

# WATERLOSS

MANAGEMENT OF WATER LOSSES IN A DRINKING WATER SUPPLY SYSTEM



Issue 2  
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## Presentation of WATERLOSS Pilot Areas

WATERLOSS project aims to assist regional actors to face the emerging issues of water management and shortage .

Therefore, WATERLOSS will develop a decision support tool, aiming to a prioritized list of measures for controlling water losses adapted to regional conditions.

This DSS tool and the corresponding water loss reduction measures, will be then applied in the selected partners' areas, providing a critical evaluation of the results.

WATERLOSS project includes pilot areas from all participating countries; Greece, France, Cyprus, Spain, Slovenia, and Italy.

In this 2<sup>nd</sup> newsletter the pilot areas of Greece and Cyprus will be presented.

### Key info:

MED programme

Total budget:

ERDF contribution:  
1,436

Project Duration  
01.06.2010-31.05.2013

## Partnership

Aristotle University of Thessaloniki (Greece)

Conseil Général des Pyrénées Orientales (France)

Water Board of Nicosia (Cyprus)

Regional Development Centre (Slovenia)

Metropolitan Area of Barcelona (Spain)

Municipal Enterprise for Water Supply and Sewerage in  
(Greece)

Liri-Garigliano & Volturno Rivers Basin Authority (Italy)

University of Ljubljana (Slovenia)

Département de Hérault (France)



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of Ljubljana,  
Faculty of Civil and  
Geodetic Engineering



Àrea Metropolitana  
de Barcelona



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ΛΕΥΚΩΣΙΑΣ  
*στην υπηρεσία του καταναλωτή*



[www.waterloss-project.eu](http://www.waterloss-project.eu)



## Water Board of Nicosia (WBN)

### Selected Pilot Area: DMA20

Cyprus faces the problem of water shortage and reduction of water stored in dams due to drought and utilises the production of water from desalination plants in order to meet demand. WBN seeks to improve the network's operating performance and control the demand of water by minimising the amount of water loss through leakage, by the application of best practice.

The selected pilot area DMA20 is located in the historical centre of the city of Nicosia that is enclosed in the Venetian Walls. The pipe length is 20 km (D80-250mm) and the number of consumers meters is 2.779. The water losses are constantly monitored by observing the DMA Minimum Night Flow (MNF), through Telemetry. The advantage of the pilot area is that pressure management is applied through an installed pressure reducing valve that reduces static pressure from 40m to 25m, in order to limit the occurrence of leaks and burst in the supply system. Furthermore, Active Leakage Control is utilised through the permanent instalment of acoustic noise loggers (no. 230), in order to reduce the 'awareness' time (locate leaks before they become visible) and avoid damage to old buildings due to ground subsidence. During 2011, 44 leaks were detected using the loggers. The amount of Non-Revenue Water in DMA20 is 23% or 330 m<sup>3</sup>/day. The MNF is at 18 m<sup>3</sup>/hr, with a maximum of 44 m<sup>3</sup>/hr in 2011.

A pilot case application of pressure management is to be applied in a sub-zone of DMA15 with the instalment of a pressure reducing valve that will gradually reduce static pressure from 53m to 40m, in order to reduce the amount of water loss. Furthermore, 70 acoustic noise loggers are installed in DMA15 to enhance the detection of leakages. During 2011, the NRW at DMA15 is 43% or 1.700 m<sup>3</sup>/day. The NRW at DMA15 prior to intermittent supply, in the year 2007 was 28% or 800 m<sup>3</sup>/day.

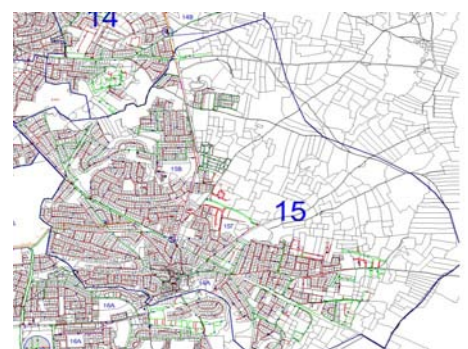
The performance indicators of the WBN indicate the adverse effect of intermittent supply applied in Cyprus during the years 2008-2009 and the increase in the amount of NRW by 6.400 m<sup>3</sup>/day, after the restoration of continues supply in the year 2010 (NRW by volume 26%, NRW by cost 18%, Infrastructure Leakage Index 5,5). During the year 2011, through application of MNF analysis of zone measurements and considering DMA night-day pressure variance the Daily Loss due to Leakage at the WBN is quantified to be 13.000 m<sup>3</sup>/day and is correlated with the value of Real Losses estimated in the WBN's Water Balance of 13.700 m<sup>3</sup>/day.



WBN pilot area DMA20 satellite map



WBN pilot area DMA20 pipe network



WBN pilot area DMA15 subzone pipe network

### Project team

The WBN's project team is currently formed by Mr. George Demetriou Technical Manager and Mr. Ioannis Andreou Technician Engineer.

The team is supported by WBN's staff of the department of Water Distribution Management.



## Municipal Enterprise for Water Supply and Sewerage in Kozani DEYAK

### Selected Pilot Area: Water Distribution Network of Kozani

The city of Kozani is situated in the north-western part of Greece with a population of approximately 70,000 people. DEYAK was founded in 1985 and is currently being staffed by 121 full time employees. Its services include the operation, maintenance, construction and administration of water and sewerage network of the Municipality of Kozani. In 1995 the planning, construction, maintenance, administration and operation services related to the remote heating system were added to the day-to-day responsibilities of DEYAK.

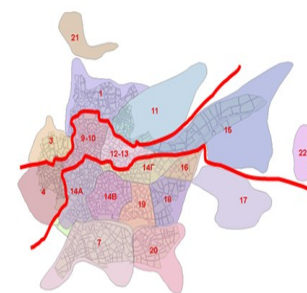
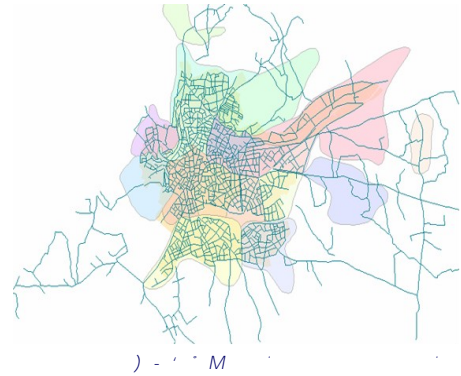
The pilot area selected is the entire Water Distribution Network (WDN) of the City of Kozani. DEYAK customers are being served through 28,000 water meters and 9,150 service connections. The total area covered is 7,988.278 Km<sup>2</sup> and the total length of the WDN pipes is 129,584 m. The billing period is 4 months. According to the estimated Water Balance of the system, the Non Revenue Water (NRW) reaches 60% of the System Input Volume (SIV), something quite common for a Greek city. Most of this volume has to do with water being lost through real and apparent water losses.

Three pressure zones are formed covering the entire area of the WDN, namely: the high zone (altitude range: 750-800 m); the medium zone (altitude range: 710-750 m); and the low zone (altitude range: 610-710 m).

DEYAK has installed a fully operational SCADA system, monitoring the WDN through 42 monitoring stations. Although, DEYAK has proceeded with the hydraulic simulation of its WDN, using the EPANET code, the hydraulic simulation model produced is not being regularly updated and calibrated. Finally, there is a GIS established, featuring the most important data related to the operation of the WDN.

The main problem of the network is the high NRW levels. The main causes are the aged parts of the network, the non registered parts of the network, illegal connections, flow meters failures and non existing maintenance policy. DEYAK has already applied water losses monitoring measures in certain parts of its network through the SCADA system. This experience DEYAK is willing to share with and transfer to the WATERLOSS partners.

DEYAK aims at exchanging experiences and practices regarding NRW reduction with the WATERLOSS partners. DEYAK also seeks from the project to investigate the impact of local conditions in the NRW reduction strategy formation process.



DEYAK pressure zones

### Project team

DEYAK's project team is currently formed by:

Mrs Ioanna Ganařsa  
*Director of Technical Services,*

Mr. Tsiftsis Argyřios  
*Head of Water Sector,*

Mr. Charis Kouziakīs  
*Head of Project Implementation and Studies*

Mr. Socratis Lappos  
*Head for Quality and Environmental Management*

## Meetings and Events

### 1<sup>st</sup> Cypriot Information and Awareness Seminar, Nicosia, Cyprus

The 1<sup>st</sup> Cypriot “Information and Awareness Seminar” on project WATERLOSS was organized on 22<sup>nd</sup> March 2011, by the Water Board of Nicosia, in Nicosia, Cyprus.

The seminar was entitled “*Quality and safety potable water*WATERLOSS”. The aim of the seminar was to inform technicians, consumers and the general public about the needs and expectations of the project and to exchange views on matters related to water loss.

The seminar was addressed by the Minister of Agriculture and the Nicosia District Officer. Approximately 130 people attended the seminar. The conclusions were disseminated to the members of parliament, ministries, water organisations and to the participants.



1<sup>st</sup> Cypriot Information & Awareness Seminar, 22<sup>nd</sup> March 2011, Nicosia, Cyprus

### 3<sup>rd</sup> SC Meeting, Ljubljana, Slovenia

The 3<sup>rd</sup> Steering Committee meeting of WATERLOSS project was held in Ljubljana, Slovenia on 31<sup>st</sup> May -1<sup>st</sup> June 2011. The meeting was co-organized by the 2 Slovenian partners; University of Ljubljana (UL) and Regional Development Centre (RDC).

The main topic was the progress of activities relating to Component 3: “Monitoring the performance of Water Supply Systems and evaluation of water losses” as well as the initiation of Component 4: “Development of a DSS tool for appropriate NRW reduction strategy”.

The meeting was opened by Prof. dr. Jana Šelih, the director of the Construction Management Faculty and responsible person for the WATERLOSS project at the University of Ljubljana. Mrs. Šelih stressed out the importance of the efficient and effective management of public infrastructure and the importance of the water supply systems as key elements of the urban infrastructure.

The meeting continued with the presentation of a progress overview, the problems encountered so far and the presentation of data collected in partner’s pilot areas.

The second day of the meeting was dedicated to project management structures and activities.



3<sup>rd</sup> SC meeting in Ljubljana 31<sup>st</sup> May/June 2011



## Dissemination Activities

Dissemination plays a key role from the very start of the project and throughout the project's implementation. WATERLOSS partners have been very active on disseminating the project's actions in order to raise awareness on the importance of water loss reduction. Below you can see examples of dissemination activities performed by the WATERLOSS partners:

10<sup>th</sup> March 2011: University of Ljubljana presented WATERLOSS project at the National Water Science Workshop in Ljubljana.

17<sup>th</sup> March 2011: Aristotle University participated as speaker in the seminar organized by the Municipal Water and Sewerage Management of water distribution networks and water



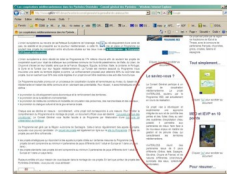
18-20 March 2011: Aristotle University participated at the 4<sup>th</sup> Environmental Conference of Macedonia in Thessaloniki; project factsheets were distributed.



21<sup>st</sup> March 2011: y Management in Nova Gorica.

22-23 March 2011: River Basin Authority of Liri-Garigliano and Volturno Rivers presented

April 2011: Conseil Général des Pyrénées Orientales uploaded on its official website an informative article on WATERLOSS.



3<sup>rd</sup> May 2011: Aristotle University published an article about project



6-7 May 2011: Water Board of Nicosia attended the general meeting of the European Council of Civil Engineers (ECCE) in Malta where a specific reference and speech was given for the organisation of the Med event in Cyprus within the frame of the activities of the Committee for the Environment.

9<sup>th</sup> May 2011: Water Board of Nicosia met with the representative of the University of Cyprus. WATERLOSS was presented and views on how to benefit from water management were exchanged.



## Dissemination Activities

14-16 June 2011: River Basin Authority of Liri-Garigliano and Volturno Rivers in collaboration with DHI Italy, organized a

the framework of the Italian WAT-MET project that promotes quality and effectiveness in water resources modeling and inland, ground and marine waters management. WATERLOSS was presented and project factsheets and brochures were disseminated.



17<sup>th</sup> June 2011: Aristotle University attended the workshop

Volos. AUTH participated in the 2<sup>nd</sup> session of the workshop on project brochures were distributed.



19-24 June 2011: Aristotle University and University of Ljubljana attended the 3<sup>rd</sup> International Conference on Environmental Management, Engineering, Planning and Economics (CEMEPE) brochure was disseminated.



23<sup>rd</sup> June 2011: River Basin Authority of Liri-Garigliano and Volturno Rivers organized an internal Technical Committee meeting regarding project WATERLOSS. During the meeting the project progress was presented and discussed and a power point presentation was

16<sup>th</sup> July 2011: Water Board of Nicosia met with the representative of Electronics and communication department of the Ministry of Communication and works, informing her about WATERLOSS and the need for policies on electronic governance and Telemetry tools, to ensure water management, minimize water losses and record problems faced on water management and water losses.

17<sup>th</sup> August 2011: Aristotle University published an informative article in the Euro-Mediterranean Information System on know-how in the Water sector (EMWIS flash news) presenting project WATERLOSS.

