

## P02.3

## UK Regulation – the Water Industry perspective: asset information in a regulated water company

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### Background and introduction

This short paper provides an outline of the main needs for asset information within Thames Water Utilities.

Thames Water is the water business of RWE, one of the world's largest multi-utility businesses and Germany's fifth largest industrial company - with revenue of approximately 63 billion euros in 2000/1. Thames Water is now the world's third largest water company. Since the merger with RWE in November 2000, the customer base has continued to grow. There are now 43 million customers around the world. Twelve million of these are in the UK, who receive water and / or sewerage services from Thames Water Utilities, the regulated business (see below), operating in the Thames Valley. This includes treatment and supply of some 2,600 million litres of water and 4,200 million litres of sewage every day.

The water industry in England and Wales has three main regulators: The Office of Water Services (Ofwat); The Drinking Water Inspectorate (DWI) and the Environment Agency (EA).

As economic regulator, Ofwat's role is to limit the amount companies can charge customers, make sure that companies carry out their responsibilities under the Water Industry Act 1991, protect the standard of service delivered, encourage companies to be more efficient and to encourage competition where appropriate. Considerable improvements in customer service and efficiency have resulted from the tough but incentive-based regulatory regime in England and Wales. Thames Water has invested over £2bn since Privatisation, a sum unthinkable in the public sector. The DG Level of Service Measures are published every year by Ofwat and demonstrate reductions in the numbers of customers experiencing supply interruptions, suffering flooding from sewers etc.

DWI is an independent organisation responsible for assessing the quality of drinking water in England and Wales, taking enforcement action if standards are not being met, and appropriate action when water is unfit for human consumption. The quality of drinking water supplied by Thames Water has reached an all-time high, with 99.9% of samples tested complying with stringent Government and EU standards. This follows the completion of a £350 million investment programme to install Advanced Water Treatment (AWT) technology

In EA's own words *"We are the leading public body for protecting the environment in England and Wales. It's our job to make sure that air, land and water are looked after by everyone in today's society, so that tomorrow's generations inherit a cleaner, healthier world"*. Sir John Harman, Chairman<sup>[1]</sup>. A £1 Bn investment programme at sewage treatment works has improved the quality of treated wastewater discharged to rivers. The Thames tideway is now the cleanest metropolitan estuary in the world, home to 118 species of fish.

[1] (copied from the EA internet website).

## Asset information

In most businesses there has been a growing need for all types of information over recent years. This is also true for utility companies, although this paper is concentrating on the particular need for information on assets, considered under three main headings:

- I. Operationally, the business owns and uses a very large number of assets in order to provide and distribute drinking water to customers and to collect and treat waste water. These assets range in size from the large treatment works in London, to the hundreds of small treatment plants and pumping stations which serve rural communities across the Thames Valley. In total, there are 448 water and sewage treatment plants and more than 2600 pumping stations. There are also more than 77,000 km of sewers and 31,000 km of water mains.

In order to carry out operations to supply and treat water and sewage and to maintain the assets effectively, the business needs to know where these assets are, what size (both physically and in terms of capacity etc), what equipment they contain, how the assets are performing and what maintenance is needed. For underground assets, one of the most important issues is accurate location. A small 'error' in location could result for example, in a pipe being thought to be beneath a footpath but in reality being under the road. Inaccuracy of one or two metres may therefore be important. Weeks of planning and liaison with highway authorities may be 'wasted' if a pipe turns out not to be in the expected location. Generally this is not a major issue for simple pipe runs along a street. It can be more significant at complex road junctions, or where major highway works have been carried out or where several assets are connected, with junctions and valve arrangements.

There is also a need to interface with the other utilities, in order to provide the best available information to street works teams before any excavation work is carried out. Reciprocal arrangements have therefore been put in place in order to interchange asset information between companies. In addition, a service is provided so that customers can obtain information on the assets relating to their properties.

- II. For investment planning it is necessary to understand which assets need to be maintained, repaired or replaced, on the basis of risk to customer service the integrity of the operational process, or the impact on operating costs. In particular,

The relative *criticality* of a treatment process and the individual assets within it can be assessed. For example, a pump within a duty / standby arrangement will be less *critical* than a single pump. In the first case if the duty pump fails, the standby set can take over. In the second case, pump failure might result in total failure of the process. This approach does not only apply to the risk of asset failure. In certain circumstances, operational processes can be affected eg by river turbidity, such that at certain times of year or in certain conditions, the plant may not be able to achieve its required quality standards without having to reduce output.

It is therefore necessary to understand assets in terms of the role they play in operational processes for providing drinking water or sewage services to customers. Through continuous monitoring of risk, taking account of the probability of plant 'failure' in conjunction with the consequence of non-availability, it is possible to target and prioritise the need for investment. This is best considered in terms of 'cash' and not as separate 'budgets' for maintenance or replacement.

For many assets, particularly those with high *criticality*, it is necessary to have a proactive maintenance regime, which may sometimes also include condition based monitoring. For others where the risks are low, it may be more efficient to maintain or repair only when 'non-availability' has occurred.

- III. Information is the fundamental lifeblood of comparative competition, between service providers, in a monopoly situation such as exists in the water industry in this country

There are two main needs for asset information to satisfy the regulatory requirements of Ofwat, the annual 'June Return' and the five-yearly 'Price Review'.

Each year the company has to make a 'June Return' (see below). Ofwat then combine this with information obtained from other regulators, customers and specialist advisors in order to monitor and compare water companies performance and costs, ensure customer's bills avoid undue preference and are inline with price limits, make sure that standards of service are protected and to prepare for the next review of price limits.

The information required in the June Return is divided into:

- *key outputs;*
- *bad debt and vulnerable customers;*
- *non-financial measures;*
- *the regulatory accounts; and*
- *financial measures.*

Non-financial measures include:

- *population supplied;*
- *number of households and non-households receiving measured and unmeasured supplies of water and sewerage services;*
- *new connections;*
- *meter installations;*
- *supply to non-households in consumption bands;*
- *volumes of water affected by various undertakings and relaxations;*
- *the components of water delivered including leakage;*
- *volumes of sewage and effluent collected, treated and disposed;*
- *lengths of water mains and sewers inspected, repaired and renewed;*
- *types of water source;*
- *treatment needs; and*
- *types of water and sewage treatment works.*

The Quality Regulators also require detailed information, for example on water quality sample results from treatment works, the pipe network and customers' taps. Some of this data has also to be made available for public inspection, if requested.

Every five years an major review of price limits takes place. Price caps are set by Ofwat which allow the companies to finance their functions. Ofwat do not control profits or dividends. An annual price increase or 'K' factor is set for each company to reflect what it needs to charge to finance the provision of services to customers. The Water Industry Act 1999 requires to Director General of Water Services to approve companies charging schemes.

The current price limits were set in 1999 and will be reviewed in 2004. Ofwat have published that they plan to manage the review in four phases:

**Phase One** - Framework and issues

**Phase Two** - Assessment of draft business plans and market research

**Phase Three** - Decisions and determinations

**Phase Four** - Implementation of price limits and evaluations of periodic review 2004

Ofwat intend to launch the review on 15 October 2002, with the publication of the consultation document "The proposed framework and approach to the 2004 periodic review". Price limits will be announced in November 2004.

Ofwat are placing increasing emphasis on the economic case for new investment – can it be justified in terms of economic provision of continued (or improved) service. This may well drive a need to relate datasets currently seen as unrelated, eg the customer billing and GIS datasets.

## Conclusion

Thames Water Utilities has a significant need for reliable information on its assets. Information is not an end in itself, it is needed to support business processes, to aid decision making and to fulfil business and regulatory reporting requirements.

However, information is expensive. The collection, storage, and subsequent extraction, manipulation, analysis, reporting and use of information must be appropriate to business needs. It is important to ensure that only the data needed is collected. Also, that once collected, the data is properly managed from end to end of the process, such that it is not affected, altered or ‘improved’ as it passes through systems, and that the business decisions and reports produced are based upon the information provided.

Information systems are a significant part of this process, but it is important to realise that the needs of the business are the primary means by which to define the systems, not the technology available. We also need to understand and appreciate the relationship between the cost of providing information compared to the value it provides to the business.