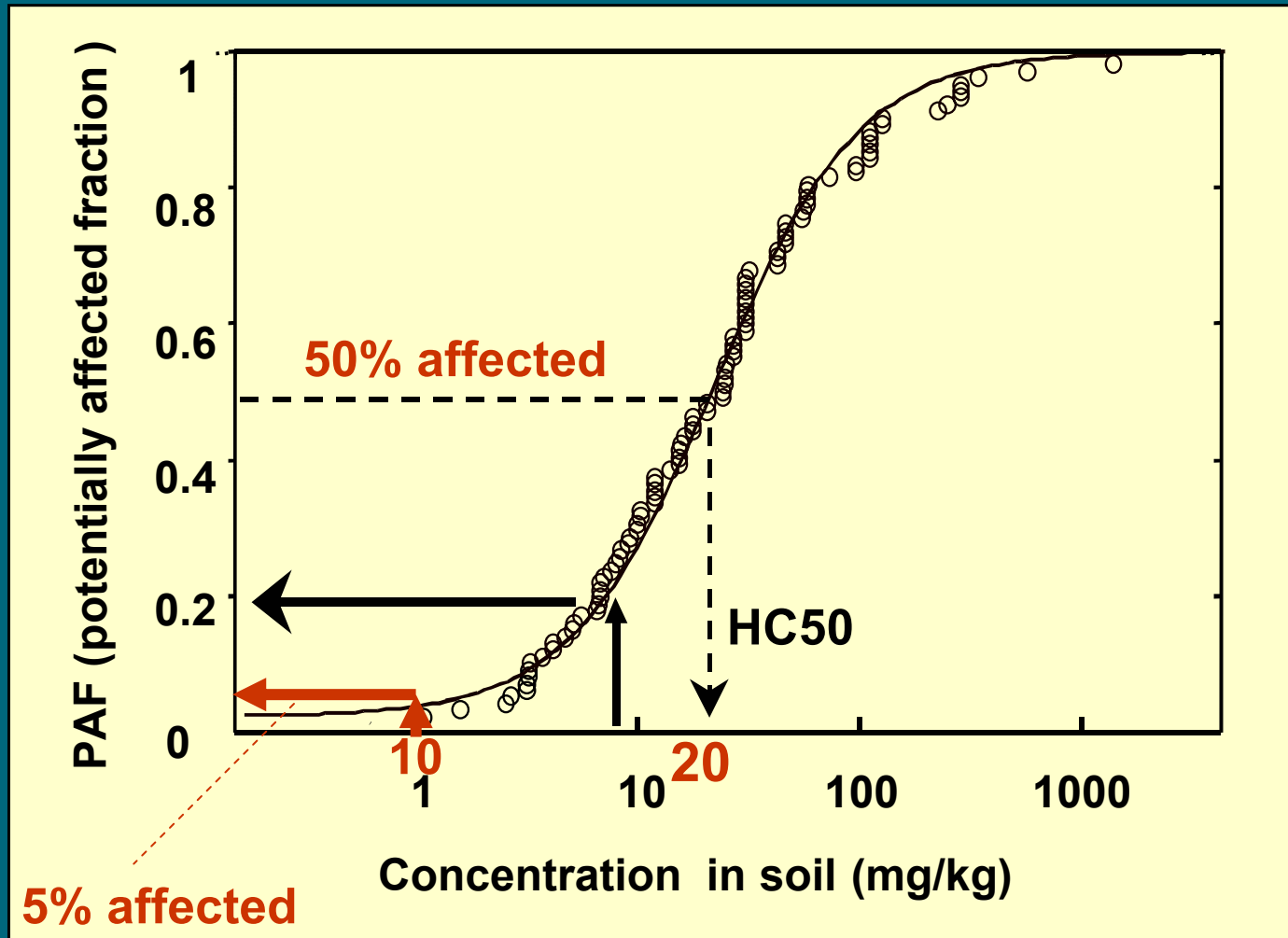
Note to Swedish ecological standards

SPECIES SENS. DISTRIBUTION



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SSD for Pb



ECOLOGICAL SOIL STANDARD

HCx / 2: no ecological meaning

In the lower concentration range:
conservative



Everybody of Umea audience:

Thanks for the attention!

