



# Compelling Environmental Performance Solutions for Cities

Ministry of Water & Electricity, Kingdom of Saudi Arabia  
Delegation visit to the People's Republic of China

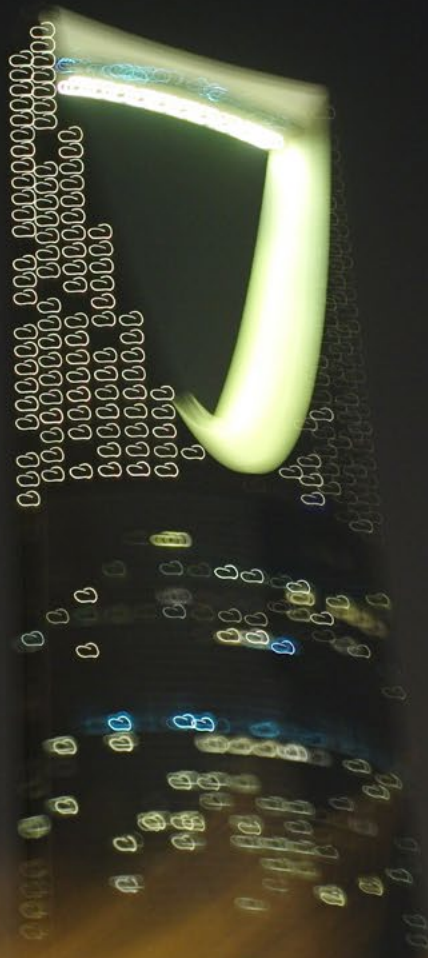
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# Towards Smart Cities

Veolia Environnement's three businesses (water management, waste collection & recycling, and energy optimization) represent the major urban and environmental issues faced by local authorities. Veolia plays a key role alongside municipal, regional and national officials in leveraging its expertise to offer innovative solutions tailored to local challenges.

Sustainable urban development has become a major field for local policymakers, who must speed up deployment of innovative technology to offer simpler, more efficient solutions.



## Forward Looking Solutions

The dwindling supply and the pollution of conventional resources is giving rise to new challenges for tomorrow's cities, especially in arid regions experiencing strong urbanization. This situation demands the continuous implementation of forward-looking contractual solutions that preserve a public workforce and governance but infuses private-sector expertise.

Veolia operates more than 8,500 water and wastewater facilities and 372,000 miles of pipes around the world, and we drew from this wide-ranging experience when we developed this model. Our solutions are built to align with a city's key priorities and interests while both lowering costs and increasing service and performance levels.

*Support and reinforce public utilities*

*Deliver measurable benefits*

*Sustainable performance*

# Peer Performance Solution (PPS)

## Improving Performance in New York City

### What does the contract cover?

This is an innovative and cost savings partnership where Veolia works hand-in-hand with the New York City Department of Environmental Protection (DEP) to meet its objectives to become the safest, most effective, cost-efficient and transparent water utility in the USA.

The PPS model is innovative in terms of the scope of activities open to Veolia and because it is a **hybrid model**, combining a **performance-based contract**, a **public-private partnership** and a **strategic alliance**. **Veolia and DEP work together as one team.**

### What are the expected benefits for New York City?

The contract through the new **Operational Excellence (OpX) program** will **generate savings of more than \$100 million a year** on services that represent annual operating costs of \$1.2 billion.

Modernizing and improving performance will contribute to providing residents with **better-quality service**.

Veolia will be playing its part in making New York's public water and wastewater services world **benchmarks** in terms of performance.

### What is Veolia's role in this contract?

Veolia will be responsible for helping New York City's Department of Environmental Protection optimize its water and wastewater services.

Recommendations have centered around five key themes:

- Efficient and sustainable use of resources and materials
- Enhanced workforce effectiveness
- Improved revenue collection
- Development of a metrics-based performance culture
- Strengthening Department of Environmental Protection's support services

*“ The Operational Excellence program pairs us with a firm that brings a comprehensive portfolio of best management practices, a track record of boosting productivity while reducing expenses across the globe... Through this new innovative partnership, teams of DEP employees will work with Veolia to look for efficiencies across the board in operations and maintenance and then implement the best recommendations over the next four years. ”*

Carter Strickland, Commissioner, New York City Department of Environmental Protection

*4-year contract*

*9 million beneficiaries of water & wastewater services*

*A goal of \$ 100+ million financial benefits annually*

# Alliance Model

## Infrastructure Upgrade for Thames Water

### What does the contract cover?

Thames Water, which serves almost a quarter of the UK's population, has chosen two consortia to deliver a significant proportion of its 2015–2020 essential **upgrades to water pipes, treatment facilities and sewers** across the capital.

The work will be undertaken between 2015 and 2020, with an option to extend the contract for another five years.

Under a new alliance model, Thames Water has brought together **two design-and-build consortia, a program manager and a technology and innovation provider**.

### Why an alliance model?

The alliance model represents a new stage in client-contractor relationships.

It brings together the best possible combination of partners to work as one team and represents a complete transformation in the way investment is made by ensuring that all parties take a long term view, focusing on delivering value, as opposed to just cost-efficiency.

This is further enhanced through a **benefit and cost-sharing mechanism** which facilitates a **balance of risk and reward**.

In this case, the alliance has been formed early in the project, two years before the start of the next five-year regulatory period, so that the team can deliver the **safest, most sustainable and most innovative solutions**.

### How is the contract split between the different companies?

a) The organizations selected are:  
Design and build:

- > Costain, Veolia, Atkins (CVA)
- > Skanska, MWH, Balfour Beatty (SMB)

Program Manager: MWH  
Technology and Innovation Provider: IBM

b) The work is phased:

Phase 1 (2013–2015): Planning and mobilization

Phase 2 (2015–2020, +5-year extension option): Delivery, program of upgrades to water pipes, treatment facilities and sewers

“ We have a significant amount of work to do upgrading our deteriorating infrastructure while keeping customers' bills affordable. If we are to achieve this, a different approach is required. That's why we have formed this alliance to deliver our program. This represents a complete transformation in the way we carry out investment. Our focus will be on delivering value, as opposed to just cost-efficiency. ”

Lawrence Gosden, Thames Water Asset Director

**£ 3.5 billion contract: the largest CAPEX management contract in Europe**

**9 million clean water customers & 14 million wastewater customers in London and the Thames Valley**

**£450 million investment over 5 years**

# Capital Program Management

## Driving Value for Money Through Innovation at Scottish Water

### What does the contract cover?

Scottish Water Solutions 2 Limited (SWS2) is a joint venture company between: Scottish Water, Veolia, Jacobs and Laing O'Rourke.

The contract includes a total **service delivery**, from **feasibility through to development, implementation and project closure**.

This is a first for the water industry in Scotland and has led solutions to establish a culture of **driving innovation** and **efficiency** throughout the program and project delivery lifecycle.

The program is focused on the **improvement of above ground assets** including water and wastewater treatment works upgrades, capital maintenance for treatment works and pumping stations, borehole remediation, reservoir improvements, main-outs and tanker fill points.

### What is Veolia's scope in Scottish Water?

The contract encompasses the renewal, upgrade, extension and maintenance of networks and assets for the treatment and distribution of water, and for the collection and treatment of wastewater.

Major projects objectives:

- **Improving performance** in drinking water quality
- **Protecting the environment**
- **Service Improvements**, i.e reducing interruptions to supply
- **Delivery of regulatory targets**

### What are the benefits for the client?

By strategically bundling associated projects together and by applying rigorous design challenge processes, over £200m of investment was safely delivered by solutions in its first two years.

The **potential for future improvements** is clear. Several aspects will be featured in the coming years, such as:

- Modular off-site construction and standard products
- More integrated supply chain
- Lean principles for standard products

An **incentive program** has been put in place:

- Veolia will be paid on all actual costs
- A fee will be applied if the results do not match the expected performance
- If the KPIs are met, Veolia will then get a gain share up to double the fee

“ *These joint venture companies have been chosen for their expertise and experience in each of their chosen fields. This is a partnership with an exciting blend of the right skills and brings best practice from the private sector to bear on the delivery of public water and waste water treatment infrastructure. We are delighted that the new Scottish Water Solutions partners will be at the forefront of delivering capital efficiency.* ”

Geoff Aitkenhead, Asset Management Director, Scottish Water

**£ 480m worth of Scottish Water's Capital Investment Program**

**5-year contract**

**Responsible initially for 280 water projects**

# Public-private Partnership (PPP)

## Drinking Water for All 24/7 in Nagpur

### What does the contract cover?

The PPP signed in 2011 includes a 25-year contract to supply safe water to all the citizens of Nagpur 24 hours a day and seven days a week.

To make this happen, a tripartite agreement was signed between:

- Orange City Water (OCW): a 50/50 joint venture company between Veolia Water and Vishvaraj Environment Limited, a local infrastructure construction company
- Nagpur Municipal Corporation (NMC): the municipality
- Nagpur Environmental Services Limited (NESL): a special purpose vehicle created by NMC to manage city's water supply system

It is a win-win situation since the operator's remuneration is structured to encourage the maximum achievement possible efficiencies:

- OCW remuneration is based on performance
- This results in higher remuneration for OCW & higher revenue collection for NMC

### What is the Nagpur's transformation all about?

Over 5 years, OCW will connect **all citizens** of Nagpur to the **continuous & safe water supply network**:

- 24/7 safe water for all (individual water connections)
- 6,000 connections / month = 360,000 in five years
- 2,500 km of network constructed and / or refurbished
- 1 million slum dwellers connected to the water supply network
- Increase water production up to 750 MLD
- Modern and accessible customer services (helpline, customer services centers, community liaison team)
- Training for all employees of the municipality & new recruits
- Renovation & management of the entire city's water infrastructure

### What means the creation of shared value in this context?

With this contract, Veolia has been reconceiving the intersection between society & corporate performance to **create economic value** in a way that also creates value for society by addressing its needs and social challenges.

One of the objectives was also to meet the needs to the poorest through **social engineering** (services and solutions), **indigenization of our know-how** (adapting to the Indian context what we do best in the world) and **frugal innovation** ('jugaad').

*Rs 3.8 billion capital investment*

*2 distinct phases for implementation*

*Complete redesign of customer services with social welfare team*

*Stakeholders mapping & research work with ESSEC business school prior the project*

# Delegated Management of Operations & Maintenance (O&M) Western Corridor Recycling Water Project

## What does the contract cover?

In response to water shortages in South East Queensland, a water recycling scheme has been developed. The Western Corridor Recycled Water Project is a key element of the Queensland Government's \$9 billion South East Queensland Water Network.

The project involves **treating wastewater to the highest standard**, resulting in purified recycled water. The purified recycled water has the capability to **supply power stations, industry and Brisbane's main reservoir**, Lake Wivenhoe.

The scheme involves:

- 200 km of large diameter pipeline
- Construction of 3 advanced treatment plants incorporating membrane technology
- 8 storage tanks
- 9 pumping stations

The scheme has the capacity to deliver up to **232,000,000 m<sup>3</sup>/day of purified recycled water to end users.**

## What is the role & responsibilities of Veolia?

Veolia is the **Scheme Operator** for the project. This involved acting as **adviser during the design and construction phase** (occurring under 5 separate design and construction alliances) and taking over **responsibility for the long term O&M** when construction was completed.

Seqwater, a government entity, owns the assets while Veolia operates and maintains the plants and pipelines under a long term contract.

## What are the innovations delivered through this contract?

In addition to being embedded into the design and construct alliances, Veolia assisted in the development of a **Recycled Water Management Plan** and regulatory framework used to manage the water quality supplied from the Scheme. This follows the **principles of HACCP** and is certified to **ISO 22000** (Food Safety).

Veolia has worked closely with Western Corridor Recycled Water to **comply with requirements of the newly established water network** and is a key participant in the water network operations.

A **dial-before-you-dig automated system** was established. It uses an electronic mapping system (GIS) for information on underground pipes and cables for anyone planning an excavation, freeing up resources and lowering risk for excavation works.

*5 separate design and construction alliances*

*Production of purified recycled water from 6 existing wastewater treatment plants*



# Shareholding and Management Contract Concession

## Smart Water Management in Shanghai Pudong

### What does the contract cover?

It is a **50-year contract** with a service area of **536 km<sup>2</sup>** (in 2011) that include many commercial buildings and residential complexes, as well as the new international airport of Shanghai, and numerous business parks located in the Pudong area.

Main objectives of the contract:

- **Improve the standards** of water services and **expand the services** to meet the growing needs of the local population
- **Improving the quality of drinking water**
- Create and manage one of the world's most advanced **distribution networks** through the use of sophisticated technologies and automated computer systems
- Provide **high quality customer services** for the people of Pudong
- **Use water resources more efficiently** & preserve value of water resources

### What makes this contract a true milestone for the Chinese water industry?

This contract marks the first time a private foreign water operator became involved in a significant **full water services** contract in China.

Not only is Veolia's participation a landmark in public private partnerships in China, it also opened the door to a **wealth of water management** expertise and unfolded numerous improvements and innovations for water services in Pudong, and helped **drive forward smart water management** in China's water industry.

### What are the benefits for Shanghai Pudong?

Shanghai Pudong Veolia Water strives for **continuous improvement** - in water quality, the water supply system, network management, customer services, health and safety, developing its people, the community and responsibility towards the environment.

The Joint Venture's key achievements to date share the same principle as Veolia's vision of providing solutions that **guarantee performance, safety and comfort**, while also **containing costs**.

*5 drinking water treatment plants*

*5 customers service centers*

*10 pumping stations*

*Water movement control center & customer call center*

*4,257 km of network*

*1,144, 102 water meters*

*Water production of 1,600,000 m<sup>3</sup>/day*

*3.6 million population served*



# Strategic Alliance Partnership

## A World Class Solution for Majis Industrial Services

### What does the contract cover?

Majis Industrial Services S.A.O.C. (MISC) is the public entity which owns the water facilities, and provides water and related utility services to industrial users at the port of Sohar. In 2010 MISC entered a Strategic Alliance Partnership with Veolia following an international call for tender. Under this partnership Veolia is providing **O&M services** related to the **water and wastewater utilities** of Sohar port, and is also acting as a Strategic Partner to **improve the level of services and develop new ventures**.

### What are key solutions adopted by Veolia?

During the mobilisation period Veolia has deployed a team of in-house experts to **assess the initial condition and performance of the assets** meeting a tight schedule and laying the foundations for the development of strategic plans and studies.

In addition to its O&M activities, Veolia has also been carried out **feasibility studies** with regards to opportunities to expand MISC's services into other areas of Oman. Investigations and discussions are currently on-going which could lead to new joint ventures to provide water and wastewater services.

Veolia is organising yearly **Executive Utility Management Exposure Sessions** for the benefit of the top management of its client. These sessions take place in different countries where Veolia has operations with the aim to discover and know more about best practices in specific areas.

### What are the added-value services that MISC benefit from?

A **Customer Service Manager** has been seconded to the client for 2 years by Veolia. The same has been completed in January 2013. The Customer Service Manager is acting as a facilitator collecting industrial tenants' requests and liaising with the O&M team to propose solutions.

Veolia will also be developing and implementing an **Integrated Management Plan** (quality, Health & Safety, environment) with the aim of obtaining the triple certification in 2014.

The current **omanisation** rate is 52%, while the initial target set in the contract was of 35 %, and the target later agreed with Ministry of Manpower at Contract start-up was of 42,5%, and 47.4% in October 2011. The priority is now to pursue the omanisation at higher level position through training and peer to peer.

*Seawater extraction: 334,000 m<sup>3</sup>/hour*

*Seawater delivery capacity: 60,000 m<sup>3</sup>/hour*

*Process water delivered to the network:*

*40,000 m<sup>3</sup>/day*

*Potable water delivered to the network:*

*8,000 m<sup>3</sup>/day*

*Wastewater treated: 3,000 m<sup>3</sup>/day*

*Water for irrigation: 1,000 m<sup>3</sup>/day*



# Measurable benefits for our clients

**OPERATIONAL EXCELLENCE**

**COLLABORATION**

**PUBLIC SECTOR**

**TECHNOLOGY**

**PRIVATE SECTOR**

**RELIABILITY & PERFORMANCE**

**NETWORK OF EXPERTS**

**SAVINGS**



# About Veolia

## Innovative Solutions

Your municipal utility can rely on world-class experience and knowledge, becoming part of a vast network of expertise to reach the next level of excellence.

- Partnerships with some of the world's largest cities, such as New York City, London, Paris suburbs and Shanghai
- Provide a comprehensive and smart range of services
- Bring value to the public sector, providing solutions for the challenges of water and wastewater treatment

## Sustainability Matters

At Veolia, we are committed to doing our part to tackle the sustainability challenges that face our communities.



