

Conference Reports

Workshop on Research Projects on Soil Biology, Soil Ecotoxicity and Precautionary Soil Protection (Bonn, 22nd – 23rd October 2001)

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On behalf of the Federal Ministry of Environment, Nature Conservation and Nuclear Safety (BMU), a workshop was organised in Bonn at the end of October 2001. About 80 German, Swiss and Dutch representatives of municipal, state and federal authorities, the remediation and chemical industry as well as research institutions like universities and museums, attended the event. The goals of the workshop were as follows:

A. To provide a survey of the status of soil conservation research in Germany, in particular regarding the function of soil as a habitat for soil organisms.

To this end, results from research projects launched in recent years were presented and discussed by an expert forum. The projects discussed were supported by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, the Federal Environmental Agency, the Federal Ministry of Education and Research, the Deutsche Bundesstiftung Umwelt, and various authorities of the *Länder*.

B. To identify knowledge gaps in soil biology and soil-related ecotoxicology and to draw up recommendations for future activities – especially in order to select focal areas for future research.

Since participants came from various disciplines, a comprehensive discussion of existing deficits was possible. Scientists from various sectors (soil conservation, microbiology, zoology, chemistry) were able to discuss with each other and with people involved in enforcement at various levels (districts, *Länder*, government). It was thus possible for both sides to gain an understanding of their respective needs and competences.

The state of soil biological research related to precautionary soil protection in Germany was presented in thirteen talks and seven brief statements (see the list of presentations in the appendix). Particular emphasis was placed on eco-toxicological issues. There was an intensive discussion on how biological methods should be used for soil conservation in the future and which knowledge gaps were still considered as an impediment for using these methods. Attention was paid to the requirements outlined in the German Soil Protection Act and other legislation and planning. In addition, the relationship between work required and usefulness when applying biological methods was always taken into consideration. In general, the participants of the workshop did agree that enough biological methods are available. At the same time people complained about the inadequate validation of soil biological assessment concepts, as well as about the deficit on experience with the routine use of biological methods. In the following, the primary results of the discussion are summarised.

Recommendations for Future Activities:

Research deficits were identified in two areas:

With respect to the requirements of the Federal Soil Protection Act:

1. application of existing biological procedures under realistic test conditions (i.e. in the form of existing biological test batteries and strategies);
2. selection and application of reference soils and site scenarios (especially with regard to the requirements of the individual biological tests);
3. improvement of data, in particular on organic materials, for the purpose of determining threshold values for soils, but also for using contaminated field soils;
4. improvement of the availability of ecotoxicological data (management and further development of a central literature data bank, e.g. the existing databank at the UBA for the derivation of threshold values);
5. elaboration of measures to prevent harmful changes in soils;
6. derivation of soil values for other groups of substances, e.g. pharmaceuticals;
7. comparison of soil values from the Federal Soil Protection Act with values stipulated in other laws on substances;
8. consideration of certain mixed contaminations with multi-variant procedures;
9. assessment of pollution scenarios not caused by chemicals.

Pertaining to other legal areas and planning projects:

1. definition of site types according to land use and biological characteristics (microbiological as well as zoological), including an improved exchange of concrete field data (abiotic and biotic), especially from permanent soil monitoring areas;
2. simplification of procedures to be used in practice (e.g. automation of assessment procedures, development of taxonomic interactive PC expert systems);
3. development of qualitative methods for microbiology;
4. integration of zoological and microbiological parameters into a unified classification and evaluation concept;
5. determination of assessment standards (either by statistics or 'expert knowledge').

Finally, it was stressed that regardless of the particular subject matter, the interdisciplinary discussion between scientists and legal experts should be intensified, so that practical solutions can be found that meet the requirements of both concerned interest groups.

A detailed report of the seminar (either in German or English) including summaries of the talks and statements presented can be ordered directly from the BMU (E-mail: werner.nonnenmacher@bmu.bund.de).