

EUROSCIENCE-
International Union of Geodesy and Geophysics
NATO-Advanced Research Workshop

SCIENCE FOR REDUCTION OF RISK AND SUSTAINABLE DEVELOPMENT OF SOCIETY

June 15-16, 2002

Hungarian Academy of Sciences
1051 Budapest, Roosevelt tér 9

↙ General Report ↘



The Workshop is sponsored by:
NATO Science Program, International Union of Geodesy and Geophysics (IUGG),
and Euroscience.

Objective

The principal goal of the ARW "SCIENCE FOR REDUCTION OF RISK AND SUSTAINABLE DEVELOPMENT OF SOCIETY" was to understand what and how basic science can contribute to the reduction of risk, survival and sustainable development of the world. Crucial problem of implementing scientific initiatives in a public policy and the moral, ethical, and spiritual dimensions of such initiatives were discussed.

Co-Directors

- Dr. Raymond Seltz, co-director, EUROSCIENCE, 8, rue des Ecrivains, F-67000 Strasbourg, FRANCE. Telephone/Fax/E-mail: +33-3-88 24 11 50 / +33-3-88 24 75 56 / office@euroscience.ws
- Dr. Alik Ismail-Zadeh, co-director, International Institute of Earthquake Prediction Theory and Mathematical Geophysics, Russian Academy of Sciences, Warshavskoye shosse 79-2, Moscow 113556, RUSSIAN FEDERATION. Telephone/Fax /E-mail: +7-095-1190613 / +7-095-3107032 / aismail@mitp.ru

Key-note Speakers and Conveners

(see APPENDIX 1 for CV of the key-note speakers)

<p>Bayer, Joanne, Dr. International Institute for Applied Systems Analysis (IIASA), A-2361 Laxenburg, Austria. Tel.: +43 2236 807 0; Fax: +43 2236 71 313, E-mail: bayer@iiasa.ac.at</p>
<p>Beer, Tom, Prof. CSIRO Environmental Risk Network, CSIRO Atmospheric Research, Aspendale, Vic. 3195, Australia. Tel: + 61 (0) 3 9239 4546; Fax: +61 (0) 3 9239 4444; E-mail: Tom.Beer@csiro.au</p>
<p>Ferencz, Zoltan, Dr. Institute of Sociology, Hungarian Academy of Sciences, Uri. u. 49, 1014 Budapest, Hungary. Tel: (361) 375 9011; Fax: (361) 224 6741; E-mail: monitor@elender.hu</p>
<p>Gherardi, Romain K., Prof. INSERM / Université Paris XII, Departement de Pathologie, Hôpital Universitaire Henri Mondor, 51 Av. Marechal de Lattre de Tassigny, F-94010 Creteil-Cedex France. Tel: +33 1 49812746; Fax: +33 1 49812733; E-mail: Romain.Gherardi@hmn.ap-hop-paris.fr</p>
<p>Heiken, Grant, Dr., Earth and Environmental Sciences Division, Los Alamos National Laboratory, Los Alamos, NM 87545, USA. Tel: +1 505 665 7991; Fax: +1 505 665 3107; E-mail: heiken@lanl.gov</p>
<p>Ismail-Zadeh, Alik, Prof. International Institute of Earthquake Prediction Theory and Math Geophysics, Russian Academy of Sciences, Warshavskoye sh. 79-2, 113556 Moscow, Russia. Tel: +7 095 1190613; Fax: +7 095 3107032; E-mail: Aismail@mitp.ru</p>
<p>Jayawardena, Amithirigala W., Dr. Department of Civil Engineering, The University of Hong Kong, Hong Kong, CHINA. Tel: +852 2859-1966; Fax: +852 2559-5337; E-mail: hrecjaw@hkucc.hku.hk</p>
<p>Massué, J.P., Dr. EUR-OPA Major Hazards Agreement, Council of Europe, F – 67075 Strasbourg Cedex, France. Tel: +33 3 88 41 26 14; Fax: +33 3 88 41 27 87; E-mail: jean-pierre.massue@coe.int</p>
<p>Panza, Giuliano F., Prof. Department of Earth Sciences, University of Trieste, Via Weiss, 4, I-34127 Trieste, Italy. Tel: +39-040-6762117; Fax: +39-040-6762111 or +39-040-575519; E-mail: Panza@dst.units.it</p>
<p>Paterson, John, Dr., Reader in Law, School of Law, University of Westminster, 4 Little Titchfield Street, London W1W 7UW, United Kingdom. Tel: +44 (0) 20 7911 5000 Ext 2514; Fax: +44 (0) 20 7911 5821; E-mail: J.Paterson@westminster.ac.uk</p>
<p>Praderie, Françoise, Dr. Honorary Vice-President of Euroscience, Observatoire de Paris, 61, Avenue de l'Observatoire, F-75014 Paris, France. Tel: +33 1 40 51 21 16; Fax: +33 1 40 51 20 02; E-mail: francoise.praderie@obspm.fr</p>

Schméder, Geneviève, Prof.

Conservatoire des Arts et Métiers, Centre STS, CNAM, 2 rue Conte, 75 003 Paris, France. Tel: +33 1 30 24 35 94; E-mail: Schmeder@cnam.fr

Seltz, Raymond, Dr.

EUROSCIENCE, 8, rue des Ecrivains, F 67000 Strasbourg, France. Tel : +33 3 88 24 11 50; Fax : +33 3 88 24 75 56; E-mail: office@euroscience.ws

Shamir, Uri, Prof.

Director, The Stephen and Nancy Grand Water Research Institute Technion - Israel Institute of Technology, Haifa 32000, Israel. Tel: +972-4-829-2239/Secretary:829-3351; Fax: +972-4-822-4246; e-mail: shamir@tx.technion.ac.il

Tamas, Pal, Prof.

Director, Institute of Sociology, Hungarian Academy of Sciences, 1014 Budapest, Úri u. 49., Hungary. Tel.:(361) 2246740; Fax: (361) 2246741; E-mail: h8756tam@ella.hu

Vari, Anna, Prof.

Institute of Sociology, Hungarian Academy of Sciences, Uri. u. 49, 1014 Budapest, Hungary. Tel: (361) 2246743; Fax: (361) 2246741; E-mail: anna.vari@ella.hu.

Number of Key-note Speakers (K) and number of Other Participants (P) by country

Total Number Participants: 41

	K	P		K	P		K	P
NATO COUNTRIES			ELIGIBLE PARTNER COUNTRIES			NON-ELIGIBLE PARTNER COUNTRIES		
France	4	4	Bulgaria		1	Austria	1	
Germany		1	Croatia		1			
Hungary	1	3	Russian Federation	1	5			
Italy	1	1	Yugoslavia		1			
Netherlands		3	Ukraine		4			
Spain		1						
UK	1	2						
USA	1	1						
			MEDITERRANEAN DIALOGUE COUNTRIES			OTHER COUNTRIES (Key speakers only)		
			Israel	1		Australia	1	
						China	1	
SUB-TOTAL	8	16	SUB-TOTAL	2	12	SUB-TOTAL	3	
TOTAL	24		TOTAL	14		TOTAL	3	

ARW Programme Committee

Jean-Patrick Connerade, President, Euroscience

Vladimir Keilis-Borok, former President, IUGG

Norbert Kroó, Secretary General, Hungarian Academy of Sciences

ARW Organising Committee

S. Anguelov (Euroscience), Bulgaria

T. Beer (IUGG), Australia

A. Ismail-Zadeh (Euroscience & IUGG), co-Director, Russia

R. Seltz (Euroscience), co-Director, France

Workshop Program

Saturday, 15th June 2002

Convener: R. Seltz, *Secretary General, Euroscience*

- 14:00 *Opening: Welcome addresses by*
 J.-P. Connerade, *President, Euroscience*
 U. Shamir, *Vice-President, International Union of Geodesy and Geophysics*
- 14:15 J.P. Massué, *Council of Europe, Strasbourg*
 Help for Decision Making in Risk Management: Mobilisation of the Scientific Community

Session 1. Natural and Environmental Risk Prevention and Sustainability

Convener: A. Ismail-Zadeh, *Russian Academy of Sciences, Moscow*

- 14:30 T. Beer, *CSIRO Environmental Risk Network, Aspendale, Australia*
 Environmental Risk and Sustainability
- 14:55 J. Bayer, *Intl Institute for Applied System Analysis, Austria*, A. Vári, Z. Ferencz,
 Hungarian Academy of Sciences, Budapest
 Flood Risk Management in the Upper Tisza Basin in Hungary
- 15:20 G. Panza, *University of Trieste, Italy*, M. Kouteva, *Bulgarian Academy of Sciences, Sofia*
 Earth Sciences Contribution to the Safe Development of Ground Transportation Systems in Central Europe

15:45 Coffee Break

Discussions with a participation of invited experts

- 16:15 U. Shamir, *Technion, Haifa, Israel*
 Risk and Sustainability
- 16:30 G. Heiken, *Los Alamos Natl Lab, USA*
 Volcanoes and Cities
- 16:45 A. Jayawardena, *University of Hong Kong, China*
 Geo-Risk Management Practices in the Asia Pacific Region

Session 2. Science, Risk and Society

Convener: F. Praderie, *Honorary Vice-President, Euroscience*

- 17:00 G. Schméder, *Conservatoire des Arts et Métiers, Paris, France*
 Science and Risk. Scientific authority at risk
- 17:25 J. Paterson, *University of Westminster, London, UK*
 Science, Risk and Law
- 17:50 R. Gherardi, *Henri Mondor Hospital, Creteil, France*
 How Safe are Aluminium-containing Routine and War Vaccines?

Discussions with a participation of invited experts

18:15 P. Tamas, A. Vári, *Hungarian Academy of Sciences, Budapest*
Values, Interests and Symbolic Politics in a Nuclear Waste Disposal Debate: About the Societal Dimensions of Risk Perception

18:30 **General Discussions**

Sunday, 16th June 2002

09:00 Joint meeting of the IUGG GeoRisk Commission and Euroscience Workgroup
“Science and Urgent Problems of Society”

10:30 Coffee Break

11:00 General discussions. Conclusions.

13:00 Workshop end

The Workshop was welcomed by Prof. J.-P. Connerade, the President of Euroscience, and Prof. U. Shamir, the vice-President of the International Union of Geodesy and Geophysics. They emphasised an importance and timeliness of the meeting which brings together researchers from natural and social science and law and representatives of many European, NATO and other countries.

Introductory key-note lecture “Help for Decision Making in Risk Management: Mobilisation of the Scientific Community” was delivered by Dr. J.P. Massué of the Council of Europe. He introduced the Workshop participants with the principal aims of the Council’s project EUR-OPA Major Hazards Agreement, explained problems of risk assessment and management, and highlighted an importance of international collaborations in risk reduction and sustainable development.

The Workshop consisted of two main sessions and two sessions of general discussions. The abstracts of the key-note talks are presented in APPENDIX 2. The papers presented at the Workshop will be published as NATO ARW Proceedings by KLUWER Publishers. Conclusions of the ARW “Science for Reduction of Risk and Sustainable Development of Society” were formulated as the Budapest Manifesto. The Manifesto will be delivered to the offices of the EUROSCIENCE and IUGG and will be published in the Euroscience News and EOS.

The Workshop was covered by two journalists (from Currier International, Paris, France, and Bulgarian Academy of Sciences Press, Sofia, Bulgaria). It was agreed that the participants of the Workshop will continue their contacts established during the Workshop and that such meetings, which bring together scientists, policy makers, journalists and public, should be held biannually.

APPENDIX 1. Biographies of Speakers

Joanne BAYER

Joanne Linnerooth-Bayer is a research associate at the International Institute of Applied Systems Analysis (IIASA) in Laxenburg, Austria, where she is leader of a project on "Risk, Modeling and Society". She received her Ph.D. in economics from the University of Maryland. At IIASA, she has worked on interdisciplinary teams exploring the social and economic issues related to environmental and technological risks, including issues of risk estimation, risk-benefit analysis, risk perception, culturally determined risk construction, and risk burden sharing. Her current interests are two-folded. The first is global change and the risk of catastrophic natural disasters, and she is investigating options for improving the financial management of catastrophic risks. She has received grants to carry out a study of flood risk on the Tisza River in Hungary, and to organize two EU conferences on Global Change and Catastrophe Risk Management in 1999 and 2000 (focusing on floods and earthquakes in Europe). Her second interest is the social risks from pension policy, and she is a partner on an EU-funded project to develop participatory mechanisms for pension reform processes in Europe. A full account of the activities of IIASA's Risk, Modeling and Society project can be found on <http://www.iiasa.ac.at/Research/RMP/>

Tom BEER

Tom Beer, FEIA is chair of the Commission on Geophysical Risk and Sustainability of the International Union of Geodesy and Geophysics (IUGG) and a member of the Executive of the IUGG. Professor Beer co-ordinates the CSIRO Environmental Risk Network, and is an adjunct Professor in the Graduate College of Management of Southern Cross University. He is an international expert on environmental risk, including greenhouse gas and air quality issues and particularly their application to transport. During 1995 he was Science Adviser to the Environment Protection Agency in Canberra to prepare a risk-based review of national environmental priorities. As part of this advisory activity he prepared the influential report: T. Beer & F. Ziolkowski, (1995) *Environmental risk assessment: an Australian perspective*, Supervising Scientist, Canberra. Professor Beer is part of the World Bank team examining the National Greenhouse Strategy for Thailand. He is a lead author for the IPCC Special Report on Technology Transfer. He is also a member of the Academy of Science National Committee for the Environment. He was part of the team that won the CSIRO Chairman's medal in 2000 with his component being the analysis of greenhouse gas emissions from hybrid electric vehicles. Professor Beer serves as a member of the Standards Australia committees on risk management, and risk management systems. He was chair of the South Pacific Node of the State of the Future Project, which is a global foresighting study co-ordinated by the Washington, DC based American Council of the United Nations University. This followed from his work as interim planning co-ordinator of the Regional Global Change Research Network for Oceania. This network links the Pacific Region to the International Geosphere-Biosphere Program (IGBP) through a program of conferences, research, and training activities. Professor Beer's present editorial activities include positions as Editor-in-Chief of Natural Hazards, and as a member of the Editorial Board of Environment International. He is the author of thirteen books and over one hundred articles in refereed journals.

Zoltan FERENCZ

Zoltan Ferencz holds an MA in Economic and Political Sciences from the Budapest University of Economic Sciences and Ph.D. from the same university. He is a Research Fellow in the Hungarian Academy of Sciences Institute of Sociology. His research interests include communication in local communities, risk assessment, risk management and risk communication. In 2001 he participated in the Young Students' Summer Program of the International Institute for Applied Systems Analysis.

Romain GHERARDI

Cursus (Medicine): Resident (Interne des Hôpitaux de Paris : 1976 - 1982); Physician (M.D: 1982, Paris VI University); Neurologist (Certificat d'Etudes Spéciales : 1985); Pathologist (Certificat d'Etudes Spéciales : 1981); Specialist in Toxicology & Legal Medicine (Certificat d'Etudes Spéciales : 1983).

Cursus (University): Health law (D.E.S.S. de Droit de la Santé: 1984, Faculté de Droit de Sceaux); History (D.E.A. de Méthodologie en Histoire des Idées: 1985, Paris XII University).

Present positions: Professor since 1990 (PU-PH, Paris XII University Hospital Henri Mondor, Créteil, France); Head of Service of Histology - Department of Pathology, Henri Mondor hospital, Créteil; Coordinator of the Interdisciplinary Muscle & Nerve Group, Henri Mondor hospital, Créteil; Head of an INSERM research group (EMI 0011 "Neuromuscular system & inflammation"); Director of Master (DEA "Fundamental bases of cell and molecular biotherapies " Paris XII).

Scientific activity: Author of 233 original research papers in peer-reviewed international journals (Medline 1983-2002), mainly related to toxic and inflammatory neuromuscular disorders. Special input in HIV-related and toxic neuromuscular diseases, including those induced by almitrine (partially withdrawn), zidovudine (posology revised), aluminium-containing vaccines (currently under evaluation) and others (cholesterol lowering drugs).

Invited speaker: WHO (Geneva), Centers of Disease Control, AFSSAPS, and various international academies working in the field of Neurology and Myology.

Grant HEIKEN

Grant Heiken worked for NASA during the Apollo and Skylab Programs, in the Lunar Receiving Laboratory, as a geology instructor in the astronaut training program, and conducting independent research on lunar surface processes, including volcanism. He was a co-editor of "*Lunar Sourcebook—A User's Guide to the Moon*" (Cambridge University Press). In 1975 he moved to the Los Alamos Scientific Laboratory (now the Los Alamos National Laboratory) in New Mexico, where he has since worked in geothermal exploration and development, volcanic hazard analysis, the uses of volcanic rocks, basic research in explosive volcanism, and urban geoscience. He is co-author, with Ken Wohletz, of two volcanology books, "*Volcanic Ash*" and "*Volcanology and Geothermal Energy*" (University of California Press) and co-author with Dick Fisher and Jeff Hulen of "*Volcanoes—Crucibles of Change*" (Princeton University Press, 1997). Heiken

has done research or exploration on volcanoes or volcanic fields in the United States (Oregon, California, New Mexico, Colorado, and Hawaii), Mexico, Guatemala, Honduras, Guadeloupe, St. Lucia, Italy, Greece, Ethiopia, and the Earth's Moon. He was president of the International Association of Volcanology and Chemistry of the Earth's Interior (1995-1999). Over the last 5 years he has led an interdisciplinary team for urban science and was a Fulbright Scholar at the University of Rome-TRE in 1999.

Amithirigala W. JAYAWARDENA

Education: B.Sc. (Eng), University of Ceylon; M.Eng., University of Tokyo; M.S., University of California, Berkeley; Ph.D., University of London

Professional Experience: Senior Lecturer (1989-) and Lecturer (1977-89), Department of Civil Engineering, The University of Hong Kong; Senior Engineer (1976-1977), Howard Humphrey & Sons, Consulting Engineers, UK; Research Assistant/ Post Doctoral Research Assistant (1972-1976), Department of Civil Engineering, King's College University of London; Researcher (1969-1970), National Research Centre for Disaster Prevention, Tokyo, Japan; Irrigation Engineer (1963-1966), Irrigation Department, Sri Lanka.

Academic Awards: Environmental and Water Resources Institute (EWRI) International Visiting Fellowship (2002), American Society of Civil Engineers

Research: Hydrological and water quality studies in the Pearl River Delta; non-linear dynamical systems approach to hydrometeorological and environmental prediction; Analysis and prediction of chaotic dynamics with special reference to hydrometeorological time series

Membership: Chartered Engineer, Engineering Council, UK (C.Eng); Fellow, Hong Kong Institution of Engineers (FHKIE); Fellow, Institution of Civil Engineers (FICE); Member, American Society of Civil Engineers (MASCE); Member, International Association of Hydrological Sciences; Fellow, Hong Kong Meteorological Society; Founding Member, Hong Kong Institution of Science; Member, International Association of Hydraulic Engineering and Research (Hong Kong Chapter).

Professional Society Activities: Assessor for the professional interview, The Hong Kong Institution of Engineers; Lead Reviewer, Professional Member Review, The Institution of Civil Engineers, UK; Member, AP-FRIEND (Asia Pacific Flow Regimes from International experimental Network Data Sets) Project; Editor, Catalogue of Rivers for Southeast Asia and the Pacific – A UNESCO IHP Publication (vols. I, II & III); Expert witness in the matter of the Environmental Impact Assessment Appeal Board and the Sheung Shui to Lok Ma Chau Spur Line Environmental Impact Assessment (Kowloon Canton Railway Corporation vs. Environmental Protection Department of the Hong Kong SAR Government); Executive Committee Member, Environmental Division, The Hong Kong Institution of Engineers; Executive Committee Member, University of Hong Kong Academic Staff Association

Publications: Over 100 publications

Jean-Pierre MASSUÉ

Education: Diplôme du Centre Universitaire des Hautes Etudes Européennes, de Strasbourg (1963); PhD in particle Physics, Université de Strasbourg (1970).

International Positions Held:

Council of Europe: Scientific Counsellor, Parliamentary Assembly of the Council of Europe (1971-1977), Director of Higher Education and Research, Council of Europe, Head of Division for Scientific Co-operation (since 1977), Executive Secretary of EUR-OPA Major Hazards Agreement (since 1988).

General Secretary of European Federation of Scientific Cooperation Networks (since 1993)

President of Institut ECO-CONSEIL de Strasbourg (since 1995)

Member of Scientific Committees and Governing Boards of numerous European Centres on Natural Risks and their prevention

Recent Publications:

1. Nouvelles technologies et aide à la décision, J P Massué, 50-59, "Administration" Revue d'étude et d'information publiée par l'Association du Corps Préfectoral et des Hauts Fonctionnaires du Ministère de l'Intérieur français, N° 183, "Gestion de crise : Moyens et perspectives, octobre 1999
2. Evaluation des risques liés aux conséquences de l'accident de Tchernobyl et efficacité des contre-mesures, J. P. Massué et al, AP/CAT (99) 66 rev, Accord EUR-OPA Risques Majeurs, Conseil de l'Europe, décembre 1999.
3. The Council of Europe's EUR-OPA Major Hazards Agreement, J P Massué and C Negru, Remote Sensing in the 21st Century, Economic and environmental applications, proceedings of the 19th EARSeL Symposium, Valladolid/Spain, 31st May-2nd June 1999, Ed José Luis Casanova, 2000 Balkema, Rotterdam, ISBN 90 5809 096 5
4. EUR-OPA Major Hazards Agreement, Ethics and disaster Medicine : fundamental concepts, Features specific to the medical management of disaster situations, research on ethics and disaster medicine, J.P. Massué et al, Handbook of Disaster Medicine, Emergency medicine in mass casualty situations, Ed. Jan de Boer, Marcel Dubouloz, International Society of Disaster Medicine, //N/SP/// ISBN 9067 64 311 4, VAN DER WEES, uitgeverij ISBN 90 5805 010 6
5. Risk Assessment Mission for determining training needs for the trainees of a school of civil protection in Kosovo, J P Massué et al, AP/CAT (2000) 21 rev, Accord EUR-OPA Risques Majeurs, Conseil de l'Europe, Avril 2000
6. School of Civil Protection Handbook, (Risk and emergency management, human rights aspects, ethical aspects), Ed J P Massué, Z Milutinovic and V Poyarkov, December 2001, EUR-OPA Major Hazards Agreement, Council of Europe and International Migration Office of the United Nations
7. Ethique et Médecine des catastrophes, J P Massué et al. Pp 1,2 et 3, Council of Europe (for 2002)

Giuliano PANZA

EDUCATION: University of Bologna Laurea in Physics.

POSITIONS HELD:

Fulbright scholarship to UCLA in 1969.

Faculty of the University of Bari in the Geodesy and Geophysics Institute in 1970.

Chair in seismology at University of Trieste in 1980.
Director of the Institute of Geodesy and Geophysics at University of Trieste for 6 years, Chairman degree course in Geology and Member of the Board of Governors.
Head of Group at the Abdus Salam International Center for Theoretical Physics at Trieste.
Fellow of Accademia Nazionale Lincei.
Fellow of Academia Europaea.
Fellow of Third World Academy of Sciences.
Editor in Solid Earth Sciences of Pure and Applied Geophysics.
Managing Editor in Geophysics of Earth Sciences
Review and Co-Editor of Journal of Seismology and Earthquake Engineering.

SCIENTIFIC CONTRIBUTIONS:

Edited six textbooks on earthquakes, geology and computers, among other topics. Received the Beno Gutenberg medal from the European Geophysical Society for outstanding contributions to Seismology. A quite revolutionary model was formulated for the lithosphere-asthenosphere system in the European area proposing the existence of almost aseismic lithospheric roots. The lithosphere subduction at continent-continent collisions is now a widely accepted concept, even if it contradicts one of the basic dogmas of the original formulation of plate tectonics. At present the main research interests are seismic hazard assessment at regional and urban scale, wave propagation theory, including tsunami waves, modelling of seismic sources and of crust and upper mantle structure, volcano seismology, active deformations, non-linear dynamics of the lithosphere, and intermediate-term, intermediate-range earthquake prediction.

John PATERSON

Dr John Paterson is Reader in Law at the School of Law, University of Westminster, London, UK. He trained as a solicitor in the Office of the Solicitor to the Secretary of State for Scotland, was a doctoral researcher at the European University Institute, Florence, Italy and also worked at the Centre for the Philosophy of Law, Louvain-la-Neuve, Belgium. He worked on the Governance Project with the Forward Studies Unit of the European Commission and was involved in the TRUSTNET concerted action on risk governance. He is currently a member of an international research team (within the EU Framework Programme 5) studying innovative risk governance processes in the nuclear and chemical industries. He has also worked as a consultant for the OECD-NEA. Recent publications include *Behind the Mask: Regulating Health and Safety in Britain's Offshore Oil and Gas Industry*, Aldershot: Ashgate, 2000; *Governance in the European Union*, (co-editor), Luxembourg: Office for Official Publications of the European Communities, 2001; 'Truth or Dare: Expertise and Risk Governance', in *Better Integration of Radiation Protection in Modern Society*, Paris: OECD-NEA, 2002, pp43-52.

Geneviève SCHMÉDER

Geneviève Schméder is Professor at the Conservatoire National des Arts et Métiers (Paris) where she teaches and conducts research on technological change, defence and disarmament and science, technology and society. Previously, she worked in the Directorate of Science, Technology and Industry of the OECD, the Science Policy Research Unit of the University of Sussex (U.K) and the French Ministry of Industry. She studied economics and political science at the University of Paris-Sorbonne, and holds a PhD in economics from the University Blaise Pascal of Strasbourg. Her publications include *The European Rupture, Restructuring the European Military Sectors in the Post Cold War World*, Edward Elgar, 1997 (with M. Kaldor) and *The End of Military Fordism*, The United Nations University Press/Pinter, 1997 (with M. Kaldor et U. Albrecht).

Uri SHAMIR

Present Position: Lawrence and Marie Feldman Chair in Engineering. Director – Stephen and Nancy Grand Water Research Institute, Technion - Israel Institute of Technology, Haifa, ISRAEL 32000

Membership: American Water Resources Association, American Water Works Association, Israel Association of Water Resources, International Association of Hydrological Sciences, International Water Resources Association, Foreign Member of the Spanish Academy of Sciences, Member of The International Water Academy

Honors: Fellow of the American Geophysical Union, Fellow of the American Society of Civil Engineers, International hydrology Prize 2000

Areas of Research: Analysis and simulation of water distribution systems; Optimal design and operation of water distribution systems; Optimal maintenance policies for pumping equipment; Optimal replacement scheduling for water pipelines; Optimal design and operation of multi-quality water supply systems; Reliability of supply in water systems; Optimal design of sewer networks; Urban hydrology: water-sensitive urban development; Stormwater management; Optimal management of aquifers; Multiobjective decision making in water resources; Management of water resources under uncertainty and risk; Statistical-analytical methods in water resources; Non-smooth optimization; Optimization by search techniques; Water policy for Israel; Negotiation over disputed waters.

Professional Activities: President, International Commission for Water Resources Systems (ICWRS) of the International Association of Hydrological Sciences (IAHS), 1987-1991; Member, Water Resources Systems Committee, ASCE, since 1987; Member, UNESCO IHP-IV Working Group on Project M-4-3 "Study Experiences with Modern Water Resources Planning and Management Techniques Taking into Account Risk Factors", 1990-current; President, International Association of Hydrological Sciences, 1991-1995; Vice President, International Union of Geophysics and Geodesy, 1995-1999 and 1999-2003; Chairman, Science Advisory Council to the Water Commissioner of Israel, 1992-1995; Member, Israeli Steering Committee on Water, Middle East Peace Talks, October 1992-1996; Member, Jordan - Israel Joint Water Committee, 1994-1996; Member, Visiting Committee, Department of Civil and Environmental Engineering, MIT, 1995-present; Member, Palestinian - Israeli Joint Water Committee, 1995-1996, 1999-present; Chair, UNESCO IHP-V Working Group on "Management of Water Under Conditions of Conflict", 1997-present; Member of the Board of Governors, World Water Council, 1997-1999; Member of the Forum of the World Commission on Dams, 1998-2000; Member of the Editorial Board of "Water Policy" 1999-present; Member of the Israeli Committee of the Stockholm Junior Water Prize, 1999-present; Member

of the UNESCO Task Force on Hydrology for the Environment, Life and Policy (HELP), 1999-present; Chair of the Steering Group for Monitoring the Kinneret Lake and Watershed October 2000 –present; Member of the Steering Group for Israel's Water Master Plan.

Publications: Over 80 refereed papers in journals and books + more in proceedings

Invited key-note speaker in international conferences.

Pal TAMAS

Education: M.A., Kiev Institute of Technology, Kiev, USSR, Electric Engineering and Computer Science, 1971; Dr.ec., Karl Marx University, Budapest, Macroeconomics and Economic Planning, 1977; Ph.D. Hungarian Academy Sciences, Budapest, Sociology, 1981.

Professional Experience: 1972-74, Research Fellow, Bureau for Research, International Organization of Journalists, Budapest; 1974-78, Scientific Secretary and Fellow, Institute of Sociology, Hungarian Academy of Sciences, Budapest; 1978-Senior Fellow, Institute of Sociology, Hungarian Academy of Sciences, Budapest; 1983, Visiting Fellow: British Academy of Social Sciences and Humanities, London, UK; 1985, American Studies Fellow, MIT, Cambridge, MA, USA; 1989-1991, Director of Research - Hungarian Institute for Public Opinion Research, Budapest; 1991, Visiting Professor, Department of Political Science, Wesleyan University, Middletown, CT, USA; 1991-1992, Visiting Professor, Department of Political Science, Concordia University, Montreal, Qc, Canada; 1995-1996, Guest Scientist, WZB, Berlin; Director, Institute of Social Conflict Research, Hungarian Academy of Sciences, Budapest; 1998-, Director, Institut of Sociology, Hungarian Academy of Sciences, Budapest.

Awards and memberships: 1982, Erdei Ferenc Award of the Hungarian Sociological Association; 1985, American Council of Learned Societies Fellowship; 1988, National Award for Education of the Youth (Hungary); 1990, Award of the Hungarian Broadcasting Corporation (Rádió nivódíj); 1998-2002, Széchenyi Professorship; 1998, Hungarian Academy of Engineering, Member.

Professional Associations:

JEL-KÉP (Sign), Hungarian Communications' Quarterly - Editor -1988-91, Member of the Board - 1992-; International Sociological Association, Research Committee on Sociology of Science - Board Member 1986-1994; International Sociological Association, Working Group on Environment and Society - Board Member 1990-1994; International Council for Science Policy Studies - Board Member, 1993-; Hungarian Sociological Association - Secretary of the Sociology of Science Section 1986-; Culture and Society of East-Central Europe Program Dubrovnik Inter-University Centre for Post-graduate Studies - Director of Courses 1988-1990; KUTATÁS-FEJLESZTÉS (R&D), Hungarian Bi-Monthly - Member of the Editorial Board, 1989-1994; Vengerszkij meridian (Hungarian Social Science Magazine in Russian) - Member of the Editorial Board, 1989-91; Társadalomkutatás (Social Research) - member of the Editorial Board, 1995-; Information Zentrum für Sozialwissenschaften, Bonn - Member of the Beirat 1995-; Hungarian National Science Foundation, Social Science Board 1995-; Stanford Institute for Advanced Studies, Member of the East European Advisory Boards 1995-; St. Petersburg Summer School for Social Studies of Science, Russia, Board Member 1992-; Hungarian Sociological Association, President, 1997-1999

Anna VARI

Anna Vari received her Ph.D. in Economics in the Budapest University of Economics. She is Senior Research Fellow in the Institute of Sociology, Hungarian Academy of Sciences and Professor at the Department of Environmental Management at the Budapest University of Technical and Economic Sciences. Her main fields of interest include health and environmental policy, risk analysis, conflict management, public participation and decision support. She has been principal investigator of several Hungarian and international research projects sponsored by various funding organizations including - among others - the U.S. National Science Foundation, the Regional Environmental Center for Central and Eastern Europe, the European Bank for Reconstruction and Development, the PHARE Programme of the European Union, the United Nations Development Program, and the Global Environmental Fund. She has been author or editor of 7 books and more than 80 chapters/articles in professional journals and scholarly books. She held visiting appointments with the International Institute for Applied Systems Analysis, the State University of New York at Albany, York University (Toronto), and McGill University (Montreal).

APPENDIX 2. Abstracts of Key-note Speakers

Environmental Risk and Sustainability

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Environmental risk refers to two separate things. Firstly, risk to the environment as a result of human activity. Global change arising from greenhouse warming is an example. Secondly, risk to people as a result of environmental hazards. Geophysical risk arising from natural hazards is an example. It is possible to use the existing frameworks of risk management, health risk assessment, and ecological risk analysis to develop a risk management framework that is suitable for geophysical risk and sustainability. The framework consists of the following steps:

1. Determine **concerns** by using risk assessment techniques to construct scenarios.
2. Identify the **consequences** by systematically identifying hazards.
3. Undertake **calculations** by using relevant models.
4. Evaluate **certainties and uncertainties** involved in the calculations of the vulnerability and of the exposure.
5. **Compare with criteria** to determine whether further action is needed.
6. **Control** the risk and **communicate** the results to those who need to know.

Flood Risk Management in the Upper Tisza Basin in Hungary: A System Analytical Approach

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In Europe, Hungary ranks only behind the Netherlands with respect to flood exposure. Over half of the country's territory, two-thirds of its arable land, and a third of its railways are exposed to riverine, ground water and flash floods. Estimates show that losses from flooding could reach almost a quarter of the GDP of river flood basins, or 7-9 percent of the total GDP of the country. One of the highest flood risk areas in Hungary, and one of the poorest regions in Europe, is the Upper Tisza river basin in the northeastern part of the country. The intensity and frequency of flood disasters in this region, and throughout Hungary, appear to be increasing because of development and farming practices in the exposed areas, deforestation and other land-use practices, the regulation of the rivers and neglect of the drainage systems. Worsening weather extremes due to climate change may also be a contributing factor. With increasing losses, the Hungarian government is concerned about continuing its tradition of taking almost full responsibility for flood risk management, including flood prevention, response, relief and public infrastructure repair.

In 2000 the International Institute for Applied Systems Analysis (IIASA), in cooperation with Stockholm University and the Hungarian Academy of Sciences, launched a research project, which addressed the flood risk mitigation problem in the Upper Tisza basin. More generally, the project was also aimed at developing an approach to integrated assessment that can aid policy makers in the design of an integrated flood risk management program, which is acceptable to the stakeholders. Within the framework of the project (i) a case study of recent floods was developed to understand the policy context, (ii) semi-structured interviews with key stakeholders were carried out and public survey data were gathered with the purpose of constructing feasible policy scenarios for a national flood risk management program, (iii) a catastrophic risk management model was developed that incorporates hydrological models of the flood peril and data on properties at risk in order to estimate future probabilistic flood losses, (iv) the model was used to examine the extent of expected losses given selected policy scenarios, and (v) a second round of stakeholder interviews informed by the model was conducted to explore policies that are supported by a variety of stakeholders. The paper summarizes some key preliminary results of the above research project.

Earth Sciences Contribution to the Safe Development of Ground Transportation Systems in Central Europe

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The ongoing process of integration in Europe and world-wide, is a part of the trend for the political unification associated with broad alliance of civil initiatives, including environment, culture, mobility, trade and commerce. Within this process preventive action is a prerequisite for saving a significant fraction of the Gross National Product (GNP) of the involved countries in case of natural disaster. A high standard of preparedness to meet natural disasters throughout the region,

which is currently crippled by the different levels of preparedness to meet natural disasters at individual national scales, is crucial in the effort to reduce the vulnerability of the lifeline systems and communications [e.g. Blueprints of the World Congress on Disaster Reduction, August 2001, Washington, USA].

Large destructive events are not unexpected in the region of Central Europe (CE). A paradigm being, the 1117 earthquake caused severe structural damage all over the Po valley. Recent results obtained within the research activity carried on in the framework of collaboration among the partners of different Central European Initiative (CEI) countries have shown that the CE territory is exposed to a level of natural hazards much higher than currently believed. The region is of crucial importance not only at European scale but, thanks to its location, its role is expected to be a crossroad on the routes connecting East and West, South and North. Thus the problem of preparedness to meet natural disasters is crucial in the effort to reduce the vulnerability of the lifeline systems and communications (oil and gas pipelines, power supply, telecommunication, etc.).

A realistic geodynamic model of Central Europe (CE) is a necessary base for the upgrade of preparedness to meet natural disasters - e.g. earthquakes, landslides, liquefaction, floods, etc. Such a model will supply a common base of the preparedness to meet natural disasters in Central Europe and provide the necessary background for the assessment -at different scales- of the stability of the lifelines systems crossing the region. The expertise and the achievements in the Earth Sciences (e.g. investigation of the processes within and at the surface of the Earth, permanent observation of geophysical fields, monitoring of natural hazards and assessment of their risk for population and environment) and the successful completion of several international projects involving high-level collaboration guarantee a successful joint work. The aim being the definition of a geodynamic model of the area, focussed on the safe development of ground transportation systems. Instrumental to this endeavour are maps of geological hazards, active crust deformations and structural velocity models of the Earth Crust, combined with the procedure for intermediate-term earthquake prediction, used as a basis for multi-fold earthquake scenarios and seismic zoning maps, The demand for a unified geodynamic model is the common conclusion of several international projects carried on in the recent past, like the EC funded projects *Quantitative seismic zoning of the Circum-Panonian region, (1995-97)* and *European Network on Seismic Risk Vulnerability and Earthquake Scenarios (1997-02)*, *Unification of Gravity System in Central and Eastern Europe*, and *Advanced methods for assessing the seismic vulnerability of existing motorway bridges (1999-01)*; and the NATO funded projects *Earthquake hazard associated to the Vrancea region seismicity (1994-97)*, *Microzonation of Bucharest, Russe and Varna in connection with Vrancea earthquakes (1997-99)* and *Impact of Vrancea Earthquakes on the Security of Bucharest and Other Adjacent Urban Areas - Ground Motion Modelling and Intermediate-Term Prediction (1999-)*.

To bring the transportation systems in line with sustainability objectives is one of the key challenges for communication in Europe. In spite of this, little attention is paid to the credible risks and the possible disastrous consequences that can be provoked due to the occurrence of different natural disasters (e.g. landslide, earthquakes, coseismic effects). A reliable geodynamic model, combined with credible hazard scenarios, and with seismic microzonation studies represent the base for the realistic definition of the seismic loading that can be experienced by different transportation and lifeline systems (and other communications as well). For this purpose a task force has been set up which involves scientists from the following Institutions from 13 CEI countries: OFPZ Arsenal, Vienna; CLSMEE at BAS, Sofia; DG at Charles University, GI and IRSM at ASCR, Praha; DG at University of Zagreb; GGRI at HAS and SO, Budapest; DST at University of Trieste, and SAND Group at ICTP, Trieste; IZIS, Skopje; IG at PAS and IGGA at Warsaw University of Technology; (NIEP, Bucharest; SI, Belgrade; FMP at the University of Ljubljana.

It is not easy to estimate the cost/benefit analysis of such an action, in fact accordingly with the UN Secretary General *building a culture of prevention is not easy. While the costs of prevention have to be paid in the present, its benefits lie in a distant future. Moreover, the benefits are not tangible; they are the disasters that did NOT happen.*

Risk and Sustainability

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Risk is present in all aspects of water resources management, as in all other managed resources. It arises from uncertainty with respect to outcomes and their consequences, and the fact that some of consequences will be negative. In long-range planning of water resources management, the uncertainty results from the variability of hydrology in the coming years and the possibility of climate change over decades, as well as from the changing set of values and demands imposed on the water sector by society, directly and through its political bodies. In the shorter term, operation of water resources systems is subject to additional types of uncertainties, some resulting from geophysical hazards.

The sustainability of a water resources system has to be evaluated according to a set of "dimensions", which include: long-term integrity of the resources and the robustness of their quantity and quality in the face of variability and extremes; economic affordability for the consumer sectors served and the nation as a whole; maintenance of environmental quality for present and future generations; technological feasibility and command of appropriate technologies; scientific and professional capacity to operate and maintain the system effectively; the ability to provide the services that society deems appropriate; the institutional, legal and political structure required to make the system work properly. Along each of these dimensions there are risks of various types, which counteract the ability to move the system to the proper balance between the risk taken and the cost to get to the balance.

The task facing geophysics is to provide society with an assessment of the various risks in each dimension that relates to geophysical forces, of two types. First there are the short-term catastrophic occurrences, including floods, tsunamis, earthquakes and droughts, which cause hazards to life, to property and to the ability to maintain water services. Then there are the slower geophysical processes that threaten the viability of water services, including

extended droughts, depletion of natural resources, land subsidence, degradation of water quality, the effects of potential climate change. More recently, the risk due to adverse human action, namely terrorism, has gained prominence. Thus, it is not only the geophysical forces against which we must fend, but unfortunately also against deliberate actions by ill-intentioned people.

We shall examine the range of dimensions along which sustainability is measured, the risks that appear along each of these dimensions, and elaborate the role that the geophysical community can and should play in aiding society to find the “best” balance between reducing the risk to increase sustainability and the cost of achieving this balance.

Volcanoes and Cities

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As the role of cities in the global economy continues to grow in the 21st Century, a natural disaster such as a volcanic eruption near a large city can have serious regional or global effects. We must focus the geophysical, atmospheric, hydrologic, and geological sciences on interdisciplinary approaches to solving the urban problems of vulnerability and sustainability. Globally, there are 59 large cities near potentially active volcanoes, including 2 megacities; a combined population at risk is over 50 million.

Because of the proximity of volcanoes such as Popocatepetl (Mexico City) and Taal Volcano (Manila) to densely populated urban areas, more and more volcanologists are moving “into the city.” There is a growing focus toward the integration of volcanic hazard studies with data-based models of urban infrastructure (e.g., transportation, energy, telecommunications, water distribution, and public health), and with the social and political framework. To prevent large-scale disasters in cities on or near volcanoes, we must go well beyond the traditional hazard mapping and monitoring and involve the community in extensive education and public awareness campaigns. Risk evaluation must rely heavily on modeling and visualization of physical processes and their effects, which are easily grasped by emergency planners, the insurance industry, policy makers, and the public.

Since 1995, the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI) has sponsored week-long multidisciplinary meetings (“Cities on Volcanoes”) that bring together city planners, politicians, volcanologists, medical experts, etc.; these meetings have been held in Rome and Naples, Italy and Auckland, New Zealand. The next meeting will be in Hilo, Hawaii. International attendance at these meetings creates new integrated working relationships necessary to mitigate volcanic hazards anywhere in the world where cities are close to volcanoes.

Geo-risk management practices in the Asia Pacific Region

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Over the years, the Asia Pacific Region has suffered more than its fair share of natural disasters. These include floods, typhoons, land slides, storm surges, tsunamis, earthquakes and volcanic eruptions which may be considered as geo-hazards, and others such as wild fires which could be attributed to human action. Historical evidence shows that such disasters have caused loss of lives, property and other economic damages and untold miseries to many millions of people in the region. The mechanisms which trigger these disasters are beyond the control of mankind, at least at the present time, and the only option open to the vulnerable communities is to take pro-active measures to mitigate the potential damages. Before mitigating action can be taken, it is important to understand the risks associated with different types of hazards and to make an assessment which is followed by appropriate risk management practices. Scientific tools are used in the assessment process while a combination of structural and non-structural measures are used in the management stage. This paper attempts to highlight the geo-hazards that the region has to live with and the measures that have been adopted to minimize potential damages.

Science and Risk: Scientific Authority at Risk

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In the recent period, optimism about science has been tempered by a growing awareness of risks. Science is feared not only because of the possible use of its applications, but also because of a new perception of risks involved in research itself. How did one get to a situation where science is increasingly perceived as a danger? A first explanation lies in the changing context of the production of knowledge: new pattern of funding, characterised declining public money and growing competition for research funds and patents delivery; weakening of borders which previously existed between science and technology, research and applications, knowledge and action; increasing pressure on scientists codes of behaviour and the scientific ethics. The image of science as driven by purely intellectual curiosity is clouded, particularly in biology, where scientists are often hired as officers or consultants in private companies.

A second explanation lies in the development of the notion of irreversibility and its introduction in the concept of risk, which has obvious consequences in terms of both prevention and precaution. When applied to science, this new conception has strong effects. One is a new scepticism towards science, which progressively replaces the old rationalistic scepticism on behalf of science. This phenomena should not be regarded as anti-modern and transitory, since it may correspond to a lasting ideology, generated by both democracy and reason and thus promised to a long future. We might be on the verge of a society much more critical towards science, in which scientific research may lose its exemption from political scrutiny. Science is in a paradoxical situation, since it is often helpless when confronted to complex contexts that it largely contributed to create. One main characteristic of actual risks is linked to the excessive simplification of reality to which modern sciences contribute. Scientists, instead of defending themselves adamantly against outside critics, encouraging a public image of their profession as just another self-protective special-interest group, should admit the existence of conflicting values, the relativity of their knowledge and the need of impact studies of scientific statements. Science should, in other terms, integrate the democratic dimension as well as politics should integrate the cognitive dimension.

Science, Risk and Law

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However society decides to respond to risk, it is frequently the case that law is the instrument by which it implements its decision, whether through regulations supposed to mitigate or remove risk or through court procedures designed to allocate liability and compensation when a risk has been realised. It is a question, however, whether societal expectations of law in these circumstances are always realistic - or indeed whether law always understands well the role that has been assigned to it. Whether deployed as an ex ante or an ex post response to risk, law depends heavily upon science for information - on the one hand, for example, to underpin regulations and, on the other, for example, to provide expert evidence to litigation processes. What is law actually doing in these circumstances? What is it realistically capable of doing? Only by examining the fundamental nature of scientific and legal rationalities can answers be attempted. Such an examination reveals the possibility for misunderstanding between science and law, but also the potential for a constructive approach to risk in which legal and scientific rationalities are well aligned. There are no quick fixes as regards the legal treatment of risk, but such a conscious alignment of rationalities based on a well-informed mutual understanding of capabilities and limitations can provide a firm foundation for the design and construction of appropriate legal instruments.

How Safe are Aluminium-containing Routine and War Vaccines? (Lessons from the so-called macrophagic myofasciitis)

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Macrophagic myofasciitis is a condition first reported in 1998, which cause remained obscure until 2001. Over 200 definite cases have been identified in France, and isolated cases have been recorded in other countries. The condition manifests by diffuse myalgias and chronic fatigue, forming a syndrome that meets both Center for Disease Control and Oxford criteria for the so-called chronic fatigue syndrome in about half of patients. One third of patients also develop an autoimmune disease. Macrophagic myofasciitis is characterized by a stereotyped and immunologically active lesion at deltoid muscle biopsy. Electron microscopy, microanalytical studies, experimental procedures, and an epidemiological study recently demonstrated that the lesion is due to persistence for years at site of injection of an aluminum adjuvant used in vaccines against hepatitis B virus, hepatitis A virus, and Tetanus Toxoid. Aluminum hydroxide is known to potently stimulate the immune system and to shift immune responses towards a Th-2 profile. It is plausible that persistent systemic immune activation that fails to switch off represents the pathophysiologic basis of chronic fatigue syndrome associated with macrophagic myofasciitis, similarly to what happens in patients with post-infectious chronic fatigue. Therefore, the WHO recommended an epidemiological survey, currently conducted by the French agency AFSSAPS, aimed at substantiating the possible link between the focal macrophagic myofasciitis lesion (or previous immunization with aluminium-containing vaccines) and systemic symptoms. Interestingly, special emphasis has been put on Th-2 biased immune responses as a possible explanation of chronic fatigue and associated manifestations known as the Gulf war syndrome. Results concerning macrophagic myofasciitis may well open new avenues for etiologic investigation of this syndrome. Indeed, both type and structure of symptoms are strikingly similar in patients with macrophagic myofasciitis and Gulf war veterans. Multiple vaccinations performed over a short period of time in the Persian gulf area have been recognized as the main risk factor for Gulf War syndrome. Moreover, the war vaccine against anthrax, which seems to be crucially involved, is an aluminium hydroxide-containing vaccine administered in a 6-shot regimen. If safety concerns about long-term effects of aluminium hydroxide are confirmed it will become mandatory to propose novel and alternative vaccine adjuvants to rescue vaccine-based strategies and the enormous benefit for public health they provide worldwide. The data presented here have been analyzed in depth by the Safety of Vaccines Standing Committee of the World Health Organization (Geneva, Switzerland, September, 1999 and June, 2000) (Wkly Epidemiol Rec 1999; 74: 338-40) and by other experts (Centers of Disease Control and Prevention, San Juan, Puerto Rico, May 11&12, 2000;

Agence Française de Sécurité Sanitaire des Produits de Santé, Paris, May 30, 2000). Possible implication of aluminium hydroxide-adjuvanted vaccines at the origin of the so-called Gulf War syndrome was exposed to an Ad Hoc commission of the French Assemblée Nationale (Paris, march 28, 2001), and acknowledged in its final report (Cazeneuve B, Rivasi M, Lanfranca C. Guerre du Golfe : vérité sur un conflit. Tome 1. Rapport. Les documents d'information de l'assemblée nationale 2001, n°3055; 75-83).

**Values, Interests and Symbolic Politics in a Nuclear Waste Disposal Debate:
About the societal dimensions of risk perception**

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In Hungary, as in other parts of the industrial world the nuclear waste debate and in more general terms the controversy about national energy scenarios of the future - with its ups and downs - is part of the public opinion's involvement in technology policy making. The arguments and methods used to guide this debate in the last 15 years changed significantly. The basic tools used in environmental problem solving were re-structured and the values interpreted as system of reference were re-designed by the social and political transformation in the country in this period. We will present some empirical findings of 2 surveys provided in 2001 demonstrating the changing attitudes to those elements of public risk perception which are mostly political [relations to the state as a neutral controller of private industry, trust issues towards the "big enterprises", the role of experts and knowledge distribution mechanisms, controversies of local and national interests, partnerships for "green" politics].