



**Report on the INECO Cyprus  
Stakeholder Workshop**

**“Building a common vision for managing groundwater  
resources in Cyprus”**

***Coral Beach Hotel, Pegeia (Paphos), Cyprus  
26<sup>th</sup> -27<sup>th</sup> October 2007***

**Prepared by AEOLIKI Ltd  
November 2007**

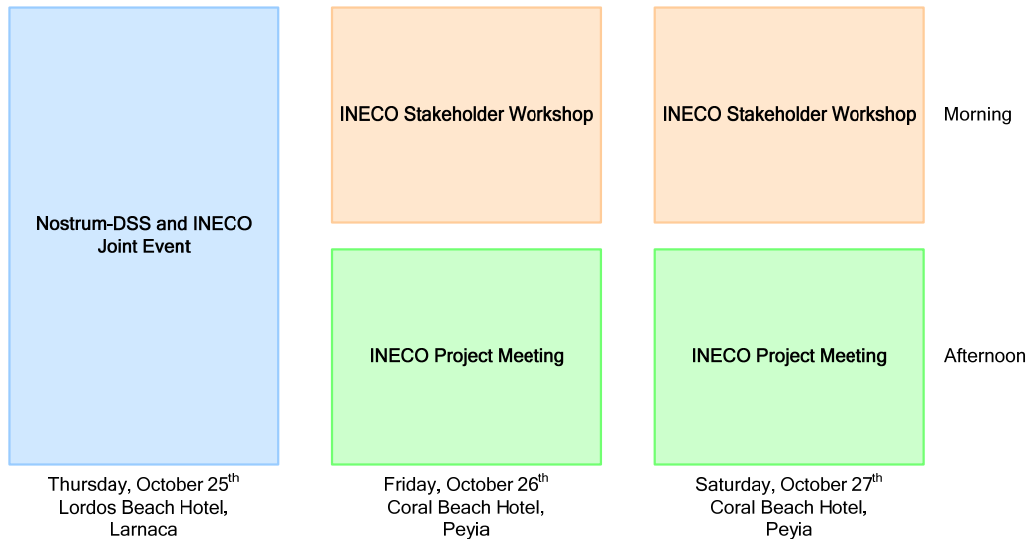
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# 1. Introduction

## 1.1 Background

This document summarizes the discussions of the INECO Cyprus Stakeholders Workshop, held in Peyia, Cyprus. The Workshop was one of the three events organized by INECO during the period from the 25<sup>th</sup> to the 27<sup>th</sup> October 2007, as depicted in Figure 1.



**Figure 1: The implementation of the INECO Cyprus Events**

The 1<sup>st</sup> event was co-organized with the Nostrum-DSS Project, on the 25<sup>th</sup> of October at the Lordos Beach Hotel in Larnaka. This joint dissemination event titled “IWRM through coordination, dissemination, and exploitation of research outcomes” invited a large number of researchers and other interested participants, including European Commission Representatives. It aimed at providing an opportunity to exchange scientific knowledge and project results on different topics in the domain of water resources management in the Mediterranean region. The main theme of the open session was oriented towards the discussion of problems and criteria for the coordination, dissemination and exploitation of EU-research outcomes relevant to the implementation of IWRM in the Mediterranean region.

The INECO Cyprus Stakeholder Workshop, held in the mornings of the 26<sup>th</sup> and 27<sup>th</sup> October 2007 in Peyia, Cyprus. The workshop was organized within the framework of WP 5 of INECO and aimed at strengthening the alliance between the INECO Project Team and Local Stakeholders, by providing a platform for constructively engaged dialogue among the parties concerned. The workshop focused on discussing with local stakeholders issues relevant to the focal water management problem of the Peyia Aquifer.

The INECO Annual Meeting<sup>th</sup> complemented those two events; the meeting was held on the afternoons of the 26<sup>th</sup> and 27<sup>th</sup> of October, and aimed at evaluating the progress of the project, discussing upon issues and needs that emerged during its 1<sup>st</sup> year, and plan forthcoming project tasks.

## 1.2 Aim and scope of the INECO Cyprus Workshop

The Cyprus workshop, titled "Building a common vision for managing groundwater resources" was held at the Coral Beach Hotel in Pegeia, Paphos on the 26<sup>th</sup> and 27<sup>th</sup> October 2007. The workshop aimed at strengthening the alliance between the INECO Project Team and Local Stakeholders, by providing a platform for constructively engaged dialogue on how to develop and implement alternative options for addressing the current trend of overexploitation of the Pegeia aquifer. The workshop was attended by 48 persons, including 26 local stakeholders and 22 INECO partners' representatives.

This document provides a summary of discussions held during the Workshop. All relevant presentations and material are available from the corresponding section of the INECO web site (<http://environ.chemeng.ntua.gr/ineco/Default.aspx?t=419>).

## 2. Discussion Summary

### 2.1 Major outcomes

The major outcomes of the Stakeholder Workshop were the following:

- The workshop managed to gather people from Pegia around the same table for the first time. This had not been succeeded in the past, despite various efforts of the past 10 years.
- There are different positions among (at least) the local residents that participated in the workshop with regard to the causes and effects of aquifer depletion in the region, depending on their nationality (Cypriot or foreign). It should be noted that at present almost 50% of the people residing in Pegia are non-Cypriot.
- There is lack of information on the water issue of the area.
- Aeoliki Ltd. undertook the responsibility of preparing an information sharing book, including a short description of the Pegia Aquifer, characteristics and exploitation patterns. This will be available to all Pegia residents, with the aim to enhance information sharing among the interested parties, through a transparent and mutually beneficial way. The book will be circulated prior to the next Stakeholder Meeting, scheduled for November 2007.
- Subsequent stakeholder workshops will be organized on a regular basis, the next one being planned for November 2007.

### 2.2 Discussion Summary

*Friday, October 26<sup>th</sup> 2007*

#### *Session I: Introduction*

Mr. Christodoulos Artemis (Director of the Water Development Department – WDD) initiated the workshop through a welcoming address. He expressed the great interest of the WDD in the INECO project and in the two-day workshop of Pegia. As Mr. Artemis pointed out, public participation is a key element of the EU Water Framework Directive; all Member States are required to undertake public consultation activities for the development of River Basin

Management Plans (Art. 14). In this regard, the INECO Cyprus workshop fits in with the work undertaken by the WDD for the implementation of the WFD, and will support the effort for its successful implementation.

Subsequently, Prof. Dionysis Assimacopoulos (NTUA, INECO Project Coordinator) outlined the concepts and the framework of INECO activities; he presented the principles and the approach of the project, activities already undertaken in the other participating countries, and the frame and expected outcomes of the Cyprus workshop.

### *Session II: Groundwater Overexploitation and Depletion in Pegia*

Dr. Ioannis Glekas initiated the next session by briefly outlining the workshop theme (“Groundwater overexploitation”), and its implications for the Pegia aquifer.

Then, Dr. Andreas Christodoulides (Water Development Department – WDD) gave a comprehensive overview of the problem experienced in the Pegia aquifer. He detailed the characteristics, the current condition of the aquifer, according to monitoring data collected by the WDD, and his perception on effects and causes of the problem and measures that could support more sustainable exploitation of the aquifer. He particularly pointed out that almost 25% of the total groundwater extraction corresponds to water supplied to the tourist industry, which is currently experiencing high growth rates.

The presentation initiated a discussion among the Pegia residents, local authority representatives, WDD officials and other project participants, moderated by Prof. E. Vlachos, Prof B. Barraque and Prof. D. Assimacopoulos, and supported by Dr. Glekas. The discussion focused on identifying perceptions and positions of the local stakeholders on groundwater depletion and its causes. Participants identified the following issues for discussion and elaboration:

1. Building permits exceed the capacity to provide water in Pegia and will affect the depletion of the aquifer.
2. The effect of the currently applied agricultural practices in the region (in terms of quantity required and nitrate concentrations) needs further analysis.
3. There is need to change the cropping patterns in the region, which, at present are highly water intensive.
4. The seasonal variation of water demand and its impact on the exploitation of the aquifer is an issue that requires further analysis.
5. There is lack of awareness and education of local residents on water conservation.
6. There is lack of information on water issues in the area.
7. The quality of the water in the aquifer is not only affected by the current agricultural practices, but also from the lack of a sewerage system.
8. There is need to take measures in order to reduce water losses in the distribution system (according to estimates, losses are presently equal to approximately 40%).

During the discussion session it became evident that there are different positions among (at least) the local residents with regard to the causes and effects of aquifer depletion in the region, depending on their nationality (Cypriot or foreign). It should be noted that at present almost 50% of the people residing in Pegia are non-Cypriot.

The first day of the workshop ended with a discussion on possible ways for proceeding with the process and keeping the interaction among the various stakeholders active.

*Saturday, October 27<sup>th</sup> 2007*

*Session III: Discussions on objectives and alternative options*

The second day of the workshop began with a presentation by Prof. Antonio Massarutto (IEFE, Bocconi University), who elaborated on economic instruments and institutional arrangements for groundwater management. He also presented examples and insight of policies adopted in other European countries and regions.

Subsequently, an open discussion was initiated among participants on the issues identified and discussed during the previous day. It became evident that the rapid urban development experienced in Pegia is an issue that causes a lot of concerns among residents. Furthermore, the overexploitation of the aquifer is at large attributed to this factor.

Next, the representative of the Agricultural Department of MANRE outlined the Department's activities and measures taken for preventing pollution and promoting water saving among farmers of the region. These include training of farmers on irrigation scheduling, application of water supply constraints in times of scarcity, monitoring of nitrate concentrations in groundwater, etc. Then, Mr. K. Spanos (WDD District Engineer) presented an overview of the current allocation of water resources in the Paphos District and background information on water issues in Pegia. He pointed out that current urban development rates in the wider community are significantly higher than those originally anticipated.

The discussion that followed focused on possible ways for providing a platform for enhanced, constructive and structured dialogue among all parties concerned. Prof. D. Assimacopoulos presented a proposal for the definition of objectives and for the definition of alternative options, which could lead to concrete results and joint decisions. Prof. E. Vlachos proposed the preparation of an information sharing book, available to all Pegia residents. Its aim will be to enhance information sharing among the interested parties, through a transparent and mutually beneficial way.

The last part of the workshop was dedicated to the opportunities offered by Art. 14 of the Water Framework Directive for enhancing public participation in the region and in Cyprus as a whole. Mr. Charis Omorphos (WDD) presented the current EU policy for the protection of groundwaters and the current situation in Cyprus.

Then Mr. Pantelides (Pegia Community Engineer) took the floor and presented according to his own data the situation regarding water supply and demand in the community, accounting also for the rapid urban development currently experienced in the region. He provided answers to the issues raised in the previous discussions regarding water availability, and the water saving measures currently applied and planned by the municipality. Finally, Mr. Christodoulos Artemis briefly outlined the public participation activities currently implemented by the WDD.

At the end of the workshop, it was decided to hold the next stakeholder meeting at the premises of the Pegia Municipality, in November 2007.

## **Annex: List of participants & Event programme**

### **List of participants**

#### *Local Stakeholders*

Mr. George Chatziantoniou, Pegia Municipality (Deputy Council President)  
Ms. Linda Leblanc, Pegia Council Member  
Mr. Pantelis Pantelides, Pegia Municipality (Engineer)  
Mr. Charis Kassioulis, Pegia Municipality (Engineer)  
Mr. Denis O'Hare, Pegia Resident (Member of Pegia Environment Committee)  
Mr. Chr. Karagiannides, Pegia Waterboard (Member of Pegia Council)  
Mr. David Ball, Pegia Resident  
Ms. Hazel Frances Hall, Pegia Resident  
Mr. John Knowles, Pegia Resident  
Ms. Andri Harpa, Pegia Resident  
Ms. Maria Neofytou, Pegia Resident  
Mr. Stelios Savvides, Pegia Resident  
Mr. George Frangoulides, Pegia Resident  
Mr. Anastasis Nikolaou, Pegia Resident  
Mr. Theodosios Stasis, Pegia Resident  
Ms. Maro Savvidou, Pegia Resident  
Mr. Takis Ioannou, Pegia Resident  
Mr. Andreas Chatziantoniou, Pegia Resident  
Mr. Neofytos Pantelides, Pegia Resident  
Mr. Kyriakos Spanos, Water Development Department, MANRE  
Mr. Sotiris Paschalides, Water Development Department, MANRE  
Mr. Kyriakos Pittakas, Water Development Department, MANRE  
Mr. Andreas Kazantzis, Agricultural Department, MANRE  
Dr. Andreas Christodoulides, Water Development Department, MANRE  
Ms. Natassa Neokleous, Water Development Department, MANRE  
Mr. George Papados, Agricultural Department, MANRE

#### *INECO Project Partners & EC Representatives*

Ms. Marialuisa Tamborra (EC Scientific Officer)  
Prof. Dionysis Assimacopoulos (NTUA, Project Coordinator)  
Ms. Eleni Manoli (NTUA)  
Dr. Jean-Marc Berland (IOW)  
Prof. Antonio Massarutto (IEFE)  
Mr. Christodoulos Artemis (WDD)  
Mr. Charis Omorphos (WDD)  
Dr. Ioannis Glekas (Aeoliki)  
Dr. Demetris Glekas (Aeoliki)  
Mr. Ahmed Bouzid (CITET)  
Mr. Foued El Ayni (CITET)  
Mr. Ridha Boulabiar (ONAS)  
Dr. Fathy El Gamal (WMRI)  
Prof. Magdy Abou Rayan (IC)  
Prof. Ahmed Mansour (IC)  
Dr. Rehan Monir (IC)

Mr. Claude Tabbal (C&D)  
 Mr. Malek Haddad (SIC)  
 Mr. Abdoullah Bouchedja (ABHCSM)  
 Mr. Abderrahmane Affia (ISKANE)  
 Prof. Evan Vlachos (Colorado State University)  
 Prof. Bernard Barraqué (CNRS-LATTS)

## Event Programme

*Friday, 26<sup>th</sup> October 2007*

09:00	Registration	
Session I: Introduction		
09:30	Welcoming Addresses	Mr. Christodoulos Artemis, Director of Water Development Department, MANR&E
10:00	The INECO Project – Principles and Approach	Prof. Dionysis Assimacopoulos, NTUA, INECO Project Coordinator
10:30	Coffee Break	
Session II: The Focal Problem of Groundwater Overexploitation and Depletion		
11:00	Groundwater overexploitation in Cyprus: Effects and underlying causes	Mr. Christodoulides, Water Development Department.
11:30	Discussion: Identifying causes and effects of groundwater overexploitation	All participants (Discussion moderated by Prof. E. Vlachos and Prof. B. Barraque, supported by Prof. D. Assimacopoulos and Dr. I. Glekas)
13:45	Lunch – End of Day 1	

*Saturday, 27<sup>th</sup> October 2007*

<b>Session III: Discussion on objectives and alternatives</b>		
<b>09:30</b>	Key note speech: Economic and institutional instruments for enhancing sustainable water management in the context of the WFD implementation	Prof. Antonio Massarutto, IEFÉ
<b>10:15</b>	Defining objectives and identifying alternatives – Aims and expected outcome	Dr. I. Glekas & Prof. D. Assimacopoulos
<b>11:00</b>	<b>Coffee Break</b>	
<b>11:30</b>	Discussion on objectives for addressing groundwater overexploitation	All participants (moderated by Prof. E. Vlachos and Prof. B. Barraque, supported by Prof. D. Assimacopoulos and Dr. I. Glekas)
<b>12:30</b>	The EU policy for groundwater protection and the current situation in Cyprus	Mr. C. Omorphos, Water Development Department, MANR&E
<b>13:00</b>	Follow-up	Workshop moderators All participants
<b>13:15</b>	<b>Lunch – End of Workshop</b>	