SHAPING THE FUTURE OF URBAN WATER

miya
Arison Group

WATER IS THE SOURCE OF LIFE

Humanity's survival and prosperity depends on a continuous supply of fresh water. Paradoxically, the cities of the world lose an average of 30% of their drinking water supply every day.
Across the globe, policy makers, business leaders and the population at large are becoming increasingly aware of the great challenge presented by dwindling water resources, and the need to carefully manage these resources.

Market Background

The Global Challenge:

- Over 1.4 billion people do not have access to clean drinking water
- The gap between water demand and supply is constantly increasing and is expected to reach 40% in 2030
- By 2025, one third of the world's population will be affected by water shortages
- More than 30% of the world's drinking water is lost from urban water systems before it reaches consumers

The Local Challenge:

One of the major challenges facing water utilities is the high levels of water loss, or Non Revenue Water*, resulting from:

- Old infrastructure
- Under investment in pipe replacement and network maintenance
- Lack of resources and funding to deal with the problem

There is a Solution!

Miya works hand in hand with local water utilities to ensure the efficiency of water networks and to reduce water loss. Reducing water loss not only provides clean fresh water to more people, it also greatly improves the financial situation of both municipalities and utilities, alleviates many water related environmental issues, saves energy and reduces contamination risks.

"Substantial financial energy and environmental gains can be made from improved Non Revenue Water management in both developed and developing countries. It is one of the most important issues facing the sector today."

Mr. Paul Reiter, Executive Director, International Water Association (IWA), 2010

* Non Revenue Water (NRW) is defined as the difference between the amount of water put into the distribution system and the amount which is billed to consumers.
It consists of the following factors:
Physical (Real) Losses: leaks and system overflows caused by poor infrastructure and maintenance.
Commercial (Apparent) Losses: theft, customer meter under-registration and data handling errors.

Essential Questions for Water Utilities

- Is your water distribution system suffering from water shortage, intermittent supply or leakage problems?
- Are revenues lost due to metering and billing issues or illegal use of water?
- Is there a need for a management system in order to improve the efficiency of your distribution network?
- Do you have high maintenance costs and/or unrealized revenues?
- Are your residents exposed to health hazards due to potential contamination from leaky pipes?

If you answered "yes" to any of the above questions, there is something you can do about it!

Miya offers utilities comprehensive economic and sustainable water efficiency solutions through turnkey projects, which increase water supply, revenues and profits.

Common Misconceptions

Governments and utilities mistakenly try to overcome water shortage by:

- Increasing water production
- Developing new freshwater sources or constructing dams
- Building treatment and desalination plants
- Investing massively in pipe replacement

While such investments may be needed, they are not necessarily the most cost-effective way of overcoming the demand-supply gap. In most cases funds would be put to better use by first:

- Fixing and optimizing the existing network
- Expanding coverage
- Improving metering and collection processes
- Adequately maintaining the existing system

"Wherever active water loss reduction programs have been initiated and sustained, the gains to consumers and utilities alike have been significant… The costs of improved service delivery are much lower when undertaken through investments in Non-Revenue Water reduction, rather than through investments in capital projects to augment supply capacities".

Asian Development Bank Report: "The Issue and Challenges of Reducing Non-Revenue Water", November 2010

The Benefits of NRW Solutions

NRW solutions for reducing municipal physical and commercial water loss are proven and effective.
Although this type of undertaking requires considerable investment, its return is significant and clearly visible both financially and socially.

Cost & Revenue Benefits

- Reduce costs by purchasing or producing less water
- Reduce costs by extending the lifespan of existing infrastructure
- Increase revenues by reducing commercial (apparent) losses
- Defer investments in alternative solutions (treatment, desalination)

Community Benefits

- Continuous and improved supply of water to residents
- Creation of jobs – NRW teams and construction teams
- Reinvestment of savings to benefit the community – parks, community centers, etc.

Environmental Benefits

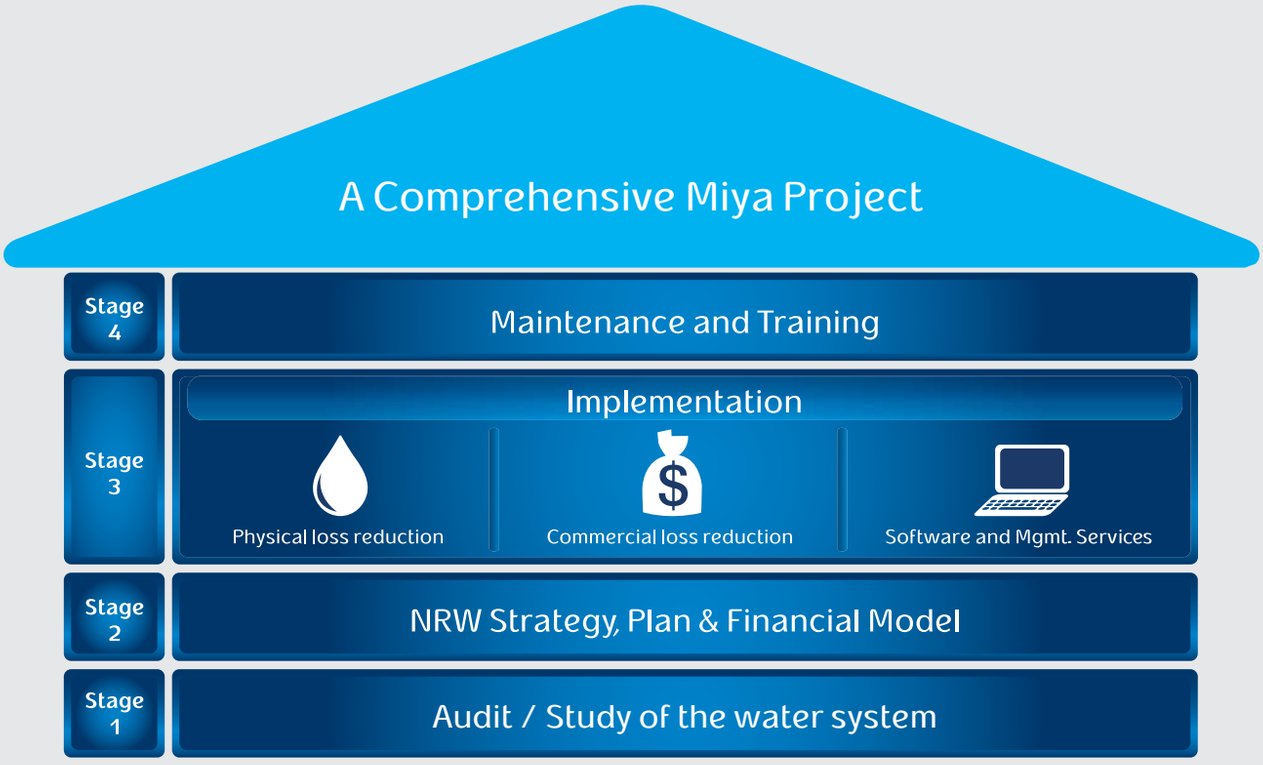
- Reduce the use of chemicals needed to treat water
- Reduce the amount of wasted water
- Reduce the energy consumption required to produce and distribute water
- Save valuable coastal real estate required for desalination plants

Health Benefits

- Lower contamination resulting from bursts and antiquated pipes
- Reduce the risks of intermittent supply and poor water quality, which often lead to typhoid and cholera

Miya – Home to a Range of NRW Solutions

Miya's comprehensive solutions are tailored to your city's budget, needs and priorities. The diagram provides a graphic overview of Miya's comprehensive four stage solution. A typical Miya project can include some or all of the services and technologies offered, as well as additional ones required for a specific project.



The Benefits of Miya's Comprehensive Solution:

Beyond the clear benefits of water loss reduction listed above, the unique comprehensive approach of the Miya solution entails additional advantages:

- The turn-key approach ensures Miya's **accountability** for results
- Most **efficient management and control** enabled by the Netbase* software
- Ongoing **prioritization and optimization** of the intervention methods and necessary investments for achieving best results
- **Sustainability** as an outcome of the long term, comprehensive solution combined with exhaustive training of the local staff

STAGE 1

Audit/Study of the city's water system:

Gaining a thorough understanding of the **current situation** is a critical first step in moving towards an effective NRW reduction and management program.

At the end of the audit phase Miya will provide a detailed report of all findings, including an accurate and detailed water balance, comprehensive water loss performance indicators and a detailed problem analysis.

STAGE 2

NRW Strategy, Plan & Financial Model/Analysis:

Miya will produce a **work plan**, together with the relevant utility staff, which will detail and determine the required NRW intervention methods, the level of intervention, the timing and resources needed.

A **business model** will be created and tailored to the needs of the utility and the specific situation of its network, based on the work plan.

Miya will conduct a **financial analysis** in order to determine the project's financial viability for the client and how to maximize the utility's return on investment. The financial analysis includes components such as the project cash flow, cost benefit analysis and comparison with alternative investments for developing other water sources of equivalent quantities.

STAGE 3

Implementation:

Management and execution of the overall program, based on the strategy and work plan created in stage 2.
During the implementation stage, the strategy and plan are continually revised and updated in order to ensure that activities are correctly prioritized and investments remain cost effective.
The implementation stage is based on IWA methodology and best practices for NRW reduction, in conjunction with Miya's TOP* approach.

- Physical (Real) Loss Reduction
  Including design and implementation of network zoning and district metered areas (DMAs), pressure management, active leakage control, pipe repair and pipe replacement
- Commercial (Apparent) Loss Reduction
  Including meter management & AMR, increased efficiency of meter reading & billing and regularization of illegal connections
- Software & Management Services
  Including Netbase* water management system and software and overall project management

STAGE 4

Maintenance & Training:

Once the NRW management strategy has been successfully implemented, it is most crucial to sustain the results. Without **continuous maintenance** it is highly likely that NRW will gradually rise again to former levels.
Another most important element in securing the results for the long term is that the utility's staff is fully qualified to carry on NRW management activities.

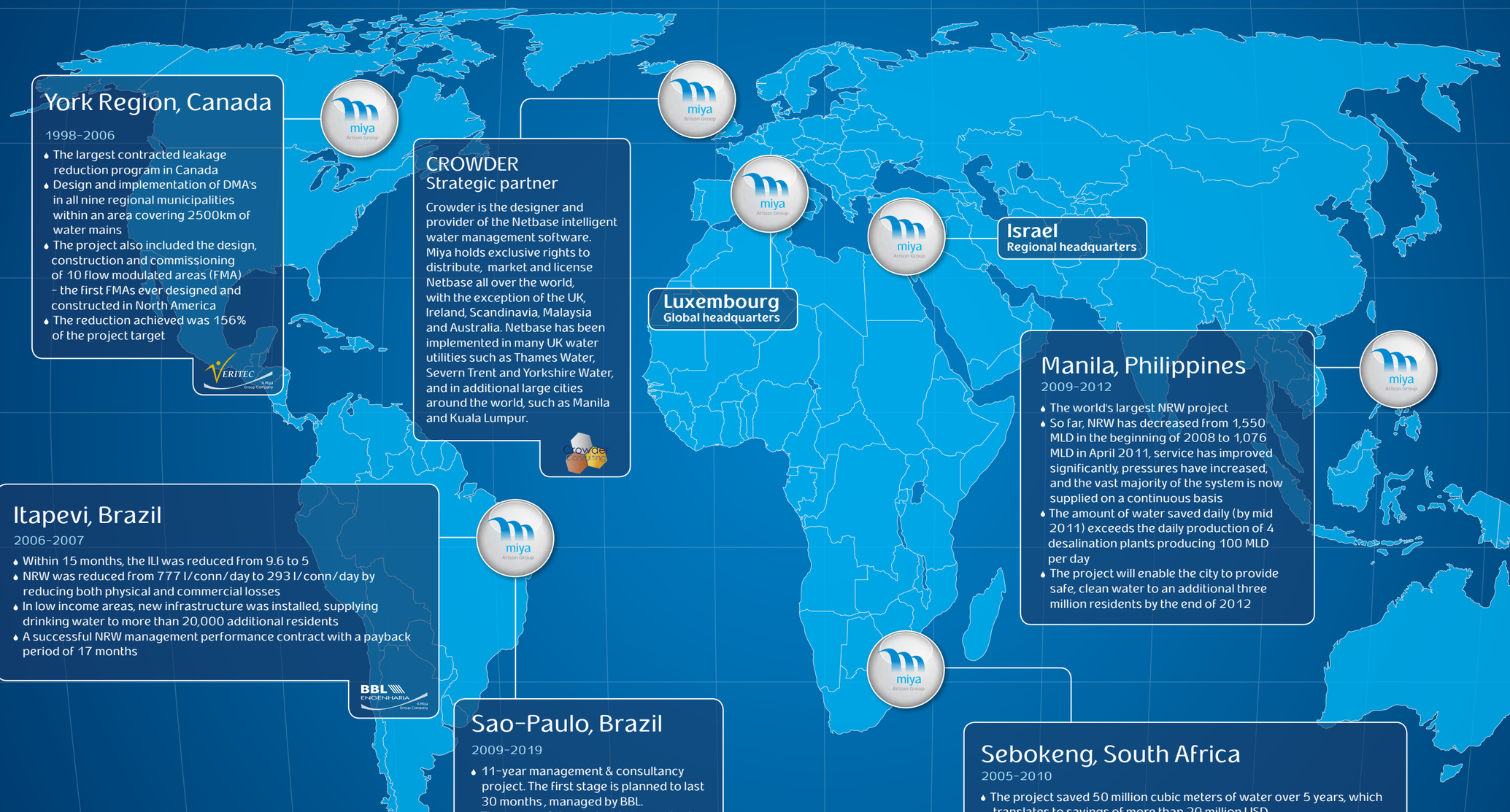
Miya provides comprehensive **training** to the water utility management and staff, and works hand in hand with the utility's execution teams in order to create a highly skilled and dedicated NRW team that can ensure the ongoing use of best practices once Miya's service term ends.

* **TOP – Technology Oriented Project**
Miya understands the importance of technology in the field of water, but is also very aware of the limitations and difficulties of introducing new technologies into the water industry. Accordingly, Miya masters the best technologies available, and implements advanced technologies in its projects that meet and comply with local needs, in order to ensure the best possible results.

* **Netbase**
A leading water distribution management system comprising a wide range of applications. It brings together corporate systems data (SCADA, Telemetry, AMR, billing, GIS etc.) into an integrated database providing transparency to the network. Netbase specializes in water loss reduction management. It assesses Non-Revenue Water (NRW) and its components, using the International Water Association (IWA) recommendations and best practices, and allows data improvements for a high-confidence, accurate water balance.

Miya's Global Reach

Presenting the Miya Group companies, partners and sample projects



York Region, Canada

1998-2006

- The largest contracted leakage reduction program in Canada
- Design and implementation of DMA's in all nine regional municipalities within an area covering 2500km of water mains
- The project also included the design, construction and commissioning of 10 flow modulated areas (FMA) – the first FMAs ever designed and constructed in North America
- The reduction achieved was 156% of the project target

CROWDER
Strategic partner

Crowder is the designer and provider of the Netbase intelligent water management software. Miya holds exclusive rights to distribute, market and license Netbase all over the world, with the exception of the UK, Ireland, Scandinavia, Malaysia and Australia. Netbase has been implemented in many UK water utilities such as Thames Water, Severn Trent and Yorkshire Water, and in additional large cities around the world, such as Manila and Kuala Lumpur.

Luxembourg
Global headquarters

Israel
Regional headquarters

Manila, Philippines

2009-2012

- The world's largest NRW project
- So far, NRW has decreased from 1,550 MLD in the beginning of 2008 to 1,076 MLD in April 2011, service has improved significantly, pressures have increased, and the vast majority of the system is now supplied on a continuous basis
- The amount of water saved daily (by mid 2011) exceeds the daily production of 4 desalination plants producing 100 MLD per day
- The project will enable the city to provide safe, clean water to an additional three million residents by the end of 2012

Itapevi, Brazil

2006-2007

- Within 15 months, the ILI was reduced from 9.6 to 5
- NRW was reduced from 777 l/conn/day to 293 l/conn/day by reducing both physical and commercial losses
- In low income areas, new infrastructure was installed, supplying drinking water to more than 20,000 additional residents
- A successful NRW management performance contract with a payback period of 17 months

Sao-Paulo, Brazil

2009-2019

- 11-year management & consultancy project. The first stage is planned to last 30 months , managed by BBL.
- The scope of the project is to overlook SABESP's program of reducing the total water loss in Sao-Paulo until 2019 from 403 l/conn/day to 211 l/conn/day, and the NRW from 26% to 13.1%
- A special purpose software is being developed as part of the project, which will automatically calculate monthly performance indicators for each sector, based on data from other corporate systems

Sebokeng, South Africa

2005-2010

- The project saved 50 million cubic meters of water over 5 years, which translates to savings of more than 20 million USD
- The project provides annual energy savings in excess of 14,000 MWh, equivalent to reducing 12,000 tons of CO2 emissions per year
- Reduction of leakages in homes has improved the sanitary situation
- The project created many local employment opportunities and raised awareness in the community
- A comparison made by the customer showed that the alternative of constructing a water treatment facility to produce the same amount of water (that was saved), would cost 150 times the investment in this NRW project

The Miya Group accumulated experience includes:

- 150 NRW projects around the world
- 50 experts, among them some of the world's leading experts in various aspects of NRW
- Over 350 years of accumulated experience
- Over 120 training activities
- 70 papers published in professional magazines/ conferences in the last 5 years

WATER EFFICIENCY REQUIRES EXPERTISE

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