



Stopping water leakages

■ Water filtering at the Nozha water plant in Alexandria

In an effort to optimize water consumption and to minimize leakages in the Mediterranean region, the EU is deploying smart water meters as part of five pilot projects in Egypt, Jordan, Tunisia, Italy and Cyprus. These are being implemented within the framework of the Aquaknight initiative, which is part of the “Mediterranean Sea Basin” multilateral cross-border cooperation programme. A first international conference on water leakage, attended by distribution network operators, took place in Alexandria. The EU Neighbourhood Info Centre’s journalist has sent us this report.

www.enpi-info.eu

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Pictures by: **AFP © EU/Neighbourhood Info Centre**

ALEXANDRIA – Modest eight to ten-storey apartment blocks constructed on a 5 km² site house around 10,000 people. This is the working-class district of Aarama in eastern Alexandria where the Aquaknight pilot project is being implemented in Egypt. One of its objectives is to identify water leakages in the distribution network. On the outskirts of the district there is a hatch which leads through a concrete passageway into a room that contains an ultrasonic water meter and a pressure sensor. This equipment is required to test the leakage of drinking water in the district from the main pipeline beneath the road.

“We closed all of the other supply pipes leaving only this one open to assess and measure the leakage using the ultrasonic meter,” explained Ahmed Gaber Chéhata, an engineer. He continued: “We then installed volumetric meters in the entrance hall or under the stairwell in each building to enable the metering of very low flow levels. These devices are also equipped with pressure regulators in order to better manage the backflow and leakage of water. We also deployed smart meters equipped with state-of-the-art AMR (automated meter reading) technology which provide detailed and accurate information on household consumption and transmit it by telephone to the data manager at the drinking water facility.”

Mr Gaber Chéhata is the CEO of AlexWater, the drinking water company in Alexandria and the Egyptian partner in the project. It is contributing 10% of the budget amounting to €178,230.22, while the European Union provides the remainder, as part of a regional initiative aiming to optimize water consumption, minimize leakages and to reduce non-revenue water (water which cannot be metered and invoiced). This goal will be achieved through pilot projects in the Mediterranean region in Egypt (Alexandria), Tunisia (Tunis), Jordan (Aqaba), Italy (Genoa) and

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■ Alessandro Bettin giving a presentation on water leakage detection and solutions



Cyprus (Limassol). It is always the local operators who decide where the project is carried out over a two-year period to collect results after several regular tests based on the comparison of the readings and invoicing of various meters installed.

Leakage of up to 50% of water distributed

Using simple calculations and by keeping track of indicators, the operators are managing to identify and repair the leakages.

“The project began around a year and a half ago. Our partners indicated the best methods to use and recommended the new generation of water meters.”



Ahmed Gaber Chéhata remarked: “The project began around a year and a half ago. Our partners indicated the best methods to use and recommended the new generation of water meters. This has enabled us to reduce our natural losses - due to old pipes and connections etc. - by 2% in the district selected.” Mr Chéhata also revealed that Egypt is already below the water poverty threshold with citizens using less than 700 cubic metres of water a year.



It is estimated that most of the distribution networks in the emerging countries leak 50% of the water distributed compared to 20% in the developed countries. However, the population of Aarama, in eastern Alexandria, is not aware of the situation. Some complain about reduction in water pressure in their homes while others say that the installation of the new meters has resulted in a rise in consumer charges. The reason for this is that the new meters record water consumption extremely accurately (from 0 to 25 litres). “Water no longer gets to the third floor,” grumbles one resident outside a cheese dairy in rue Al-Mohaguérine. Jelassi Riadh, head of the north Tunis district (la Marsa), is part of the delegation from the Aquaknight CBC project that visited the Aarama site. Like many other experts in the region, he has come to take part in the first international conference on water leakage in the Mediterranean, held in Alexandria, as well as the two specialist workshops and site visits organized as part of the same programme. Having listened to the resident’s complaints, he goes to check the meter in the ground floor of the building and confirms: “There’s some clogging which can impact upon general flow. We have one meter per household in Tunisia.”

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A search for joint solutions to shared problems

The context changes from one country to another and the objective of these meetings in Alexandria was to pool expertise and to enable knowledge transfer. That is precisely the goal of the “Mediterranean Sea Basin” multilateral cross-border cooperation programme which includes Aquaknight, an initiative seeking to strengthen cooperation between the regions of the European Union and those of the partner countries along the coast of the Mediterranean Sea. The project aims to provide the target groups (water operators in each country) with the expertise and tools to improve the management of their systems and to reduce the volumes of non-revenue water. In the various countries, the network operators are trained in water balance techniques and the use of sophisticated metering systems. The project therefore encourages the adoption of the best international practices in the Mediterranean region by helping to establish common standards for the management and comparative analysis of water supply systems throughout the region.

During the workshops, Alessandro Bettin gave a presentation on the Palm project in Italy, which aims to achieve similar objectives. Marios Milis, who works for Signal Generix in Cyprus, provided an in-depth insight into smart meters. Angelos Amditis, the project’s Greek coordinator, attentively took note. The results of this initial phase will be part of the agenda of the next one. Knowledge is transferred from countries like Italy, Cyprus and Greece, who possess greater experience in this field as they started to address these issues at an earlier stage. Mr Amditis explained: “Greece, for example, which is responsible for the technical work and coordination of the project, has been tackling these issues since the 1970s. It had a very old

■ A standard old water metering system in the Aarama neighbourhood



Meanwhile, Mamoud returns to his desert hometown, full of confidence and determination to fulfil his objectives. "I wish to see more young men from outside the urban centres involved in the Euro-Med Youth Programmes. These activities are really what we need to rebuild the fabric of our society".

network which was developed in stages and therefore contained several types of pipe and system. It has similarities with Egypt in this respect and there are lessons to be learned." Goffredo La Loggia, professor of hydraulics at the University of Palermo, gave an overview of the situation in all countries involved in the project. "Ramadan, the Muslim month of fasting, will be an interesting period in the Arab countries to test whether there will be excessive consumption or greater leakages," he remarked. Mohammad Al-Shafey from Jordan, head of the strategic planning department at the water company in Aqaba, does not see any reason for concern, even though his country is one of the driest in comparison with other participants. "The pipelines in the Jordanian network are modern, the drinking water meets the most rigorous standards but our problem is the water tanks, which are located on the terraces of houses, which is not the case in Egypt and Italy. He added: "The output is low and as a result the meters used do not provide high-precision indications of the volume of water obtained. The introduction of AMR meters has therefore helped us enormously." Based on the five pilot projects, Aquaknight will produce a good practice guide for determining the value of administrative losses in the water networks in the Mediterranean basin. Every single drop of water counts.



■ The central lab at the Nozha water plant

ENPI CBCMED Cross-border cooperation in the Mediterranean

<http://www.enpicbmed.eu/>

The "Mediterranean Sea Basin" multilateral cross-border cooperation programme is part of the new European Neighbourhood Policy and its financial instrument (ENPI) for the period 2007 to 2013. It includes the EU regions and those of the partner countries situated along the coastline of the Mediterranean Sea.

AQUAKNIGHT

http://www.aquaknight.eu/?page_id=4

AQUAKNIGHT aims to facilitate dialogue between the water authorities and the operators in various regions of the Mediterranean and to promote sustainable solutions to combat water shortages in the region.

AQUAKNIGHT's general objectives are set out below:

- To contribute to environmental protection through the implementation of more efficient usage of water resources;
- To establish a cooperative framework between the water services stakeholders in the EUMC and the MPC to encourage initiatives aimed at improving the efficiency of the water networks.

For further information:

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