



Agentschap NL
Ministerie van Economische Zaken

G2G10/RM/8/4 - Management of Aquifer Recharge and Energy Storage (MARES)

*We dedicate this project to commemorate **Ton Honders**, our colleague and inspiration for many international projects.*

Managed Aquifer Recharge and Energy Storage (MARES)

Summary of a successful G2G project between The Netherlands and Romania

Introduction

The private and public sector in Romania has a long history of practical experience and knowledge on water and energy supply and management of soil and water systems. Excellent different scientific backgrounds on geology, hydrology, soil sciences and ecology contribute to the national Romanian and European innovation cycle. In 2010 the Romanian Ministry of Environment and Forestry (MoEF) requested a cooperation program with the Netherlands in the field of reservoir management of aquifers both for water storage and for energy storage. In these fields the Netherlands water sector is a pioneer.

The project partners from Romania and the Netherlands, both from the public and private sector, cooperate very enthusiastic during this project. A full list of all partners and their contacts can be found at the bottom of this project summary.

Due to the geological and climatological setting Romania has favorable conditions for optimization of the buffering capacities of the soil and the natural underground water reservoirs, called aquifers. The private sector in Romania started to use soil energy for heating and cooling of houses and offices since the beginning of the century. The challenge for the Romanian government is to stimulate the use of soil energy and to protect the quality of the environment at the same time. This requires development of appropriate regulations. At present aquifers are managed from a drinking water and drainage point of view than from a buffering point of view. Therefore the MARES G2G project aimed at creating a stimulating and stable environment for the use of underground water and energy buffers in those areas in Romania where the feasibility is proven. Secondly the project aimed at establishing public private





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partnerships in Romania that can further booster the appropriate application of MARES techniques either by using private or European funds.

The main results and outputs of the project are:

1. Technical feasibility analysis on national level for MARES and an identification of possible companies and/or organizations in Romania that can benefit from MARES applications. For artificial recharge applications a dozen feasible sites have been identified. At a generic level it has been concluded that soil and aquifer energy storage can be applied in Romania. Contrary to the situation in the Netherlands there is a wider variation in geological conditions. Therefore local conditions determine which technique (open or closed systems) is best suited for aquifer energy storage;
2. Despite the opportunities for MARES techniques the main risk is the lack of appropriate legislative and organizational and institutional arrangements. The project has started to transfer the Netherlands knowledge and experience with MARES, hence preparing a framework for integrated guidelines and legislation and cooperation between the private and public sector in working groups;
3. Preliminary design and feasibility analysis of four concrete energy storage projects (demonstration project at INHGA premises, a new building at the Agricultural University and concept of combined applications of geothermal energy and aquifer energy storage in Bucharest and Cluj) and plans for updating existing artificial recharge works and establishing new installations. For the realization of these initiatives specific consortia have been formed. A large Romanian-Dutch consortium has considered to submit a proposal on the IEE-call closing in the beginning of May 2012, but had to conclude that the involvement of the end-user could not yet be guaranteed at such short notice. The consortium is continuing its efforts. From the Dutch side companies are analyzing if a PIB-application at AgencyNL for soil energy in Romania is realistic. The MoEF has given high priority for artificial recharge projects for the planning period 2014-2020. To assist this process the Partners for Water Programme has technically selected to finance a specific project in Suceava and on improving the national analysis of artificial recharge techniques. Internal existing working groups at the MOEF on climate change adaptation and sustainability have been instructed to consider MARES as important options;
4. About hundred Romanian experts have been trained on MARES techniques by workshops in Romania and a working visit to the Netherlands. The training and scientific exchange will continue amongst others in the form of support by Deltares and Dutch universities to a PhD study of the Technical University of Bucharest.





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In Memoriam: **Ton Honders** 18-09-1956 † 15-05-2012

Ton was our expert in the field of soil policy and remediation tools and techniques. He was always willing to share his widely gained knowledge, especially in his international projects. Ton was a man who never lost sight of his goals in everything he did. He worked very structural and coached us to work towards our goals too. Ton was a man with lots of humour and the typical Ton-jokes will echo through our office for some time.

Ton was a very special colleague, passionate about his work, wilful but with a heart of gold. Ton was a colleague who we could build upon, a man who shall be sadly missed.



On behalf of the management and colleagues of AgencyNL/Soil +

*Henk van Zoelen
Unit manager Soil+*



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