The Benchmark

Newsletter of the Water Research Commission Benchmarking Project

Issue No. 5

PROGRESS UPDATE ON THE WATER RESEARCH COMMISSION PROJECT ON BENCHMARKING

In the last edition we reported on the difficulties that had been experienced in getting the web site up and running.

A more serious problem has arisen in that most of the participants have been unable to find the time to supply the data.

A workshop was accordingly held on 15 September in the offices of the Water Research Commission. Attendance was poor, many of the participants having been called to meetings at the last minute.

The main theme of the workshop was to examine the reasons why the participants were having such difficulties in providing data.

Dr Thomas Mogale presented a paper on the perceived problems in capturing the data. He raised the issue of cost, highlighting the fact that while managers have generally seen benchmarking as beneficial and mostly remained positive about it, those responsible for collecting the data have found it a slow and difficult process. Available resource requirements been a significant factor, which was often exacerbated by data incompatibility problems. Moreover, some had pointed out the difficulties of establishing appropriate data and collection systems within their municipalities and the fact that they often lacked the time or capacity to provide.

Few of the data capturers had been exposed to the relatively new concept of benchmarking which caused these issues to arise. He concluded by providing a few suggestions for improvement of the situation, including the fact that coverage and effectiveness of training programmes should be extended, especially for data capturers. Benchmarking teams should be given opportunities to develop their benchmarking skills or given access to sufficient best practice guidance.

Geraldine Schoeman spoke on the perspective of the individual in the benchmarking exercise. She indicated that there were no less than 144 pieces of legislation that influenced the Local Government Sector. The reality of the situation is that municipal officials are overloaded and unable to take on additional responsibilities.

From the point of view of the individual, there did not appear to be any personal benefit from supplying benchmarking data.

- It is seen as a duplication of other separate initiatives, e.g. Department of Water Affairs and Forestry and Department of Provincial and Local Government.
- There are time constraints and pressures to ‘fight fires’.
- The data was not always readily available with the resultant ‘back burner’ syndrome
- Problems had been experienced in accessing the web site.
- It did not feature in the job descriptions.

- The benchmarking was acting in a hostile environment with lack of integration of information systems.
- Changing systems made certain data difficult to obtain.

It would need training to overcome the personal disadvantages.

A third presentation was made by Brendon Fourie on how to use the web site and make comparisons of the performance indicators entered by the various participants.

After a long discussion on the issues and the difficulties the delegates had experienced in entering the data it was decided to reduce the number of indicators to an irreducible minimum of three. This would relieve the data capturers of the burden of trying to capture all the data required and enable them with the least effort to join in the benchmarking exercise.

"Don't' worry about the best, concentrate on what is good". John Briscoe, Senior Water Adviser, World Bank

INTERNATIONAL WATER ASSOCIATION

CONFERENCE IN MARRAKECH

The International Water Association recently staged the Fourth World Water Congress.

Benchmarking was well covered at the Congress.

One of the technical sessions was devoted entirely to the topic of benchmarking with papers coming from around the world.

In addition the Statistics and Economics Specialist Group covered the subject quite extensively.

One of the interesting features of the Group's meeting was fact that the Chairman experienced considerable difficulty in getting statistical data on the supply of water services for the various countries around the world. In the case of South Africa, only Rand Water supplied any data. This explained why there were some strange statistics for the country, as most of the population was left out of the data set. There were similar problems from most of the other countries. Our difficulties in obtaining data for the benchmarking project are not unique by any manner of means!

It is for this reason that the WRC project is focussing on capacity building and institutionalising the Benchmarking processes. Developing the performance indicators is the easiest part of the initiative. However putting these to effect provides many challenges. Ultimately the quality of the data and its use, is determine by the commitment to the processes of Benchmarking.

A system of benchmarking has been set up amongst the Bavarian water suppliers in manner that is very similar to the Water Research Commission project for Benchmarking Water Services. We shall be liasing with them and comparing our experiences in what will be a process benchmarking exercise.

A second edition of the booklet, "Process Benchmarking in the Water Industry has now been published. It is obtainable from the International Water Association offices a 12 Caxton Street, London SW1H 0QS, England. The cost is £ 50-00. to members of the International Water Association. Please remember that you can become a member through the Water Institute of Southern Africa.

Some summaries and extracts of a couple of the papers that were presented at the Congress are given below.

WIDENING THE SCOPE OF THE IWA-PERFORMANCE INDICATOR SYSTEM: RESULTS OF GERMAN PROJECTS, EXPLANATORY FRAMEWORK AND INTERPRETATION TOOLS

Wolf Merkel et al.

Background For The Application Of Performance Indicator Systems In The German Water Supply Industry

The acceptance of performance indicator concepts in the German water industry can be characterised as follows:

- The German water industry has a long-established tradition of self-organisation and self-regulation. Performance Indicator concepts are regarded ambiguously - useful for the undertakings on one side (but not particularly missed in the past) and threatening in the hand of a potential supervisor or regulator.

- In the context of the discussion on the liberalisation of the water market, PI concepts were handled with some reluctance and scepticism, but gained increasing interest recently.
- A multi-dimensional approach in order to equally cover quality, reliability, customer service, sustainability and economic efficiency is favoured.

Consequently, the German water supply industry accepts PI frameworks as a management tool among others, provided that it serves the individual undertaking and not a (potential) regulator or the government. Similar developments in the application of PI tools can be observed in the German wastewater industry, which are not the focus of this article.

Recently, PI concepts in Germany experienced a great leap forward with regard to methodology and practical application (cf. details in the following sections).

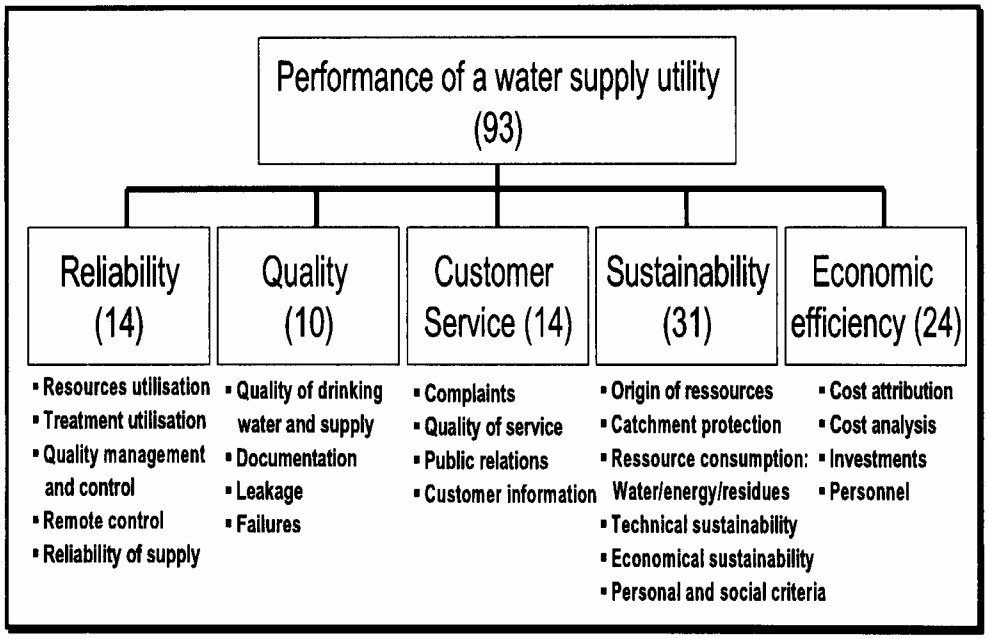


Fig. 1 Multi-dimensional framework to assess quality, reliability, customer service, sustainability and economic efficiency in water supply (in brackets: number of indicators for each dimension)

Interpretation of PI results

Essential for the interpretation of PI results, is the structuring of information and the matching of PI results and suitable Contextual Indicators (CI's). In order to facilitate the interpretation of total costs, capital costs, running costs and costs of main functions, interpretation tools were developed to assemble relevant PI's, CI's, additional PIs covering quality, reliability etc. and provide reference values if available.

Administration costs are more significant in larger utilities. However, this has to be interpreted with regard to increased organisational quality and a higher degree of task fulfillment. For a few companies, administration costs accounted for almost 50 % of running costs with a potential for optimisation.

Personnel intensity in terms of efficiency has to be interpreted for the same degree of outsourcing, otherwise misleading conclusions will result. As a quantitative measure, the degree of outsourcing was developed in the project with a framework for the assessment. The average personnel intensity for 40 utilities with a degree of outsourcing less than 15 % was between 2,4 and 3,0 people per 1000 service connections. The increase of personnel observed in larger utilities can be partly attributed to higher organisational quality and a higher degree of task fulfillment. For a few utilities, the number of personnel was below a minimum level

in order to fulfill organisational and management standards and to guarantee operational reliability.

Reliability of water supply. Reliability of water supply was covered in 5 thematic blocks as shown in Fig. 1 with 10 PI's**,** e.g. average and peak water resource utilisation, storage and treatment capacity, units with remote control, intensity of quality monitoring, interruptions, valve and hydrant density. In general, the results verified a high to very high level of reliability of water supply for all participants, with a few exceptions. Results have to be verified over several years in order to avoid mis-interpretation of singular events.

Quality of water supply. Quality of water supply was addressed in terms of product quality ("in accordance with drinking water guideline") and supply quality ("adequate pressure", control and maintenance ("inspection of networks", "inspection of hydrants", "leakage control", "storage tank cleaning", "meter exchange"), water losses ("real losses", "non-revenue water") and failures ("pipe failures", "service connection failures", "valve failures").

Results proved the high quality of drinking water with close to 100 % accordance to guideline values under permanent pressure in the supply system. Inspections were on average close to the recommendations of the technical guidelines, but significant shortcomings for a couple of utilities. Room for improvement was discovered in the documentation, planning and co-ordination of inspection and maintenance tasks. For some of the smaller companies also a lack of technical know-how needed for inspection and maintenance was observed.

Water losses were measured in terms of technical water losses (in m^3 /km hour)) and of non-revenue water as percentage of the total volume of water input in the distribution system (Fig. 6). Water losses in urban and metropolitan areas were higher than in rural areas, a matter of the relative length of the network, the higher density of valves in urban areas and sometimes very old distribution systems in city centres.
In general, water losses can be regarded as low, with only around 10 % of the utilities in need to reduce their water losses significantly. The average value of around 9 % non-revenue water is also low in comparison to international references, e.g. England (29 %), Italy (27 %) and France (25 %).

Failures in the network can be allocated mainly to service connections and to distribution pipelines with smaller diameters of cast iron. On the average, network failures occurred in 8 to 12 failures per 100 km, service connection failures to 5 failures per 1000 connections.
Important insights were also discovered for "sustainability of supply" and "customer services", for which **PIs** in several categories were investigated. The PI concept regarding sustainability covered environmental aspects as well as technical, economical and social criteria
To sum up, the project provided every participant with the evaluation of their actual performance in terms of reliability, quality, sustainability, customer service and economic efficiency, indicating the potential for optimisation. Detailed process analysis and a follow-up over several years are components of a continuous improvement cycle.

BENCHMARKING ASSET MANAGEMENT

Andrew Foley, et al. (Australia)

Benchmarking asset management aims to achieve a road-map for the improvement of a water utility.

Asset management systems consume approximately 4% of the major urban water industry's expenditure. However, asset management viewed from a holistic perspective can influence all of the industry's costs.

The water industry is also confronted with increasingly higher standards and the requirement to justify capital expenditure versus operating expenditure trade-offs.

This framework was developed to support future regulatory and business improvement processes.

How is Asset Management defined for benchmarking?

So that asset management could be benchmarked, the scope of asset

management first had to be defined. Asset management was defined as:

"Optimising the whole of life cycle cost of the assets for a given set of service standards. Whole of life cycle cost includes consideration of economic, social and environmental costs i.e. a triple bottom line approach."

Based on this definition the functions that make up the job of asset management to deliver the outcomes were identified.

These functions were then systematically disaggregated into a hierarchy of parts. These parts can then be assessed, scored and aggregated to give an overall score for the function. Ultimately, an asset management profile can be established for the utility.

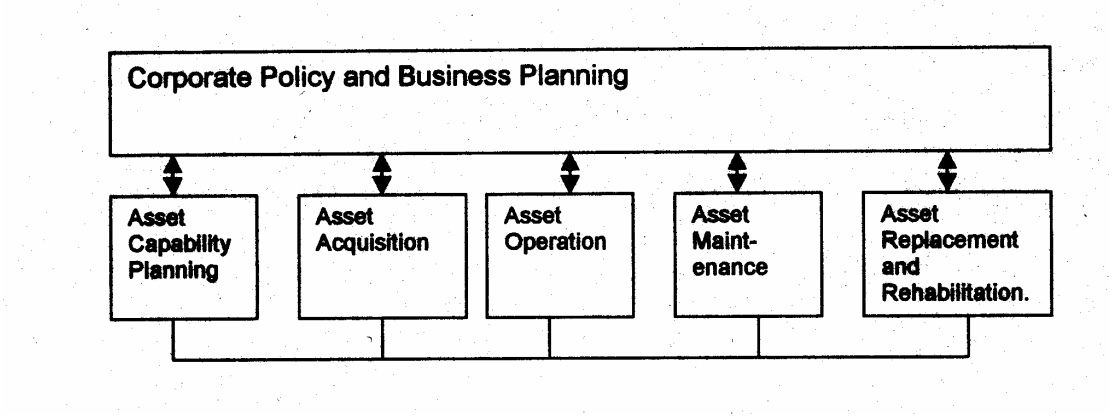
Structure of the Framework

Seven key functional areas were identified as delivering the "job" of asset management. Six of these functions are those a business would undertake in achieving asset management outcomes. These functions are implicitly linked and rely on establishing strong communication across their boundaries to deliver effective outcomes.

These six functions are:

1. Corporate Policy and Business Planning
2. Asset Capability Planning
3. Asset Acquisition
4. Asset Operation
5. Asset Maintenance
6. Asset Replacement and rehabilitation

The seventh function, Business Support Systems covers information systems which provide key data and information to support the other six asset management functions.



Scoring

Scoring of asset management is done at the measures level.

Measures in functions one to six are assessed across business capability and execution.

Capability

The first consideration in capability is the maturity and robustness of the processes the utility has identified and developed to deliver the outcome. The extent to which the process has been documented by the utility to ensure uniform implementation then completes the assessment. Effectively, this element measures the utility's capability to deliver the desired outcome.

Execution

Execution aims to assess how well the utility has put its capability "on the ground". Execution takes into consideration firstly any constraints resulting from capability and then the organisational coverage and frequency of implementation. Coverage considers both geographic (across all service areas of the utility) and functional (across utility staff linked to the process). Frequency then measures the utility's commitment to implementing the process.

Conclusion

The Australian major urban water industry has recognised the need for a water industry specific framework that facilitates comparative assessment and benchmarking of water utility asset management.

The outcome of the industry's work is a robust framework that provides a detailed analysis of a utility's asset management practices. The detail of the framework also provides an immediate road-map for improvement as determined by the utility's priorities and business objectives.

Importantly the framework can transparently assess a utility's relative performance in contemporary asset management practices from an Australian water industry perspective. Whilst looking at the holistic picture of asset management, the framework is able to capture important regulatory issues such as drivers of capital investment and the trade-offs between capital and operating costs. This is achieved because the framework's structure reflects the job of asset management.

Book Review

The American Water Works Association Research Foundation has published a book on change management in the water industry[(1).] It covers the creation of efficient and customer responsive organisations.

The manual has been designed to provide guidance to utility directors, general manager, executive management' staff and human resources directors and staff. It sets out and amplifies the success factors for this transformation:

- Establish and maintain a sense of urgency.
- Provide and build leadership.
- Create and maintain organisation alignment
- Create commitment by continuous participatation.
- Delegate decision making and create accountability.
- Communicate internally continuously and effectively.
- Establish and track meaningful measures
- Develop workforce flexibility.
- Provide appropriate compensation and rewards

It goes on to define a Four Stage process for change management.

- Assess Human Resources business services and processes.
- Align, set the stage and compare to Best in Class.
- Design the improvements
- Implement and continuously improve.

The sets out the benefits of developing a continuous improvement model through the so-called open book management. The employees are key to success, People are trained in job related skills as well as business basics and are encourage to work past their operational goals towards business and operational goals. As employees take on new roles and responsibilities, participating in competitiveness-driven initiatives such as managed competition and regional expansion, rank file workers will need to develop new management and business skills themselves.

The improvements cannot be achieved with only top down management directives. They need to be developed and implemented by staff at the grassroots level of the organisation. They are best devised and executed by teams.

The book is available from the
International Water Association,
12 Caxton Street,
London SW1H 0QS.

UPDATE ON THE WORLD BANK'S INTERNATIONAL BENCHMARKING NETWORK (IBNET)

As reported in Watermarque Edition 3.6 the World Bank's benchmarking initiative based around the 'Start-Up Kit' and the associated web-based databases is being taken forward in a new project, IBNET (International Benchmarking Network for Water and Sanitation Utilities). The World Bank's objectives for IBNET are:

- to expand the coverage and effectiveness of the existing benchmarking network (IBNET) to include more utilities, a wider geographical base and a refined set of performance indicators.
- to build longer term sustainability of the arrangements, both in terms of content and financing.

Since the project began last year a dedicated website has been created, an

extensive consultation exercise has been undertaken on the performance indicators used and desired functionality of the databases and new databases have been added.

For more information on IBNET visit www.ib-net.org