

## WaterSign and the Water - works

Water works is a general name used for water systems from the supplier that can be either a government utility (Mekorot, PUB in Singapore etc.) or a privately held company. These companies "produce" the water, treat them to the accepted level for drinking water and supply them to the municipalities.

Those water systems handle large quantities of water and use large diameter pipes.

Water suppliers are also large users of electricity for pumping and delivering the water (in Israel 6% of electricity supplied by the IEC is used by Mekorot\* which makes it the largest user of electricity in Israel)

Water are supplied from various sources in order to guarantee uninterrupted water supply ( for example several wells are connected together by a net of pipes and the operator decides from which wells he will draw water .

In order to control the water supply the companies use SCADA systems however those are very expensive, need sophisticated water meters and transmission devices, which need power, and in remote areas supplying power is a concern.

Municipalities, buy the water from the water utilities distribute it in the city and eventually connects the pipes to each resident (or any other user within their area). This involves very long and complicated piping system.

In order to control the usage they will install water meters in critical points and transmit the information ,however the complexity of existing solutions and the cost (sophisticated water meters, sensors transmission devices, electricity etc. is limiting the use of such systems .

Water loss is a huge concern due to the growing demand for water and the increased cost to "produce " and deliver (energy), on one hand and the growing shortage of potable water on the other.

Water loss varies from 4% in places like Singapore to 55% in places like Manila. The loss in \$ terms comes from non-revenue water from the energy it takes to produce it and from the need of producing and transferring more water that is actually needed.\*\*

Monitoring technologies are badly needed in order to reduce increasing costs of water and aging infrastructure

The market is a hefty 20 billion US\$ business growing at a rate of 10% annually\*

Traditional technologies require a sensor (usually a water meter with transmission device and high resolution pulse) in every junction and a sophisticated technology to close the loop and monitor the water network.

The cost and complexity slow down the acceptance of such technologies.

TAKADU\*\*\*\* from Israel offer a monitoring technology based on profile and existing sensors.

The company creates a lot of impact in the market due to the fact it can "monitor" by analyzing the water usage and track changes by comparing to the history of the users to current use. However they are based on existing sensors, and must get information from the sensors in the area they monitor.

Hydro Sign unique technology takes the monitoring one step forward and uses its patented markers in each junction in order to track the flow and the changes in the flow,(which will indicate blockages, bursts or theft), By using the water as a medium to transfer the information the company overcomes the problem of energy, expensive water meter and transmission devices. One water meter is used at the head of each system and it can (with our technology) monitor and read all markers.

The cost of the system is much lower than the existing solutions .

If we look at a small network of one water inlet with the main water meter of 6" and 50 sub-meters of 3" (each costs approx 2,000- 2,500 US\$) HS technology will use markers which will cost 250- 500 US\$ each . The saving is obvious not to mention maintenance and other advantages of HS technology

- Real time water flow analysis
  - Analyzing the water flow ,direction and consumption from different sources in real time.
- Real time water consumption analysis
  - Monitoring and analyzing the water consumption with significantly smaller number of water meters and less transmission networks.
- Real time detecting and alarming -- > Minimizing Non revenue water.
  - Detecting and alarming unusual events in real time (Bursts,Leakages, Water theft, Blockages).
- Detecting and monitoring contamination in the water system.

Water safety is another concern of water suppliers- by analyzing the water sources and the distribution, HS technology can help in accurate detection of the spread of contamination and protect potable water networks from pollutants and non-potable water contamination.

## Business model

The fact the company monitors the water usage it can offer its customers a shared saving revenue model or a monthly fee per 1 km of pipe.

The company intends to work closely with a leader technology supplier (Veolia,Suez, Schnieder etc.) in order to shorten time to market.

The company can join forces with TAKADU and offer the water utilities a complete package eliminating the need for more sensors and more water meters and receiving the information from the HS markers after it was preceded by HS.

Another option is competing with Takadu based on the unique feature of HS technology

## HydroSign Vs. Takadu @ Waterworks Market

Water Network Monitoring to water utilities,  
detecting and alerting upon network problems, such as water loss,  
network failures and other operational inefficiencies.

Subject	Takadu	HydroSign
System Database	Based only on data from already-available sensors and meters in the network	Based on unique data from "Markers" and already-available sensors and meters in the network
Sensors Distribution	Limited: Many utilities have only a few points of measurement within the network	Multi point of measurements using Simple "Markers"
Transmission	<ul style="list-style-type: none"><li>• Required Meter Transmission Unit that transmits the reading by a radio signal</li><li>• Required radio relays to receive the transmission at the remote Data Collection Unit</li></ul>	No Radio Transmission is required, the water flow use as medium for data delivery
Local Monitoring Ability	No local monitoring ability – all the information from the sensors sent to remote Data Collection Unit	Ability to have local monitoring by reading multi markers from one single sensor
Problems Detection and Consumption Monitoring	Limited to places where sensors are existing or using predicted data	Wide coverage and accurate monitoring ability using real data

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\* <http://www.energianews.com/article.php?id=6108>

\*\* <http://www.defra.gov.uk/statistics/environment/inland-water/iwfg13-leakage>

<http://www.cbc.ca/news/canada/story/2011/11/17/f-infrastructure-pipies-water-loss-reduction.html>

<http://www.corrosion-club.com/waterfigures.htm>

\*\*\* <http://www.protectivecoatings.com/news/?fuseaction=view&id=5375>

\*\*\*\* <http://www.takadu.com>