IUPAC
Division on Chemistry and the Environment
COMMISSION ON SOIL AND WATER CHEMISTRY (VI.3)

MINUTES OF COMMISSION MEETING
BERLIN, GERMANY, AUGUST 8 – 10, 1999

ATTENDANCE:

- Dr. Y. Shevah	Chairman	Israel
- Dr. W. Peijnenburg	Secretary	Netherlands
- Dr. A. Sabljic	Titular Member	Croatia
- Prof. Dr. Yu Wang	Titular Member	China
- Dr. J. Lintelmann	Associate Member	Germany
- Dr. W. Kördel	Associate Member	Germany
- Dr. H. Egli	Associate Member	Switzerland
- Dr. M. Dassenakis	National Representative	Greece
- Prof. Dr. W. Klein	Corresponding Member	Germany

1. GENERAL

The Commission meeting was part of the 1999 General Assembly of IUPAC. In addition to the regular Commission meeting, joint meetings with representatives from Commissions VI.1, VI.2, and VI.4 were organized. The main outcomes of these meetings are part of these minutes.

At the meeting the restructuring of IUPAC and the Commissions work towards a project driven structure was re-stated. In accordance, the restructuring of the Commissions' projects, focusing on a limited number of projects that will be carried out by Task Groups of varying composition is to take place and the present structure of the Commission will be terminated at 31 December 2001. The link of titular membership to funding will be discontinued and funding for members and contributors to attend meetings will be decided on need.

In light of these changes there was a strong appeal of the incoming President of the Division on Chemistry and the Environment (DCE), Prof. Dr. Werner Klein, to focus on interdivisional projects. These projects are likely to obtain more funding. Examples of interdivisional projects that are potentially of interest to the Soil and Water Chemistry Commission may be found in the area of Green/Sustainable Chemistry. The Soil and Water Chemistry Commission was challenged to take up part of the work to be done within this new IUPAC initiative. It was noted that in the new structure it is well possible to include participation of other organizations in the field.

For the transition period 2000-2001, it was agreed that current Commissions and their activities will continue in parallel to the work done by Task Groups. In addition to the existing Task Group, additional task Groups will be added, as to be approved by the Division.

2. MINUTES OF THE LAST MEETING

The minutes were approved. No comments received.

3. COMMISSION MEMBERSHIP

Chairman:	Dr. Y. Shevah (Israel)
Secretary:	Dr. W. Peijnenburg (Netherlands)
Titular Member:	Dr. A. Sabljic (Croatia)
Associate Members:	Prof. Yu Wang (China)
	Dr. W. Kördel (Germany)
	Dr. J. Lintelmann (Germany)
	Dr. H. Egli (Switzerland)
National Representatives:	Dr. Dassenakis (Greece)
	Dr. B.M. Misra (India)
	Dr. A. Rodrigues de Aquino (Brazil)

Dr. P. Schejbal (Czech Republic)
Dr. G. Becher (Norway)

Prof. Yu Wang, China, will complete her four year term as a Titular Member, end of 1999. The Commission commanded her active participation and invited Prof. Wang to continue with her work in the Commission. Because of the restructuring of IUPAC no other changes were considered at this stage.

Active participation of all Commission members is essential to achieve optimal performance of the Commission. In view of this it was decided that those members that were not able to attend the Commission meeting will receive all necessary information on the activities of the Commission to enable them to get updated on the status of the projects.

Members of the Commission are kindly requested to re-state their interest in the Commission work and their willingness to contribute from their own sphere to the new projects to be undertaken by Task Groups. (**Action: All members of the Commission)**

4. OVERVIEW OF ONGOING PROJECTS

4.1 Commission Projects

Number: 630/17/93
Title: **Quality of Chemical Data in Databases**
Co-ordinator: W.J.G.M. Peijnenburg

Progress: Dr. Peijnenburg gave a first presentation on the findings of this project during the conference "Degradation Processes in the Environment". It was felt that this is a topic that is of potential interest within a broader context. During the Commission meeting it was decided that interdivisional co-operation will be sought for continuation. Dr. Peijnenburg will prepare a proposal for a Task Group on this topic and will initiate interdivisional co-operation including contributions from Commissions vi.1 and vi.2 (**Action: Dr. Peijnenburg**). It was also decided that the Task Force should also consider the code of practice in reporting analytical data. The latter topic was part of one of the projects of the Soil and Water Chemistry Commission that have been terminated due to a lack of response of the project leader. The topic is nevertheless considered to be relevant for the Commission. Dr. Egli has shown an interest in contributing to the project.

Number: 630/21/95
Title: **Trends in non-conventional supply of water (water-reuse) and their environmental effects**
Co-ordinator(s): Dr. Y. Shevah and Dr. Yu Wang

The findings of the project have been published: project terminated successfully.

Number: 630/22/95
Title: **Water treatment using membrane separation processes**
Co-ordinator(s): Dr. Yu Wang (China Republic)
Remarks: Involvement of Dr. Y. Shevah (Israel), Prof. Grebenyuk (Ukraine), Dr. Linkov (South Africa). The project was completed in 1988. Parts of this project were published in Water Research, South Africa. Other contribution is expected from Prof. Wang providing data for China. A draft report is to be circulated by October 1999 among Commission Members, to get additional input and comments (**Action: Prof. Dr. Yu Wang**).

Number: 630/24/95
Title: **Solute movement in soils with potential rapid by-pass movement**
Co-ordinator(s): Dr. Kördel

Objective: Preferential flow in silt sand clay containing soils can significantly contribute to groundwater contamination and pollution of surface waters by the effluent of draining systems. Although the importance of rapid by-pass movement has not been demonstrated, the prediction and modeling of this process is still not fully understood, in particular the dependence on soil type

and climatic conditions. As several groups are working in this field a workshop will be organized (with possible funding by NATO) to discuss the present knowledge with the participation of scientists from Eastern Europe. It will also be possible to provide some advice in monitoring and sampling water and soil to determine contamination movement in the environment.

Progress: Dr. Kördel and Dr. Egli have collected literature on this topic. This yielded 590 publications. After data reduction, a draft manuscript will be prepared, with some delay, according to the original set-up of this project. As the topic of micropores is of importance for the fate and effects of chemicals (especially pesticides, but also metals and nutrients, the emphasis within the project will be on pesticides), it was decided to extend the project to 2001, seeking the participation of Dr. N. Jarvis in the project team (**Action: Dr. Kördel).** Dr. Egli and Dr. Kördel will prepare a draft report of this part of the work in the beginning of 2000. The draft will contain the scientific backgrounds on the most important processes determining preferential flow. It will be distributed for comments, after which contributions of Dr. Jarvis, and members of Commission vi.1 and vi.4 will be included. For this purpose, Dr. Egli and Dr. Kördel will send all relevant information (including a description of the type of expertise needed) to the secretary of Commission vi.4, to Dr. Sinesi (vi.1), and to Dr. Van Leeuwen (vi.1) (**Action: Dr. Egli, Dr. Kördel**).

During the Commission meeting it was decided that Dr. Egli and Dr. Kördel will investigate the possibilities of organizing either a workshop on this topic (preferably in combination with a Commission meeting), or a platform meeting during a conference on pesticides (**Action: Dr. Egli, Dr. Kördel**).

Number: 630/25/95
Title: **Recommendations on modeling lifetime and degradability of organic compounds in soil and water systems**
Co-ordinator(s): Dr. A. Sabljic

Remarks: Joint project with the Commission on Atmospheric Chemistry (VI.2)
Within the Commission on water Chemistry, Dr. Peijnenburg will provide additional assistance.
Phase 1 of this project will end in 1999, phase 2 will start in 2000 and finish in 2001.

Progress: The part of this project was presented in the conference on Environmental Degradation Processes (May 1998, Dubrovnik), see below:

4.2 Task Groups

Task Group on Endocrine Disruptors Compounds
Number: 630/26/97
Title: **Endocrine disruptors in the environment**
Co-ordinator of the Task Group (s): Dr. J. Lintelmann
Completion date: 1999

In accordance with the new IUAPC structure, a Task Group was formed in 1998 within the Commission headed by Dr. J. Lintelmann. The Task Group includes: Dr. A. Katayama and Dr. N. Kurihara (VI4), Dr. A. Wenzel (Fraunhofer Institute), Dr. Dobrobek, Novartis and Dr. Shore, Israel.

Objective: During the past years strong evidence has been accumulating that humans and wildlife species have suffered adverse health consequences resulting from exposure to natural and anthropogenic substances called 'endocrine disruptors'. Besides compounds mimicking estrogens there are also substances exhibiting anti-estrogenic, androgenic or anti-androgenic characteristics. Exposition to this kind of substances has probably far-reaching consequences, which will strongly influence future generations. Thus, official authorities as well as public, industry and various research groups show increasing interest in endocrine disruptors.

Progress: Dr. Lintelmann prepared a concise progress report prior to the Commission meeting, and gave a short introduction on the progress made. A draft report was discussed during the Commission meeting and within the Task Group who were invited to attend.

The unique contribution of the Task Group adding to the current knowledge on endocrine disrupting compounds was discussed, in view of the numerous work that have been published on a broad range of related topics. It was felt during the meeting that the main question raised is to be answered positively and an evaluation of the available information will be included. The final report will be completed in December 1999 (**Action: Dr. Lintleman**).

The Division on Chemistry and the Environment has submitted a project proposal for future activities in this area to SCOPE, and will look for new ways to continue the work of the Task Group. Dr. Shevah will follow-up on this, jointly with Dr. Racke (Commission vi.4) – **Action: Dr. Shevah**.

New Task Groups (under consideration)

Proposals for three new Task Forces were prepared and submitted to the Division, in advance to the meeting. These included:

1. **In-situ treatment of polluted soil and water with emphasis on the use of genetically engineered microorganisms**. Proposed project leader: Dr. R. Mandelbaum. It was agreed by the Commission meeting that this project is of importance for the working field of Soil Chemistry, and hence is suited for our Commission. The project leader will need to bring in expertise in the area of genetically engineered microorganisms, whereas Dr. Kördel and Dr. Peijnenburg will provide the knowledge on soil chemistry. In addition external expertise will need to be brought in with regard to 'ethical' issue related to release of genetically engineered organisms in the environment. Dr. Shevah will initiate further activities to get the project going (**Action: Dr. Shevah**). Commission vi.4 will contribute, and has agreed to assign a scientist.

2. **Airborne and Remote Monitoring of Water Quality: Evaluation of remote sensing techniques for real time control of water quality in surface water bodies**. Proposed project leader: Dr. A. Dekker. The Commission accepted this project too. It was decided that Dr. Shevah will initiate further activities to get the project going (**Action: Dr. Shevah).**

3. **Biosensors for the monitoring Environmental Pollutants: Evaluation of newly developed biosensors for monitoring the soil and water environment.**

These three proposals were evaluated according to the new IUPAC reviewing system. The Commission decided, during the Berlin meeting, to propose to DCE to initiate the first two Task Groups. The third project was recommended to be considered for interdivisional cooperation.

4.3 COOPERATION WITH OTHER COMMISSIONS

1 - Atmospheric deposition in drinking water reservoirs (vi.2). This topic has been discussed in the joint meeting with the Atmospheric Chemistry Commission and a symposium on the subject will be held in June 2000. It was decided that Dr. Shevah will represent the Soil and Water Chemistry Commission together with Dr. Tavares and Prof. Van Grieken (Chairman and Member of Commission vi.2).

2 - Quality standards (vi.4) Dr. Shevah will represent the Soil and Water Chemistry Commission.

3 - Pesticide soil sorption (vi.4). Dr. Kördel, Dr. Sabljic, Dr. Egli, Prof. Mingelgreen and Dr. Gerstl will provide input on behalf of the Commission (**Action: Dr. Kördel, Dr. Sabljic, Dr. Egli, Dr. Shevah**).

4 - Bioavailability (vi.4). Project leader: Dr. A. Katayama (vi.4). Dr. Sabljic, Dr. Kördel, Dr. Peijnenburg and Dr. Egli will contribute on behalf of the Soil and Water Chemistry Commission (**Action: Dr. Sabljic, Dr. Kördel, Dr. Peijnenburg and dr. Egli)**.

5. NEWLY IDENTIFIED PROJECTS

Soil Quality and Soil Conservation. The rational behind methods used in deriving soil quality criteria, and definition of contaminated soils is to be studied. A project proposal and the composition of the Task Group will be prepared by Dr. Kördel and submitted to the Division for approval in 2000 (**Action: Dr. Kördel**).

Quality of Chemical Data in Databases. This topic has a potential interest within a broader context. Dr. Peijnenburg will prepare a proposal for a Task Group on this topic and will initiate interdivisional co-operation including contributions from Commissions vi.1 and vi.2 (**Action: Dr. Peijnenburg**).

Code of practice in reporting analytical data. A Task Group would be considered for this highly relevant topic. Dr. Egli agreed to initiate the process (**Action: Dr. Egli**).

Endocrine Disruptors Compounds. The Division on Chemistry and the Environment has submitted a project proposal for future activities in this area to SCOPE. It was suggested to investigate to continue the work on this important subject in the relevant areas of the Commission. Dr. Shevah and Dr. Racke (VI4) will follow-up (**Action: Dr. Shevah**).

Divisional and Interdivisional Cooperation

Interdivisional cooperation will be sought for two projects:

1. Quality Chemical Data and Reporting Practices **(Action: Dr. Peijnenburg).**
2. Biosensors (**Action: Dr. Shevah**).

6. CONFERENCES AND WORKSHOPS

Environmental Degradation Processes Conference, Dubrovenik, May, 1998

The conference was a major success of the Commission. Approximately 100 participants from academia, industry and regulatory agencies attended this successful event.

Major direction and issues that need further research were identified:

- Impact of environmental characteristics on bio-degradation.
- Long-term stability: how to measure very long half-lives of persistent chemicals (like half-lives that exceed 1 year).
- Persistence of chemicals in deep ground waters: with the focus on the fate of pesticides, in relation to the impact on the top layer of the underground.
- The use of QSARs/QSBRs in waste water treatment.

The seven invited lectures were published in the PAC, July, 1998. The other edited presentations were published as a special edition of Chemosphere, Editors: Sabljic and Peijnenburg**,** January, 1999. The highlights of the conference and recommendations for further follow-up will be prepared before the end of 1999 (**Action: Dr. Sabljic, Dr. Peijnenburg**)

Atmospheric Deposition Symposium, 2000. A joint symposium with VI4, planned for June 2000 in Tel-Aviv, Israel **(Action: Dr. Shevah)**

Solute movement in soils with potential rapid by-pass movement (Planned). The possibilities of organizing a workshop on this topic with other interested bodies will be investigated **(Action: Dr. Egli, Dr. Kördel)**.

7. PUBLICATIONS

Grebenyuk, V.D., Linkov, N.A. and V.M. Linkov 1998. Removal of Ni and Cu ions from aqueous solutions by means of a hybrid electrosorption/electrodialysis process. Water SA, 24, 123-127.
National environmental issue papers for publication in PAC were prepared by Prof. Dassenakis (Greece) and Prof. Misra (India).

Proceedings of the Environmental Degradation Processes, invited lectures, Sabljic and Peijnenburg (Eds) PAC, July, 1998.
Proceedings of the Environmental Degradation Processes Sabljic and Peijnenburg, Chemosphere**,** Special Edition, January, 1999.
Sabljic, A. and WJM. Peijnenburg (1998). Environmental Degradation Processes. Some Reflections. In Proceedings, Pellston Conference on Environmental Persistence. SETAC, Fairmont Hot Springs, Canada.
Shevah, Y, & M. Waldman 1998. Bioremediation Research in Israel. In Sikdar, S.K. & Irvine, R. L. (Eds). Bioremediation Technologies. Techtonic Pub. Co., Basel.
Shevah, Y, & M. Waldman 1999. Research and Development for Wastewater reuse. In Juanico & Dor (Eds). Reservoirs for Wastewater Storage and Reuse. Springer -Verlag, Berlin, Heidelberg.
Sabljic and. Peijnenburg Eds. Environmental Degradation Processes, highlights recommendations for further follow-up (in preparation).

8. ANY OTHER BUSINESS

Communication within the Commission. Communication among Commission members is vital. At present, most information is exchanged via email. Due to problems related to receipt and loss of email-messages. It was decided that all members receiving an email-message of a colleague-member, will send a courtesy confirmation of receipt of the message (**Action: all members whenever appropriate**).

Preparation and Submission of Projects Progress Reports. As already agreed during former meetings of the Commission, all project co-ordinators are requested to send in quarterly reports on the progress of projects. Please use email and ask for confirmation of receipt. (**Action: all members whenever appropriate**).

WEB site. Information on the Commission activities can be found at the IUPAC Web Site (www.iupac.org), including the current projects that have to be up-dated. Team leaders are requested to check the web site and submit information to update of the Commission Web-site (**Action: Team Leaders**).

9. NEXT MEETING - Tel-Aviv, June 3-6, 2000
The next meeting of the Soil and Water Chemistry Commission will be held in conjunction to the next meeting of the Division on Chemistry and the Environment and the Symposium on Atmospheric Deposition, scheduled to be held in Tel-Aviv, Israel, 3 -6 June 2000.

Commission members are requested to submit additional ideas for the discussion in the next meeting **(Action: all members)**.

Dr.Ir. W. Peijnenburg
Secretary IUPAC Commission on Soil and Water Chemistry

Appendix 1: Check list of activities and responsible person

COMMISSION ACTIVITIES

Quality of Chemical Data in Databases. A proposal for a new Task Group and initiation of interdivisional co-operation (**Action: Dr. Peijnenburg**).

Code of practice in reporting analytical data. A proposal for a Task Group and initiation of interdivisional co-operation (**Action: Dr. Egli**).

Water treatment using membrane separation processes. A contribution of Prof. Wang, providing data for China. A draft report is to be circulated by October 1999 (**Action: Prof. Dr. Yu Wang**).

Solute movement in soils with potential rapid by-pass movement**.** Cooperation with other commission. (**Action: Dr. Egli, Dr. Kördel**). A draft report of this part of the work in the beginning of 2000. (**Action: Dr. Kördel & Dr. Egli).**

Endocrine disruptors in the environment. The final report will be completed in December 1999 (**Action: Dr. Lintelmann**).

Initiation of New Task Groups (under consideration)

1. In-situ treatment of polluted soil and water (**Action: Dr. Shevah**).
2. Airborne and Remote Monitoring of Water Quality (**Action: Dr. Shevah**).
3. Interdivisional Task Group on Biosensors (**Action: Dr. Shevah**).

COOPERATION WITH OTHER COMMISSIONS

Atmospheric deposition in drinking water reservoirs (vi.2). (**Action: Dr. Shevah**).
Quality standards (vi.4) (**Action: Dr. Shevah, Dr. Egli**).
Pesticide soil sorption (vi.4). (**Action: Dr. Kördel, Dr. Sabljic, Dr. Egli, Dr. Shevah**).
Bioavailability (vi.4). (**Action: Dr. Sabljic, Dr. Kördel, Dr. Peijnenburg and dr. Egli)**.

NEWLY IDENTIFIED PROJECTS FOR FURTHER CONSIDERATION

Soil Quality and Soil Conservation. (Action: Dr. Kördel).
Quality of Chemical Data in Databases. (Action: Dr. Peijnenburg).
Code of practice in reporting analytical data. (Action: Dr. Egli).
Endocrine Disruptors Compounds. (Action: Dr. Shevah).

CONFERENCES AND WORKSHOPS

Environmental Degradation Processes Conference, Dubrovnik, May, 1998. Preparation of highlights of the conference and recommendations for further follow-up before the end of 1999. (**Action: Dr. Sabljic, Dr. Peijnenburg**).
Atmospheric Deposition Symposium. Joint symposium with VI4, planned for June 2000 in Tel-Aviv, Israel. (**Action: Dr. Shevah**).
Solute movement in soils with potential rapid by-pass movement. The possibilities of organizing a workshop on this topic with other interested bodies (**Action: Dr. Egli, Dr. Kördel**).

MISCELLANEOUS

Active Participation. Likely contribution to the new projects to be undertaken by the Commission (**Action: All members of the Commission)**
Communication within the Commission. (**Action: all members whenever appropriate**).
Preparation and Submission of Projects Progress Reports. (**Action: all members whenever appropriate**).
Update of WEB site.

NEXT COMMISSION MEETING - Tel-Aviv, June 3-6, 2000 (**Action: all members)**

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