



WORKSHOP on the SOCIO-ECONOMIC and ENVIRONMENTAL IMPACTS of DROUGHTS

5th-7th October 2009, Venice, Italy

Workshop II and the round table on describing the impacts (task 3.4, WP3)

Date: October 5-7, 2009

Venue: Centro Don Orione Artigianelli Venezia (main Island, 15 min walking distance from the Saint Mark's square), Zattere Dorsoduro 909/A - 30123 Venezia

tel +39 0415224077 - fax +39 0415286214

e-mail: info@donorione-venezia.it, <http://www.donorione-venezia.it/ing/home.htm>



Aula Magna plenary room, capacity 150 people



Sala San Marco side room for project meeting,
capacity 20 people

Number of participants: 65-75, out of which 45 network partners, 15-20 XEROCHORE core partners, 5-10 local participants.

Internet: An Internet voucher will be available for all participants, multiple use, 5 hour of effective connection.



AGENDA

DAY 1: Monday, October 5th, 2009

- 09:30 - 10:00 *Informal start with a Welcome Coffee*
- 10:00 - 12:00 Introduction into Xerochore workshop – main objectives, preliminary results (Jaroslav Mysiak and Anil Markandya)
- 12:00 - 13:00 *Lunch*
- 13:00 - 13:20 Opening speech: aim of the workshop & main focus (Anil Markandya)
- 13:20 - 13:50 Natural systems and drought (Henny van Lanen)
Presentation of the extended report on Natural Systems
- 13:50 - 14:30 Economic and social costs of drought, water demand and supply management options (Anil Markandya and Jaroslav Mysiak)
Presentation of the background document and explanation of the break-out-groups (BoGs) – topics, subdivisions and aims
- 14:30 - 15:20 Plenary discussion opened by 2 discussants
Discussion with audience on background document (e.g. comments, lacks, additions, etc.) and topics for BoGs
- 15:20 - 16.00 *Coffee break*
- 16:00 - 16:50 Environmental impacts of droughts (Melanie Bauer)
Presentation of the background document and explanation of the break-out-groups (BoGs) – topics, subdivisions and aims
- 16:50 - 17:40 Plenary discussion opened by discussant(s)
Discussion with audience on background document (e.g. comments, lacks, additions, etc.) and topics for BoGs
- 17:40 – 18:00 Drought management and policies (Dionysis Assimacopoulos)
Overview on the background document on drought management and policies
- 20:00 *Social dinner*



DAY 2: Tuesday, October 6th, 2009

9:00 - 10:00 Plenary discussion - continuation from the previous day, wrap up and presentation of topics to be discussed in depth in the break-out groups, presentation of group assignment

10:00 - 10:30 *Coffee break*

10:30 - 12:30 Break out groups (BoGs) addressing selected topics in depth; rapporteurs to summarise the discussions later in plenary session

Econ 1.1 Economic costs of droughts – issues and research gaps

Chair: Anil Markandya Rapporteur: Ruslana Palatnik

Soc 1.2 Social effects of droughts

Chair: Keren Raiter Rapporteur: Jaroslav Mysiak

WaQ 1.3 Impacts of droughts on water quantity and quality

Chair: Froebrich Jochen Rapporteur: Melanie Bauer

WaQ 1.4 Impacts of droughts on water quantity and quality

Chair: Henny van Lanen Rapporteur: Stefano Barchiesi

12:30 - 14:00 *Lunch*

14:00 - 15:30 Break out groups addressing selected topics in depth; rapporteurs to summarise the discussions later in plenary session

Agr 2.1 Water demand management options in agriculture

Chair: Carlo Giupponi Rapporteur: Jaroslav Mysiak

WSM 2.2 Water supply management options

Chair: Stefan Niemayer Rapporteur: Margaretha Breil

Eco 2.3 Impacts of droughts on ecosystems

Chair: James Dalton Rapporteur: Stefano Barchiesi

Clim 2.4 Impacts of droughts across different climatic conditions

Chair: Melanie Bauer Rapporteur: Eric Sauquet

15:30 - 16.00 *Coffee break*



16:00 - 18:00 Break out groups addressing selected topics in depth; rapporteurs to summarise the discussions later in plenary session

Urb 3.1 Water demand management options in urban sector

Chair: Anil Markandya Rapporteur: Margaretha Breil

Ener 3.2 Water demand management options in energy production and industry

Chair: Jaroslav Mysiak Rapporteur: Julia Martin-Ortega

KnoE 3.3 Knowledge and Experiences from other countries

Chair: Eric Sauquet Rapporteur: Henny van Lanen

Vuln 3.4 Strategies for reducing environmental vulnerability to drought

Chair: Stefano Barchiesi Rapporteur: James Dalton

DAY 3: Wednesday, October 7th, 2009

8:30 - 10:00 Plenary discussion, reports from the break-out groups 1.1 – 2.2, wrap up and plenary discussion

10:00 - 10:30 *Coffee break*

10:30 - 12:00 Plenary discussion, reports from the break-out groups 2.3 – 3.4, wrap up and plenary discussion

12:00 - 13:00 Final panel discussion, conclusions and farewell



HOW TO REACH VENICE

From the Marco Polo Venice Airport

From the Marco Polo Venice Airport the easiest way to reach the Centro Culturale Don Orione Artigianelli is taking the blue and red line of the Alilaguna waterbus, a direct service between the Marco Polo Venice Airport and the Venice centre. Get off at "Zattere" waterbus station. The drive takes approx. 70 minutes and the price of one way ticket is € 13,00 (luggage included).

Once you are in Zattere, walk straight ahead along the side of the great Church of Gesuati. The entrance of the Centro Culturale Don Orione Artigianelli is at number 909/A behind the same Church.

Further information about the Alilaguna waterbus is available at: <http://www.alilaguna.com/?lang=en>.

Also, from the Marco Polo Venice Airport you can take the ACTV or ATVO road buses that end at Piazzale Roma, road taxi and bus terminal.

ACTV road bus n° 5 (orange bus) to Piazzale Roma road taxi and bus terminal leaves from the platforms outside the arrival hall of the Marco Polo Venice Airport. The drive takes approx. 25 minutes and the price of a one way ticket is € 1,10. Information about the timetable and prices is available in the ACTV web-site at <http://www.actv.it/english/home.php>.

ATVO road bus (blue bus) to Piazzale Roma road taxi and bus terminal leaves from the platforms outside the arrival hall of the Marco Polo Venice Airport. The drive takes approx. 20 minutes and the price of one way ticket is € 3,00 (luggage included). Information about the timetable and prices is available in the ATVO web-site at <http://www.atvo.it/index.php?lang=en&area=23&menuid=23>.

Once you are at Piazzale Roma road taxi and bus terminal please follow the further instructions.

Otherwise, you can take a **private water taxi** directly to your hotel or a **road taxi** to Piazzale Roma road taxi and bus terminal. The price for a water taxi is approximately € 95,00 from the airport to the City Centre and the journey time is approximately 30 minutes. You will need to go through the white tunnel, 10 minutes by foot, on the left side of the main airport building, to reach the small dock area.

The road taxi from the airport to Piazzale Roma costs approximately € 35,00 and leaves from the platforms outside the arrival hall of the Marco Polo Venice Airport.

From the Canova Treviso Airport

ATVO road buses run between the Canova Treviso airport and Piazzale Roma road taxi and bus terminal. The journey time is approx. 45 minutes in good traffic conditions and the price of a ticket is 6,00 for one way and € 10,00 return, valid 7 days (luggage included). Information about the timetable and prices is available in the ATVO website: <http://www.atvo.it/index.php?lang=en&area=23&menuid=23>.

Once you are at Piazzale Roma road taxi and bus terminal please follow the further instructions.

A **private road taxi** from the airport to Piazzale Roma will cost approximately € 70,00. You will find road taxis available in front of the airport terminal.



HOW TO REACH THE WORKSHOP VENUE once you are in the city centre

From Piazzale Roma road taxi and bus terminal

From Piazzale Roma road taxi and bus terminal you can take the **ACTV waterbus** (vaporetto) **number 51 or 61**, along the Giudecca Canal, and get off at “Zattere” waterbus station. The drive takes approx. 13 minutes and the price of a one way ticket is € 6,50. Once you are at Zattere, walk towards your right along the waterfront, then turn on your left soon after the great Church of Gesuati. The entrance of the Centro Culturale Don Orione Artigianelli is at number 909/A behind the same Church.

Otherwise, from Piazzale Roma road taxi and bus terminal you can choose another, more tourist way along the Gran Canal: take the **ACTV waterbus** (vaporetto) **number 1 or 2** (direction Vallaresso) and get off at “Accademia” waterbus station. The drive takes approx. 30 minutes and the price of a one way ticket is € 6,50. Once you are at Accademia follow on your left the “Rio Terrà Foscarini” street: the Centro Culturale Don Orione Artigianelli is located after about 200 metres on your right, opposite to Sant’Agnese Church.

Details on the waterbus timetables and prices are available in the ACTV website at: <http://www.actv.it/english/home.php>.

From the Venice Santa Lucia Railway Station

From the Venice Santa Lucia Railway Station, it is possible to choose between the following ACTV waterbus:

Number 51 along the Giudecca Canal. Get off at “Zattere” waterbus station. The drive takes approx. 16 minutes and the price of a one way ticket is € 6,50. Once you are at Zattere, walk towards your right along the waterfront, then turn on your left soon after the great Church of Gesuati. The entrance of the Centro Culturale Don Orione Artigianelli is at number 909/A behind the same Church.

Number 1 or 2 (direction Vallaresso), a more tourist way along the Gran Canal. Get off at “Accademia” waterbus station. The drive takes approx. 20-25 minutes and the price of a one way ticket is € 6,50. Once you are at Accademia follow on your left the “Rio Terrà Foscarini” street: the Centro Culturale Don Orione Artigianelli is located after about 200 metres on your right, opposite to Sant’Agnese Church.

Details on the waterbus timetables and prices are available in the ACTV website at: <http://www.actv.it/english/home.php>.



LIST OF INVITED PARTICIPANTS

Radwan Al-Weshah, Regional Hydrologist/ UNESCO Regional Office in Cairo, Egypt (TBC)
Christodoulos Artemis, Private Consultant and Formerly Water Development Department, Cyprus
Bernarde Barraque, ENGREF-AgroParisTech, France
Gabriele Bonaiti, Euro-Mediterranean Irrigators Community, Spain
Mohamed Boufaroua, Soil and Water Conservation Directorate, Tunisia
Ingo Bräuer, Ecologic Institute Berlin, Germany
Abdullah Ceylan, Turkish State Meteorological Service, Turkey
Francis Chiew, CSIRO Land and Water, Australia
Jan Cools, Soresma, Belgium
Cornelis de Jong, Water Research Institute/ VUVH Bratislava, Slovakia
Yaella Depietri, Universitat Autònoma de Barcelona, Spain and United Nations University, Germany
Thomas Dworak, Ecologic – Institute for International and European Environmental Policy, Germany
Abdelaker El Garouani, Faculty of Sciences and techniques – Fez, Morocco
Erierto Eulisse, Water Civilization International Centre, Italy
Israel Finkelshtain, The Hebrew university of Jerusalem, Israel (TBC)
Alberto Garrido, Technical University of Madrid, Spain
Dominique Gatel, Veolia Water, Belgium
Dieter Gerten, Potsdam Institute for Climate Impact Research, Germany
Kristiana Hansen, University of Wyoming, USA
Marc Huygens, Soresma, Belgium
Eva Iglesias, Universidad Politécnica de Madrid, Spain
Essam Khalifa, Ministry of Water Resources and Irrigation, Egypt (TBC)
Giorgos Kallis, ICTA, Universidad Autònoma de Barcelona, Spain
Peter Kristensen, European Environment Agency (EEA), Denmark
Gareth James Lloyd, UNEP-DHI Centre, Denmark
Carlos Machado, Universidade Atlântica, Portugal (TBC)
Rodrigo Maia, Faculty of Engineering, University of Porto (FEUP), Portugal
Maria Manez Costa, University of Osnabrueck, USF, Germany
Julia Martin-Ortega, BC3. Basque Centre for Climate Change, Spain
Paola Minoia, University of Helsinki, Finland
Pierre-Yves Monette, EUREAU, European Union of National Associations of Water Suppliers and Waste Water Services, Belgium
Nikolaos P. Nikolaidis, Technical University of Crete, Greece
Oldřich Novický, T.G. Masaryk Water Research Institute, Czech Republic
Gunnar Nützmann, Leibniz-Institute of Freshwater Ecology and Inland Fisheries (IGB), Germany
Jorgen E. Olesen, Aarhus University, Denmark

Workshop on the Socio-Economic and Environmental Impacts of Droughts
5th-7th October 2009, Venice, Italy



Charis Omorphos, Water Development Department (WDD) of the Ministry of Agriculture, Natural Resources and Environment of the Government of the Republic of Cyprus, Cyprus

Ruslana Palatnik, Fondazione Eni Enrico Mattei, Italy

Manuel Pulido-Velazquez, Universidad Politecnica de Valencia, Spain

Keren Raiter, Environmental Institute of Australia and New Zealand, Australia

Tania Runge, COPA-COGECA, Committee of Professional Organisations in the EU (COPA) and General Confederation of Agricultural Co-operatives in the EU (COGECA), Belgium

Amir Sadoddin, Gorgan University of Agricultural Sciences and Natural Resources, Iran

Jose D. Salas, Colorado State University, USA

Apurva Sanghi, World Bank, USA (TBC)

Davide Viaggi, University of Bologna, Italy

Evan Vlachos, Colorado State University, USA

Steven Wade, HR Wallingford, UK

Mike Walker, Department for Environment, Food and Rural Affairs DEFRA



PARTICIPANTS SHORT BIO

CHRISTODOULOS ARTEMIS

Private Consultant and formerly Water Development Department, Cyprus

Christodoulos Artemis holds a Bachelor's degree in Civil Engineering from the Imperial College of Science and Technology of the University of London and a Master's in Soil Mechanics also from Imperial College. He has worked for forty years in the Water Development Department of Cyprus. During his long career in the Department he has gained experience in all aspects of water development and water resources management. From 2001 and until his retirement from the public service in 2009 he held the post of Director of the Water Development Department. As Water Director of Cyprus he has participated in all EU Water Directors semi-annual meetings whose main task was the implementation of the Water Framework Directive. Mr. Artemis has participated in various Congresses, Seminars and Workshops both locally and abroad on matters related to the work of the Water Development Department where he has made a number of presentations. He has also published a manual on the estimation of floods in Cyprus. He has participated in EU funded Projects such as EMWIS, WaterStrategyMan of the Arid Cluster, INECO and Aquastress

GABRIELE BONAITI

Drainage and Irrigation District "Riviera Berica" - in behalf of Euro-Mediterranean Irrigators Community, Italy

As head of the Agricultural Office at Irrigation and Drainage District in Italy, I developed expertise regarding irrigation requirements and distribution planning, GIS, irrigation projects' design and operation, and management of agriculture related issues at District level. My previous activity at the University of Padova, Italy (undergraduate degree, technical collaborations, PhD on Environmental Agronomy), allowed me to gain skills concerning the scientific approach in agricultural and environmental issues.

Recently I received a master degree in Irrigation and Drainage at the University of Padova and Rovigo, Italy, with a dissertation focused on canal flow measurement in Irrigation and Drainage Districts, and I was the WS&D key issue thematic coordinator within the European Regional Process toward the 5th World Water Forum. Currently I am Extension Associate at the AgriLife Extension Service, Texas A&M University, USA, and I am involved in the FP6 SCENES project, and in the WS&D European Expert Network.

MOHAMED BOUFAROUA

Soil and Water Conservation Directorate, Tunisia

Actual position: Director of soil and water conservation in the Ministry of Agriculture and water resources in Tunisia since 2002.

International activities: Water harvesting expert with international institutions:

- Soil and water conservation expert with ICARDA in Mauritania.
- Director of the IFAD project 298 TN of integrated rural development in arid regions.
- National coordinator in the UNPD project TUN 86-020 in charge of research and participatory approaches.
- Representative of Mediterranean countries in the water scarcity and drought in the European Union Commission.
- Water harvesting expert with UNDP in Eritrea.
- Soil and water conservation expert with FAO in MOROCCO.
- Water harvesting expert with FAO in Tunisia.
- Participatory approaches in soil and water conservation projects with FAO in Rwanda.
- In charge of international research and technology transfer projects with IRD (France, Lund (Sweden), Laval (Canada), IAO (Italy), Belgium (E.U)).
- Representative of Tunisia in many seminars (more than 50) and in technology transfer activities (Central Africa, Morocco, Algeria, Spain, Italy, France, Philippines, Canada, Rwanda, Japan, Egypt, Sudan, Kuwait...).
- Representative of Tunisia in the sixth meeting of the desertification convention, Cuba 2004.
- Representative of Mediterranean countries in EUWI water scarcity and drought working group.



ABDULLAH CEYLAN

Turkish State Meteorological Service, Turkey

I was born in Ankara in 1965. I graduated from Middle East Technical University, Mathematics Department. I have completed MSc (These Subject: Drought Management in Ankara), and my PhD (Subject: Hail Hazards in Turkey) in Ankara University, Physical Geography Department. I have been working in State Meteorological Service since 1983. Now: I am working in Research department and I am responsible for Water Related hazards (drought, floods, hail, etc.) and Climate Change Effects. Some of my publications are as follows: Spatial and Temporal distribution of Meteorological Hazards in Turkey; Seasonal Rainfall of Determining Flood Prone Areas in Turkey Based on Intensity and Recurrence Period of Extreme Rainfall Data; Drought Management in Turkey - Past, Present and Future; Assessment of Drought events Observed in Recent Years in Turkey.

FRANCIS CHIEW

CSIRO Land and Water, Australia

Dr. Francis Chiew has 20 years experience in research, teaching and consulting in hydrology and water resources. He is a Science Leader at CSIRO Land and Water in Australia, where he leads several projects in hydrological modelling and hydroclimatology. He recently led the climate scenario and catchment water yield modelling team in the Murray-Darling Basin Sustainable Yields Project to characterise the historical runoff, explain the current prolonged drought, and estimate future water resources availability across the region. Francis has authored over 200 refereed research papers and is active in converting research outcomes into products for the land and water industry.

CORNELIS DE JONG

Water Research Institute/ VUVH Bratislava, Slovakia

Ir. Cor de Jong has studied Water Management (irrigation and drainage) and Development Economics at the Wageningen University in The Netherlands. He has about 40 years of experience in land evaluation, sustainable land and water development and management, irrigation and drainage research. Mr. De Jong has worked in over 20 countries all over the world. His major research on land evaluation and on the economics of land drainage was done in India, Egypt, Portugal, and Slovakia. He had teaching engagements at the Wageningen University and Research Centre / WUR, the Institute of Social Studies / ISS at The Hague and UNESCO-IHE at Delft. Subjects taught were Socio-Economic and Environmental Impact of Soil Salinity and Waterlogging, Project Development and Management, Financing Water Management in The Netherlands and in Western Europe and Cost Recovery in Irrigation Projects. Since 2001, Mr. De Jong is engaged in the implementation of the European Water Framework Directive / WFD, especially in Slovakia.

YAELLA DEPIETRI

Universitat Autònoma de Barcelona – UAB, Spain and United Nations University, Institute for Environment and Human Security - UNU-EHS, Germany

Yaella Depietri is PhD candidate in Environmental Science at the Institut de Ciència i Tecnologia Ambientals (ICTA), Universitat Autònoma de Barcelona (Spain), working in the field of ecological economics, vulnerability assessment related to environmental hazards. She collaborates in the MOVE (Methods for the improvement of vulnerability assessment in Europe) EU funded project at the United Nations University, Institute for Environment and Human Security (UNU-EHS) (Bonn, Germany). From 2006 to 2008 she worked as young researcher at the Fondazione Eni Enrico Mattei (FEEM) (Italy). At FEEM Yaella collaborated in 3 EU research projects related to socio-economic aspects of water resources management, regarding in particular decision support systems, public participation, and adaptation. Between 2005 and 2006 she obtained a first Master degree in "Sustainable Development and Mediterranean Environments" and a second Master in Biogeochemical Oceanography, both in France. In 2003 she obtained a bachelor degree in Environmental Sciences at the Ca' Foscari University of Venice (Italy)



THOMAS DWORAK

Ecologic – Institute for International and European Environmental Policy, Germany

I am working at Ecologic since 2003. In June 2007 I became head of Ecologic's office in Vienna, Austria. I concentrate on water resource protection, especially the EU Water Framework Directive. I am specialized in linking water protection to other environmental issues such as the EU Common Agriculture Policy, adaptation to climate change, bioenergy cropping, soil protection and spatial planning. Additionally, I am Ecologic's supervisor for the sixth and seventh European Research Programme in which I serve as an evaluator. Before joining Ecologic, I worked for the Wuppertal Institute for Climate, Environmental and Energy in the research group "Eco-Efficiency & Sustainable Enterprises" and the department for climate policy. There I focused on sustainable water management, organic farming and the sustainable development of information technologies.

ERIBERTO EULISSE

Water Civilization International Centre, Italy

Eriberto Eulisse is director of the Water Civilization International Centre, a non profit organization based in Venice (www.civiltacqua.org). The Centre promotes the recovery of both the material and non-material heritage of water, and the use of local/traditional knowledge of past societies that have elaborated original and innovative practices to face threats such as water scarcity, draughts, and desertification. Eriberto Eulisse graduated in Social Sciences at the University of Bologna and specialized in Anthropology at the University of East Anglia, Norwich (UK). He has been working as curator of the Ethnographic Museum of Trento, in the Italian Alps, and as project officer of the European Commission in Brussels (DG Research). He is editor (with Lucia Ceccato) of *Climate Change. Impact and water challenge, Centro Civiltà dell'Acqua, Venezia, 2009*.

ALBERTO GARRIDO

Technical University of Madrid, Spain

Alberto GARRIDO is an Associate Professor of Agricultural and Resource Economics at the Technical University of Madrid. His work focuses on natural resource and water economics and policy. Has conducted consultant work for OECD, IADB, European Parliament, European Commission, FAO, and various Spanish Ministries and Autonomous Communities. He is the author of 100 academic references.

DOMINIQUE GATEL

Veolia Water, France

Dominique GATEL Chairs the Commission on Water Supply with EUREAU (European Federation of Water & Waste water service operators). He is deputy Technical manager of Veolia Water, in charge of institutional relationships. He graduated from the National School of Agronomy in France, specialized in food science and worked for 10 years in the Food industry. He moved to the water sector to be the head of the R&D department at the Suburbs of Paris utility, for another 10 years, and then took his current position. He is an active member of the French Chapter of IWA.

KRISTIANA HANSEN

University of Wyoming, USA

Kristiana Hansen is Assistant professor of Water Resource Economics at the University of Wyoming in the United States. Her general research interests lie in natural resource economics and agricultural economics. Her current work focuses on the use of contractual mechanisms to manage water supply risk in the western United States, particularly in a mathematical programming framework. She is also doing research on the response of Belgian arable crop farms to change in agri-environmental policies and trade liberalization through the Université catholique de Louvain in Belgium. Dr. Hansen completed her PhD in Agricultural and Natural Resource Economics at the University of California, Davis in 2008.



EVA IGLESIAS

Universidad Politécnica de Madrid, Spain

Dr. Eva Iglesias is professor of Agricultural and Natural Resource Economics at the Polytechnic University of Madrid. She is also member of the recently created Research Centre for the Management of Agricultural and Environmental Risk (CEIGRAM). Her main research interest is in the field of water economics and management. In particular, her research works have focused on the evaluation of water institutions to address water scarcity; the role of water pricing policies and markets; the impact of climate change and the analyses of hydrological droughts. In recent years, she has been involved in mathematical modeling integrating econometric and bayesian criteria to simulate agricultural water use under different scenarios. Her writings have been published in *Water Resources Research*, *Agricultural Economics* and the *Australian Journal of Agricultural Economics*, among others. She collaborates in international and national research projects and has been actively engaged in the assessment of the Water Framework Directive in Spain.

GIORGOS KALLIS

*ICTA (Institut de Ciència i Tecnologia Ambientals - Institute of Environmental Science and Technology),
Universidad Autònoma de Barcelona, Spain*

Giorgos Kallis is an environmental scientist working on ecological economics, political ecology and water policy. He was born in Athens, Greece, in 1972. In 2008 he completed a Marie Curie International Fellowship at the Energy and Resources Group of the University of California at Berkeley. His research focused on socio-environmental coevolution, adaptive co-governance in large river basins, and droughts and social adaptation. He has a PhD in Environmental Policy and Planning from the University of the Aegean in Greece and a Masters in Environmental Engineering and a Bachelors degree in Chemistry, both from Imperial College, London. He has worked in the past at the Office of Scientific and Technological Assessment of the European Parliament (1995-1996) contributing to the revision of the EU water directives and served as a consultant for UNEP-MAP, PAP-RAC preparing guidelines for integrated urban water management in coastal areas (2004).

PETER KRISTENSEN

European Environment Agency (EEA), Denmark

Peter Kristensen is project manager on integrated water resource management at the European Environment Agency. He has more than 22 years experience in the state of and pressures affecting Europe's water and has contributed to nearly all water chapters of EEA's State of Environment assessments reports. Has an extensively European-wide knowledge of water resources, water abstraction and water use; water quality and pollution; climate change impacts on water; and sector activities affecting the state of water quantity and water quality.

RODRIGO MAIA

Faculty of Engineering of the University of Porto – FEUP, Portugal

PhD in Civil Engineering, Associate Professor at the Faculty of Engineering of the University of Porto and board member of the Centre of Hydraulics, Water Resources and Environment of that institution. Current Vice-President of EWRA (European Water Resources Association). Author/co-author of 4 chapters in books with more than 70 publications in international periodicals with referee and papers in conference proceedings. In the last years, was involved in several national and international projects, namely 2 European Projects (5th and 6th Framework Programme) dedicated to water resources management. Currently involved in the creation of a Drought Early Warning Management System for the Portuguese National Water Authority, including the definition and evaluation of mid and long term scenarios for water availability and demand patterns.



JULIA MARTIN-ORTEGA

Basque Centre for Climate Change, Spain

Environmental Scientist with PhD on Environmental Economics (University of Cordoba, Spain). Research experience on the economics of the Water Framework Directive, water valuation (water ecological status changes and in water scarcity conditions), environmental damage and compensation. Participation in several EU projects (e.g. AquaMoney, REMEDE) and Spanish National projects related to the implementation of the WFD. Two years research stay in the Institute for Environmental Studies of the Vrije Universiteit (Amsterdam), Environmental Economics Department. Currently working at the Basque Centre for Climate Change (Spain) on the economics of climate change in the water and agricultural sectors (adaptation), in collaboration with international research centres (The Energy and Resources Institute of India, The Chinese Academy of Social Sciences, CATIE in Costa Rica)

PAOLA MINOIA

University of Helsinki, Finland

PhD in Development Geography, with a thesis on irrigation management in Northern Sudan. I am a researcher of the University of Helsinki, Department of Geography, and lecturer in Water management in developing countries, and Tourism and Development. I was previously working at the University of Venice and have participated in several research projects and academic exchanges funded by the EC and the Italian Ministry of Research. I have about 40 published articles. During the period 1998-2001 I was employed by UNDP – environmental programme (including GEF) – with basis in Lesotho and Egypt. I have also worked as a consultant for the Italian Ministry of Foreign Affairs and as an assessor in different EC funding programmes.

PIERRE-YVES MONETTE

EUREAU, European Union of National Associations of Water Suppliers and Waste Water Services, Belgium

Since 2007, Pierre-Yves Monette Esq. is the Secretary-General of EUREAU, the European Federation of the Water & Waste Water Services. EUREAU's members – being public and private utilities from all Europe – provide water and sanitation to 405 million people across Europe. Since 2002, Mr. Monette is also visiting professor at the College of Europe where he teaches the international mediation & the ADR (Alternatives Dispute Resolution mechanisms). Before being EUREAU's Secretary-General, Mr. Monette, who is a specialist in good governance, was the federal Ombudsman of Belgium (1996-2005), chief of staff of a Minister (1994-1995), advisor to the Cabinet of King Albert II (1993) and of King Baudouin I (1991-1993) and attorney at the Brussels Bar (1988-1991).

Publications:

- Scientific contributions on public governance, equity, reasonableness and mediation, various publishers, 1997-2008.
- Les Etats-Unis d'Europe (The United States of Europe), Ed. Nauwelaerts & Bruylant, 1997.
- L'Europe, état d'urgence (Europe, state of emergency), Ed. Desclée de Brouwer, 2002.
- Métier de Roi (The King's job), Ed. Alice, 2002.
- Beroep: Koning der Belgen (The King's job), Ed. Van Hallewyck, 2003.
- Belgique, où vas-tu ? (Belgium, where are you heading to ?), Ed. Mardaga, 2007.

NIKOLAOS P. NIKOLAIDIS

Technical University of Crete, Dept. of Environmental Engineering, Greece

Dr. Nikolaos Nikolaidis is a Professor and the Associate Head in the Department of Environmental Engineering, the Director of the Environmental Engineering Graduate Program and was a professor and director of the Environmental Engineering Program at the University of Connecticut, USA. His areas of expertise include watershed scale studies, heavy metal site assessment and remediation and sustainable development. He uses a "holistic" approach in solving environmental problems by conducting field studies,



laboratory experimentation and mathematical modeling. Dr. Nikolaidis is involved in several European (FP5-EUROCAT, tempQsim; Marie-Curie RTN-AQUATRAN; FP6-SoilCritZone; LIFE-EnviFriendly; and FP7-MIRAGE) and Greek funded watershed studies. He holds the patent of the AsRT technology for removing arsenic from groundwater and has published over 80 papers in international journals and books.

OLDŘICH NOVICKÝ

T.G. Masaryk Water Research Institute, Czech Republic

Oldřich Novický (born in 1951), Dipl. Hydrologist (International Course for Hydrologists, IHE, Delft, The Netherlands, 1983), Head of Department of Hydrology of T.G. Masaryk Water Research Institute, Prague (2005 – date), Head of Czech delegations in Working groups established for implementation of EC Water framework directive by International commissions for protection of main rivers (the Elbe, Odra and Danube) (2003 – 2005), Member of Steering Committee of North European FRIEND (Flow Regimes from International Experimental and Network Data), Member of Low Flow group of North European FRIEND, Involved in the activities of WATCH (Water and Global Change) project sponsored by European Commission.

GUNNAR NÜTZMANN

Leibniz-Institute of Freshwater Ecology and Inland Fisheries (IGB), Dept. Ecohydrology and Professor of Hydrology, Humboldt-University Berlin, Geographical Institute, Germany

Hydrologist, study of mathematics, PhD in 1981 with 'Finite element modelling of unsaturated/saturated flow', Habilitation at the Technical University of Berlin in 1998 'Modelling of subsurface flow and transport processes'; Full professor at the Geographical Institute Humboldt University of Berlin, Head of the Department of Ecohydrology at IGB; German representative of the IAHS, section groundwater.

JØRGEN EIVIND OLESEN

Aarhus University, Dept. of Agroecology and Environment, Denmark

Jørgen E. Olesen was born in 1958, and he received a M.Sc. in Agriculture from the Royal Veterinary and Agricultural University, Copenhagen. Since 2003, he has held a research professorship in adaptation and mitigation to climate change in agriculture at Faculty of Agricultural Sciences, University of Aarhus. He was involved in initiating Danish research on agrometeorology. He has lead several interdisciplinary projects, including projects on integrated wheat production, application of remote sensing and GIS in agriculture, development of a wholefarm simulation model, and several projects on organic farming and reduced tillage. He has participated in numerous EU projects and concerted actions on the effect of climate change on agriculture and on greenhouse gas emissions from agricultural activities. He has participated in several international and national committees and commissions on reduction of greenhouse gas emissions from agriculture and impacts of climate change on agricultural systems. He is also a member of the Intergovernmental Panel on Climate Change.

CHARIS OMORPHOS

Water Development Department (WDD) of the Ministry of Agriculture, Natural Resources and Environment of the Government of the Republic of Cyprus, Cyprus

Mr Charis Omorphos is an Executive Engineer at the Water Development Department of the Ministry of Agriculture, Natural Resources and Environment of the Government of the Republic of Cyprus and has over 20 years experience in the water sector. He graduated with first class honours from the University of Sheffield with a degree in Civil and Structural Engineering. He also holds a Masters degree in Soil Mechanics from the Imperial College of London and a Masters degree in Public Sector Management from the Cyprus International Institute of Management. he is currently working on EU matters and particularly on the implementation of the Water Framework Directive Common Implementation Strategy and a member of the expert network on water scarcity and droughts of the European Union



RUSLANA RACHEL PALATNIK
Fondazione Eni Enrico Mattei, Italy

Ruslana Rachel Palatnik Ph.D. in economics, the joint program of the University of Haifa and the Technion-Israel Institute of Technology (Israel, 2008). She joined Fondazione Eni Enrico Mattei in 2007 in the Climate Change Modelling and Policy programme, where she has been developing new integrated assessment modelling for climate-change mitigation and adaptation policy evaluation focusing on agriculture, and land and water managing. In addition she is a lecturer in economics at the academic college of Emek Yezreel, Israel, an affiliate scientist at the Euro-Mediterranean Centre for the Climate Change (CMCC), Italy, and a senior researcher in the Natural Resources and Environmental Research Center (NRERC) Haifa, Israel where she developed a computable general equilibrium model of the Israeli economy and conducted climate change mitigation policy analyses.

MANUEL PULIDO-VELÁSQUEZ

Department of Hydraulic and Environmental Engineering Institute of Water and Environmental Engineering, Universidad Politécnica de Valencia, Spain

Manuel Pulido is Associate Professor, Dpt. of Hydraulic and Environmental Engineering, Technical Univ. of Valencia (UPVLC). MSc in Civil and Env. Engineering (Univ. of California, Davis) and PhD in Civil Engineering (UPVLC), his research specialty is integrated management of water resource systems, integrating hydrology and engineering with economics and system analysis techniques. He has published several papers on hydroeconomic modeling, with applications to the analysis of water markets and groundwater banking, optimal conjunctive use of surface and groundwater, economic analysis of the EU WFD, design of incentive pricing and cost recovery policies, and economic impact of water conservation policies in irrigation (this latter contribution led to comments in The New York Times and Science News). He has developed hydroeconomic models for different case studies in Southern California, New Mexico, and in several river basins in Spain. Researcher in several national and EU projects related to water economics in the WFD and DSS for drought mitigation, Dr. Pulido currently leads the UPVLC research team for the EU project GENESIS (FP7) on implementation of the EU Groundwater Directive and assessment of climate change and land-use impacts on groundwater and related ecosystems.

KEREN GILA RAITER

Environmental Institute of Australia and New Zealand, Australia

Keren has lived and worked in three of the world's most drought-affected regions of the world - Australia, the Middle East (Israel), and Sub-Saharan Africa (Tanzania). She brings together a range of perspectives on climate change and drought, including their social and environmental ramifications. She currently works with the Western Australian Department of Water's Climate, Vegetation and Water programme, researching hydrological impacts of observed climate changes in water supply catchments. Keren has also researched social and political implications of climate change and water scarcity in Jordan, Israel, the Palestinian Territories, and Egypt. She also spoke at the 2007 International Forum on Drought organised by the European Commission in Sevilla, Spain and contributed to the Mediterranean Water Scarcity and Drought Working Group report that covered social and political dimensions of water scarcity and drought. Keren has a Bachelor of Science with Honours in Conservation Biology and a Bachelor of Arts in Philosophy.

TANIA RUNGE

COPA-COGECA, Committee of Professional Organisations in the EU (COPA) and General Confederation of Agricultural Co-operatives in the EU (COGECA), Belgium

Tania Runge has been working since October 2007 as an environmental expert at the Copa-Cogeca Secretariat located in Brussels. Copa-Cogeca is the umbrella organization representing European farmers and European agri-cooperatives.



Her responsibilities include water management and biodiversity issues. She is coordinating the subgroup "Water management and agriculture" of the European Water Technology Platform (WssTP). In addition she is the contact person at Copa-Cogeca office for agricultural as well as environmental research. Previously, Tania Runge worked as scientist at the German Federal Agricultural Research Centre (vTI) from 2004 to 2007, e.g. on the evaluation of agri-environmental measures and on the assessment of water protection measures. She is an agricultural economist (M.Sc.) and did her PhD in landscape planning analyzing the economic and ecologic impacts of adapting farming practices to reach environmental quality targets using a multi-objective modeling approach.

AMIR SADODDIN

Gorgan University of Agricultural Sciences & Natural Resources, Iran

PhD in resource management and environmental science (catchment modelling and management) Australian National University (May 2006). PhD thesis topic: Bayesian network models for integrated catchment-scale management of salinity. Supervisors: Professor Anthony Jakeman, Dr Rebecca Letcher and Dr Barry Croke. Master of science in catchment management, Tarbiat Modarres University, Tehran (Mat 1995). MSc thesis topic: the effect of hydro-geomorphological factors on mass movements in the Chashm and Khatirkuh catchment, Semnan. Employment: Gorgan University of Agricultural Sciences and Natural Resources from Sep. 1995, lecturer (principals of hydrology, applied hydrology, drought management, flood control, integrated catchment management), head of Faculty of Range and Catchment Management

JOSE D. SALAS

Colorado State University, USA

Professor of Hydrology & Water Resources, Department of Civil & Environmental Engineering, Colorado State University (CSU). He received B.S. and Civil Engineering degrees from the national University of Engineering of Lima, Perú, and M.S. and Ph.D. degrees from CSU. Dr. Salas has been consultant of national and international organizations and worked in several countries. For many years he has been Associate Editor of the Journal of Hydraulic Engineering and Hydrologic Engineering of the American Society of Civil Engineers (ACSE) and currently he is Associate Editor of the Journal of Hydrology. He received numerous awards such as the 1996 Arid Lands Hydraulic Engineering Award from ACSE. He is a member of the Academy of Engineering of Mexico. He is the main author of the book, "Applied Modelling of Hydrologic Time Series", Water Resources Publications, Colorado, and has authored and co-authored chapters of several books and handbooks, and published over 250 scientific and technical publications.

APURVA SANGHI

World Bank / Global Facility for Disaster Reduction & Recovery, Italy

Apurva Sanghi is leading the upcoming first of its kind joint World Bank -- UN Assessment on the economics of disasters. Prior to this, Apurva worked as a Sr. Economist in the East Asia and Pacific Sustainable Development Department of the World Bank, He has worked on development topics ranging from infrastructure and climate change to microfinance and agricultural economics. He has also worked in private sector consulting, for the Thailand Development Research Institute (a non-profit think-tank), and has held teaching and research positions at the University of Chicago, Thammasat University in Bangkok, and Yale University. He holds degrees in physics (from UCLA) and economics, and his doctoral dissertation, from the University of Chicago, was on the economic impact of global warming in Brazil and India.



EVAN VLACHOS

Colorado State University, Department of Civil and Environmental Engineering, USA

Worked on a variety of projects nationally and abroad on aspects of water resources planning and management, drought and desertification, forecasting and futurism, and climate and extreme hydrological events. Served as Director of the Environmental Resources Center at Colorado State University, Fort Collins, Colorado as Professor of Sociology and Civil Engineering and Associate Director of the International School for Water Resources. In 2008 was appointed Research Professor and coordinator of the CSU part in the newly established UNESCO Centre II (International Center for Integrated Water Resources Management ICIWaRM) at the Department of Civil & Environmental Engineering. Among others, served as Member and Chairman of the Environmental Advisory Board U.S. Army Corps of Engineers, member and chairman of the Advisory Panel on Environmental and Earth S&T in NATO, Brussels, as well as consultant to UNESCO and other national and international agencies.

DAVIDE VIAGGI

University of Bologna - Dipartimento di Economia e Ingegneria Agrarie, Italy

Davide Viaggi is professor in Agricultural economics at the Department of Agricultural Economics and Engineering of the University of Bologna, Faculty of Agriculture. Since 2001 teaches courses in Rural appraisal, Real estate appraisal, Economics, Environmental economics, Policy. His research interests concern agriculture and agri-environmental policy evaluation, economics and management of water resources, the rural economies in transition, farm management, agricultural and environmental decision support tools. Participates, as researcher or coordinator, in several research projects funded by the European Union, the Ministry of University and Research and the local administration. He was also called as expert or consultants by several bodies, including the EU Commission. He participated in the organisation of several national and international conferences and is referee for some of the main national and international journals of the concerned scientific sectors.

STEVEN WADE

HR Wallingford, UK

Group Manager, Water Management Group, HR Wallingford. Management of a team of our water resources team involved research and consultancy for UK Government and the water industry (UK Water Industry Research Ltd.). Principal Research Scientist and Consultant leading projects related to climate change, water resources, drought and flood risk including the development of the national guidance for the water industry on the impacts of climate change on river flows and groundwater recharge (UKWIR/EA) and improved drought planning and forecasting methods for water companies.

- Member of the British Hydrological Society (Committee Member 98-01)
- EEA Advisory Panel on climate change indicators (2009 report)
- UKCIP08 User Panel defining user requirements and reviewing scientific output.

MIKE WALKER

Department for Environment, Food and Rural Affairs DEFRA, UK

Mike Walker joined the English environment ministry, Defra, in 1999. For the past 7 years he has been responsible for government policy on drought and water resources management in England. He has overall responsibility for the abstraction licensing regime and designed the statutory water company water resources management and drought planning regimes. He led the government response to the 2004-2006 drought. For the past year he has been Head of the Sustainable Water programme in Defra, with additional responsibility for water demand management policy. He represents the UK on the Water Scarcity and Drought Expert Network.