IWA Speciality Conference: 2nd International Symposium on
Water and Wastewater Technologies in Ancient Civilizations
May 28th | 29th | 30th Bari Italy 2009

Organized by:
International Water Association

In collaboration with:
FederUtility

With the contribution of:
AQP SpA of Bari
Organizers
(a) FederUtility (Rome, Italy)
(b) N.AG.RE.F. National Agricultural Research Foundation (Iraklio, Greece)
(c) IWA International Water Association (London, UK)
(d) Federculture (Rome, Italy)
(e) IRSA - CNR (Rome, Italy)
(f) All Associazione Idrotecnica Italiana (Rome, Italy)
(g) AQP Acquedotto Pugliese SpA (Bari, Italy)
(h) Fondazione AMGA (Genoa, Italy)
(i) EUREAU European Union of National Associations of Water Suppliers and Waste Water Service (Brussels, Belgium)
(j) UTILITATIS (Rome, Italy)
(k) Hellenic Union of Water Supply and Sewerage Services (Larissa, Greece)

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- Pietro Laureano, IPOGEA, Matera, Italy
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- Lorenzo Bardelli, UTILITATIS, Rome, Italy
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- Miquel Salgot, University of Barcelona, Spain
- Marco Tallini, University of L’Aquila, Italy
- Anastasia Zourou, Cultural Association Ithaki, Rome, Italy

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- Andrea Tilche, European Commission, EU
<table>
<thead>
<tr>
<th>Time</th>
<th>Agenda Item</th>
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| 11.00 | Welcome address  
Silvia Godelli, Mediterranean and Culture Councillor, Apulia Region |
| 11.15 | **INTRODUCTORY THEMES**  
Chairman and introducer  
Paul Reiter, Director of IWA  
A brief history of water supply and wastewater management in Ancient Greece  
Andreas N. Angelakis, President of EUREAU and Hellenic Union of Water Supply and Sewerage Services, Larissa, Greece  
Ancient water management techniques to contrast drought and desertification in the Mediterranean  
Pietro Laureano, IPOGEA Foundation  
History of the water supply of Rome as a paradigm of water services development in Italic Peninsula  
Pierluigi Martini, President of Associazione Idrotecnica Italiana  
R. Drusiani, Water Director of FederUtility |
| 12.15 | **INFRASTRUCTURES: BUILDING, DEVELOPMENT AND MANAGEMENT** (part I)  
Chairmen  
Renato Drusiani, Water Director of FederUtility  
Andreas N. Angelakis, President of EUREAU and Hellenic Union of Water Supply and Sewerage Services, Larissa, Greece  
Distribution and characteristics of ancient underground aqueducts in Italy  
Mario Parise, Italy  
The ancient water supply of Jerusalem in the biblical times. Some controversial issues  
Hillel Shuval-Hadassah, Israel |
| 13.30 | Working Lunch |
| 14.30 | **INFRASTRUCTURES: BUILDING, DEVELOPMENT AND MANAGEMENT** (part II)  
Chairmen  
Pietro Laureano, IPOGEA Foundation  
Albert Koenig, University of Hong Kong, China  
Irrigation and reclamation in Ancient Greece  
Theologos Mimides, K. Mandalaka, K. Pylarinou, Greece  
Evolutionary tendencies in water management in Prehispanic societies of Northwest Argentine  
Alejandra Vanina Volpedo, F.L. Scartascini, A. Fernández Cirelli, Argentina  
Surface water management and supply in Ancient Iran  
Marzieh Mosayebi, Iran  
Historical, biological and morphological aspects of the Roccarainola Qanat in the district of Naples  
Giovanni De Feo, S. De Gisi, C. Malvano, D. Capolongo, S. Del Prete, M. Manco, F. Maurano, E. Tropeano, Italy |
The development of irrigation canals and its influence on agricultural society in Taiwan from 1624
Tzu-Yi Pai, Y.-T. Tung, China

Groundwater exploitation for public and private uses in the towns of the roman province: the emblematic example of Formia (Latium Adiectum - Central Italy)
Marco Tallini, S. Ciccone, A. Di Leo, Italy

The aqueduct of Claudius in the Pallavicina estate, the Aqueduct of Septimius Severus at Albano and the Aqueduct of Malaffitto Alto at Ariccia (Alban Hills, Rome). Recent excavations data
Anastasia Zourou, Italy

A multi-disciplinary approach to water supply system of the Roman city of Aptera, Crete, Greece
Petros Gikas, Y. Christodulakos, V. Gikas, A.N. Angelakis, Greece

Technical-historical investigation regarding the Siphon bridge over the Geirato River
Stefano Marchetto, C. Gambaro, J.V. Clari, Italy

Ancient water supply system of the Old Town of Lijiang, Yunnan Province, China
Albert Koenig, S.C.C. Fung, China

The Roman Aqueduct and the Helvius’ Fountain in Sant’Egidio del Monte Albino, in Southern Italy: a hystorical and morphological approach
Giovanni De Feo, S. De Gisi, C. Malvano, A. Tortora, S. Del Prete, F. Maurano, E. Tropeano, Italy

17.45 End of the afternoon session

08.45 TECHNOLOGICAL ASPECTS AND HYDRAULIC ENGINEERING

Chairmen
Walter Dragoni, University of Perugia, Italy
Anna Stradaridaki, University of Crete, Greece

Genius techniques for ground water management and supply in Ancient Iran
Mohsen Maleki, Iran

Design and functions of hydraulic works in Pisac, Inca
Tetsuya Kusuda, R. Kondo, H. Harada, A. Sakoda, P. Kaulicke, J. Zapata, Japan

The greatest water reservoirs in the ancient Roman world and the “Piscina Mirabilis” in Misenum
Giovanni De Feo, S. De Gisi, C. Malvano, O. De Biase, Italy

Fountains in the streets of Pompeii: the evaluation of the outlet velocity and of the expected flowrate from the features of fifteen fountains
Maria Carmela Monteleone, United Kingdom

Relocation of a 2500-year-old hydraulic structure in the Valley of Dorudzan in the Fars Province of Iran
Mohammad Jafar Malekzadeh, Iran

Modelling ancient water distribution systems with modern hydraulic design software
Derek Clarke, P. Andrews, E. Messeth, J. Deom, R. Sala, United Kingdom

Aspects of hydraulic engineering concerning inverted siphons used in roman age
Fiorina De Novellis, G. Temporelli, Italy

The Karez of the Sauran Region
Derek Clarke, R. Sala, J.M. Deom, United Kingdom

Rain gauge and rain gauge network system in Korea
Mooyoung Han, H. Kim, Korea
Seawater fishponds and fish farming in the villae maritimae of the late Roman Republic: impact of Karst groundwater and submarine springs (Sperlonga - Formia Coastline, Central Italy)
Marco Tallini, S. Ciccone, A. Di Leo, Italy

The history of the Fontana spring aqueduct and its significance for the water supply of Heraklion city (Crete) through the ages
Anna Strataridaki, E.G. Chalkiadakis, N.M. Gigourtakis, Greece

Water, toilets and public health in the Roman Era
Heikki S. Vuorinen, Finland

Ice wells near the Monastery of Poblet (Tarragona Province, Catalonia, Spain)
Miquel Salgot, J.L. de la Peña, Spain

Analysis of the hydraulics of the irrigation canals of Otrar, Kazakhstan
Derek Clarke, P. Andrews, E. Messeth, R. Sala, J.M. Deom, United Kingdom

Historical development bathrooms (toilets) and other sanitary and purgatory structures in Greece
George Antoniou, A.N. Angelakis, Greece

Infiltration galleries in the upper Scrivia Valley
Claudia Lasagna, M. Pittaluga, O. Conio, P. Canevaro, Italy

Communal rainwater cisterns in the Cyclades-Greece. The case of Chora on Amorgos
George Antoniou, Greece

Technical Investigation of Amir Ancient Dam-Bridge on Kor River in Iran
Masomeh Zand, M. Javan, Iran

First results of a study of the Etruscan Tunnel and other hydraulic works on the “Ponte Coperto” stream (Cerveteri, Rome, Italy)
Walter Dragoni, P. Bersani, A. Canalini, Italy

Afternoon session

14.00 Working Lunch

15.00 WATER CULTURE, MYTHOLOGY, ...

Chairmen
Giovanni De Feo, University of Salerno, Italy
Petros Gikas, University of Crete, Greece

Water, an integral part in every aspect of ancient Greek’s life
Theologos Mimides, M. Karamesouti, K. Pylarinou, K. Mandalaka, Greece

Water supply and sanitation in ancient Peru: Pre-Columbian cultures and the Incas
Alexander Reyes-Knoche, Germany

Water, human & imaginary
Sandrine Xanthoulis, Belgium

Aboriginal people mutual aid for water supply in Taiwan. From ancient to modern time
Tzu-Yi Pai, Y.-T. Tung, China

Water, myth of justice and the rule of Law - essentials for civilizations in antiquity
Staffan Michelson, Sweden

16.15 ENVIRONMENTAL ASPECTS, URBAN DEVELOPMENT, HEALTH

Chairmen
Anastasia Zourou, Cultural Association Ithaki, Rome, Italy
Miquel Salgot, University of Barcelona, Spain

Urban landscape of the water travelling in Madrid
Roberto Villamayor Fernández, Spain

Medical properties of the thermo-mineral waters in the Levant in antiquity
Estíe Dvorjetski, United Kingdom

Two thousand years of rainfall record of Korea and its implication for climate change adaptation
Mooyoung Han, H. Kim, Korea

Therapeutic uses of ice and cold water throughout the history: a glimpse
Miquel Salgot, J.L. de la Peña, Spain

City drainage in ancient China
Pengfei Du, X. Zheng, China

17.45 End of the afternoon session

Saturday, 30th May

08.00 Guided tour to ancient water supply infrastructures at Matera Stones and return back to Bari.
Registration

In the same days and venue it will take place the XVI European Conference H2Obiettivo 2000 Environmental sustainability and quality of water services in the Mediterranean basin. It will be possible to take part to both events by paying the fee as indicated below.

For more information about the European Conference please visit us at: www.federutility.it

Registration should be made by completing and returning the enclosed registration form to the Organising Secretariat Noema srl unipersonale. Registration forms without full payment of the fees will not be accepted. The registration form is also available on the website: www.noemacongressi.it

Participation only to IWA Speciality Conference

Fees (20% vat included)

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<td>Students</td>
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<td>Accompanying persons</td>
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Participation to both IWA Speciality Conference and XVI European Conference H2Obiettivo 2000

Fees (20% vat included)

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<td>Non-members</td>
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<tr>
<td>Students</td>
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It is possible to register by sending the attached form to the Organizing Secretariat Noema to the indicated details.

Participant’s registration fee includes:
admittance to all sessions; congress material; DVD-Proceedings (Distributed to participants at the Conference); certificate of attendance; coffee-breaks; lunch on May 28th and 29th; Gala Dinner on May 28th; Post Conference excursion to Matera

Students’ registration fee includes:
admittance to all sessions; congress material; certificate of attendance; coffee-breaks; lunch on May 28th and 29th; Post Conference excursion to Matera

Accompanying person’s registration fee includes:
Gala Dinner on May 28th; Post Conference Excursion to Matera

Invoice

Invoice will be sent by mail before the Conference. Invoice must be issued to all registered participants. Please pay attention to properly fill in the “Invoice data” section of the registration form. Incomplete registrations will not be considered.

Cancellation

In case of cancellation, participation fees will not be refunded.

Accommodation

Noema Incoming
Via Orefici, 4 - 40124 Bologna (Italy)
Phone +39 051 2759252 - Fax +39 051220955
info@noemacongressi.it

A limited number of hotel rooms has been provisionally reserved for Conference participants. It is advisable to book as early as possible to ensure reservation of the preferred hotel by completing and returning the enclosed reservation form.

Call for sponsor and exhibitions for WWTAC09

Don’t miss the chance to expose your company’s experience, brand your products, and trade on the opportunities by becoming an Exhibitor or Sponsor of the 2nd International Symposium on Water and Wastewater Technologies in Ancient Civilizations (WWTAC09).

If you would like to have more information about sponsoring or exhibiting at Hotel Villa Romanazzi Carducci, please contact:

Noema
Via Orefici, 4 - 40124 Bologna (Italy)
Phone + 39 051 230385 - Fax + 39 051 221894
info@noemacongressi.it

Publication

Selected papers will be peer reviewed for publication in IWA Publishing’s journal Water Science and Technology. Specifications for the formatting of papers are available on the IWAP website at www.iwaponline.com/wst/i2a.htm

BARI

Bari, the city that hosts the conference, is renowned worldwide for its artistic and archaeological treasures, in particular the relics of St. Nicholas. Founded by the mythical heroes of the Hellenic world, the city has undergone the influence of its different conquerors, such as Romans, Arabs and Byzantines. Under the Byzantine domination, Bari lived its golden age, reaching the acme of its wealth and prestige, before the Norman invasion. Bari was then conquered by the Angevins, who have been followed by the Aragonese, the Sforzas and the Borbone until 1813 when, under Napoleon’s domination, the King of Naples Giocchino Murat made the city the provincial capital. Among the most relevant monuments of the city, it is important to remember the Basilica of St. Nicholas, the Cathedral of St. Sabino and the Norman-Hohenstaufen Castle.

POST CONFERENCE FOR PARTICIPANTS AND ACCOMPANYING PERSONS

Saturday, 30th May - Matera

Conference participants and their parties are invited to take part to the excursion to Matera, organized on Saturday May 30th. Matera, one of the oldest cities in the World, is an exceptional urban structure included in the UNESCO World Heritage List of Cultural Sites. Observing Matera’s development, it is possible to reconstruct the evolution of mankind from Palaeolithic to the modern times. To either sides of Civita, the central part of the town, where it is possible to admire the Cathedral, there is a number of cavern houses dug into the rock itself, which are worldwide renowned as the “Sassi”, and which used to be densely inhabited in the past. The day trip is included in the conference fee and includes the coach trip to and from Matera, guided tour. Reservations must be made with the relative subscription form.

SOCIAL PROGRAMME FOR PARTICIPANTS AND ACCOMPANYING PERSONS

Thursday, 28th May - (Monopoli) Bari

Gala Dinner

Masseria Il Melograno

Dinner will be hosted at Hotel Il Melograno, Monopoli, which has been part of the prestigious Relais & Chateaux group since 1993. It nestles in a position of rare suggestive beauty, amongst majestic olive trees, in an area of Apulia countryside between green hills and the blue Adriatic sea. The hotel is housed in a XVII century fortified farmhouse, furnished with antiques, precious rugs, paintings and tapestries.

VENUE

Villa Romanazzi Carducci
Via G. Capruzzi, 326
70124 Bari (Italy)
Tel. +39 080 5427400
Fax +39 080 5560297
mercure@villaromanazzi.com
www.villaromanazzi.it

ACCESS TO BARI

The Conference Venue is located just a few minutes away from the downtown of Bari, 800 metres from the central railway station, 500 metres from the belt road (Tangenziale) and 8 km from the Bari “Palese” airport. Taxi and buses directly link the central railway station with the conference venue. If travelling by car, on the highway and belt road, take the following exits:

• Bari Sud, in highway A14
• Exit n. 10/A Bari Picone direction Centro, from the belt road S.S. 16

OFFICIAL LANGUAGE

The official Conference language is English. Simultaneous translation will not be provided.

REFRESHMENTS AND LUNCHES BREAK

Coffee-breaks will be served in the technical-commercial exhibition area. Lunches will be held in Carducci’s garden, weather permitting, if not in the Conference venue.

To know more about the related XVI European Conference H2Obiettivo 2000 Environmental sustainability and quality of water services in the Mediterranean basin, visit us at: www.federutility.it

Useful phone numbers
Apulia Airports
Phone +39 080 5800200

Railway number
Phone 892021

Bari Radio Taxi
Phone +39 080 5543333 - +39 080 5791020

Cover:
Cisterna called Palombaro Lungo in Piazza Vittorio Veneto in Matera. Photography Studio Acito and Partners Matera