The Benchmark

Newsletter of the Water Research Commission Benchmarking Project

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CUSTOMER PERCEPTIONS OF GOOD WATER SERVICES

A study, which forms part of Phase One of the Water Research Commission Project entitled "Pilot Initiative to Facilitate Benchmarking in the Water Services Sector" has been carried out in different areas of Tshwane. It was aimed at identifying the performance characteristics that are seen by the communities to be relevant. It is intended that such performance characteristics could serve as basis for the development – or confirmation - of valid and appropriate performance indicators that reflect consumer perception of "good service delivery".

The study was aimed at obtaining through the use of Workshops and field data the relevant information around key indicators for inclusion in the benchmarking process. The data collected in this manner were compared to existing indicators formulated by a variety of role-players such as the International Water Association, the South African Association of Water Utilities and the Water Research Commission.

This study was to establish the factors that consumers believe would promote their willingness to pay for services. However it has been shown internationally that the expression of conditional willingness to pay by members of a community (typically 'if – then' based statements) does not automatically lead to increased levels of cost recovery if the prescribed conditions are not met.

There was good agreement between formal performance indicators that have been developed and the perceptions of consumers from this study in regard to what the measure of "good service delivery" should be. At least eighteen categories of indicators show essential agreement with each other. It is noteworthy that a significant proportion of the indicators proposed by the Water Research Commission relating to sanitation are also suggested by the results of this study.

The results of the constraints-based approach taken in the Workshops made it clear that non-delivery may also be related to important factors other than inefficiency and corruption such as for example a lack of capacity. It was deemed important that the process to develop benchmarks should take cognisance that it is not just the absence of delivery that needs to be identified. It will be essential that, in each municipal instance, the core reasons for non-delivery will also require identification. Unless this is done, solutions and interventions may very well only address the symptoms of the problem rather than the root cause.

A significant number of recent studies have indicated that, at least in some cases, non-payment and resultant lack of cost recovery is due to the levels of services not meeting community expectations. Experience gained through working in communities has historically clearly shown that a willingness to pay for water services is dependent on the requirement that supply systems are upgraded to an acceptable standard (i.e. sufficient public water points / yard taps. This position, adopted by most communities, is both safe (no short term financial implications or commitment) and strategic (as it places the onus on government to 'deliver first'). This 'something for something' attitude makes the implementation of cost recovery and tariff structures in the interim (before tangible implementation of proper water supply infrastructure are in place), extremely problematic if not impossible.

However, there is a worrying additional dimension of strategic bias that appears to have been placed on the negotiation table by community members in respect of the WTP debate. The Study has found that the WTP 'goalposts', initially based on the

requirement for tangible implementation of proper water supply infrastructure, are being moved to include the requirement for the implementation of more comprehensive demands (e.g. houses, etc.). It is believed that this requires that the government (national, provincial and local) move away from an attitude whereby it is willing to negotiate issues related to cost recovery and that it, instead, take a firm stance whereby it ensures enforcement of cost recovery.

Based on the information from the study, it would appear that there are questions related to the degree to which success has been achieved in bringing civil society on board through the ward committee process.

The field survey has shown that there is a requirement that the authority communicates information through to communities on their achievements as measured against publicised benchmarks.

A gratifying aspect of the study has been the fact that there appear to be a significant number of organisations and processes that offer participation, especially to consumers from lower income areas.

Factors that would encourage the consumers to pay for water services	
Suburbs	**Township**
•Accounts are reasonable and understandable •Water is clean •Everybody pays •Good quality water •Water is metered •After hours services• Timely accounts send •Elderly & paraplegics get discount •Satellite pay points	•Job creation •Availability of water •Accurate accounts •Accounts send on time •Everybody pays •Discount for pensioners •Proper meter reading •Meters working

Factors that would discourage the consumers to pay for water services.	
Suburbs	**Township**
•High cost •Other people not paying •Availability •Polluted water •Illegal connections •Receiving accounts •Meters not read •Frequent leakages and blockages •Poor quality	•High cost •Others not paying •Water cuts due to arrears •Unchecked meters •Relying on the ward committees •Free houses and services for others •Polluted water •Implementing without consultation •Leakages

Low Cost Housing	**Informal Settlement**
Factors that would encourage consumers to pay for water services	
•Job creation •Delivery is good •Communication •Proper meter reading •Enough water for everybody •Good maintenance team •Reduced costs	•Water everyday •Receive accounts •Meters installed• Everybody pays •Discount for unemployed and pensioners •Yard connection •Reduced costs •Job creation •No illegal connections
Factors that would discourage the consumers to pay for water services	
Low cost housing	**Informal Settlement**
•High cost •Polluted water •Meter reading •Water cuts •Lack of income •Poor communication •Poor maintenance	•High cost •Water is not metered •Illegal connections •Others getting free water •Not receiving accounts •Not getting water •Disconnections •Poor maintenance

UPDATE ON THE WATER RESEARCH COMMISSION PROJECT ON BENCHMARKING

A Fourth Workshop was held towards the end of February and it was pleasing to welcome some new participants who had not been able to come to the earlier introductory workshops. The were introduced to the heart of the project when Brendan Fourie of Olap Solutions explained how the data entry system would function and how to operate the system.

As so often happens with new programmes, there are bugs and what appeared quite simple at the workshop has proved somewhat more tricky. Training is being given to all the participants as needed.

SOME DEFINITIONS OF BENCHMARKING

Benchmarking is simply about making comparisons with other organisations and then learning the lessons that these comparisons throw up.

The European Benchmarking Code of Conduct

Benchmarking is the continuous process of measuring products, services and practices aginst the toughest competitors or those companies recognised as industry leaders.

The Xerox Corporation

Benchmarking is a structured method that identifies worldwide best practices and associated performance measures and adapts them improve quality and performance.

American Water Works Association.

CANADIAN INITIATIVES IN PROCESS BENCHMARKING

It was noteworthy that at the recently held conference on benchmarking in Perth, western Australia, there were very few papers dealing with process benchmarking and improving the services being rendered.

In this regard the Canadians were well advanced in comparison to any of the other ventures.

Benchmarking is not merely a competitor analysis to see what your rival is doing better than you. It is better undertaken in a collaborative way through the willing sharing of information to learn about the circumstances and processes that under pin superior performance. In tandem with this is the realisation that no single organisation has all the answers and that success is measured through a wide range of criteria that may include financial; sustainability; reliability; environmental and customer service criteria.

Benchmarking is not a once off exercise resulting in quick fix but rather a continuous assessment process that is repeated frequently to ensure that the organisation does not fall behind when the operational environment change. In a rapidly changing environment, good practices change very quickly, therefore benchmarking is not a process of merely copying or catching up. Also the fact that other organisations are thing\s differently does not necessarily mean that they are better."

The Canadian initiative began in 1997 at a Forum on trunk sewers. It became apparent that operating performance measures would be useful for managers to compare their utility's performance to that of their peers. It would also provide a focus for management efforts. The National Research Council of Canada agreed to facilitate the exercise of developing a specific benchmarking methodology for Canadian wastewater utilities.

One of the main project objectives was to develop a bench marking approach that would not rely on self-administered questionnaires but would provide the confidence in the data to facilitate the identification of gaps in performance.

Twenty performance measures for the collection system and nineteen for the treatment system were selected. A consultant facilitated the process to collect meaningful and comparable data. For inclusion in the management model, each performance measure had to comply with criteria such a practicality and measurablility, accuracy and relevance to the utility's actions.

The second iteration of the project involved the collection of data from seventeen municipalities and regional organisations.. the primary purpose was to refine the goals and performance measures from the first phase and to collect and evaluate data using eh the phase 1 methodology. Both phases relied heavily on workshops to establish the

foundations of the project. These workshops were and continue to be a fundamental ingredient to the success of the project. They provided the opportunity to build ties with the other participants from across the country and from different operating environments.

At the onset of the project representatives of the consultant visited each of the participants, meeting a wide variety of staff members to explain the benchmarking process and to clarify the questions concerning the gathering of the data. Consistency in data collection is imperative to a quality and valuable benchmarking exercise. To ensure consistent interpretation of the data, the forms and database included a field for a confidence rating and notes together with a reference to the source of the information. The data collection phase lasted for two years.

The next phase of the project included four new municipalities for whom catch up workshops were held. They were given the opportunity to enter the data for the previous two years.

Process benchmarking was then initiated in areas that offered the most benefit to the participants. A review of the results up to then identified "infrastructure Reinvestment" and "Identification of Best Practices in Maintenance Planning" as being areas of high potential.

This third phase closed with a workshop that saw the formation of Utility Action Plans that provided for high level improvement strategies for a wide variety of problem issues that utility managers have to deal with. The issues covered such issues as Infrastructure Reinvestment, Source Control, Maintenance Management, Biosolids, Training and productivity and Customer Service.

While the Canadian Benchmarking Wastewater Benchmarking Partnership was being developed in 1998, the Chief Administrative Officers of the Ontario's Regional Governments committed themselves to an ongoing benchmarking project. This initiative was focused on water transmission and distribution, and wastewater collection.

Subsequently two parallel initiatives were combined to expand the best practices into the full range of water and wastewater activities. The project was to address the following:

1. Municipal utility management practices
2. Drinking watershed/water source management and protection, treatment, transmission, storage, pu ping and distribution.
3. Wastewater collection, pumping, treatment and biosolids handling.
4. Storm water management

Further workshops were held to develop and adopt the goals, performance measures and ultimately the Utility Management Model to used in the benchmarking of water utilities.

The final phase includes 30 municipalities across the whole of Canada. It is proceeding with data collection, and a commitment to process benchmarking and other continuous improvement initiatives for water utilities. Other goals are to network with complementary programs for continuous improvement.

The information given above has been taken from:

Andy North: *'National Water and Wastewater Benchmarking Initiative-Canada.* Paper presented at conference on "Global Developments in Water Industry Performance Benchmarking'. Perth Australia, September, 2003.

As a comment, it is also gratifying to see that the current Water Research Commission initiative is following very similar paths as the Canadian project. Their time scales are however very much longer enabling greater care in the selection of the indicators and the purpose that they serve.

BENCHMARKING IN SEVERN TRENT WATER - PAIN OR PANACEA?

Tony Stead, Head of Business Planning,
Severn Trent Water Ltd

Introduction

Severn Trent has used, and continues to use, a number of benchmarking approaches to establish the scope for performance improvements in appropriate aspects of its business. This paper describes the context for benchmarking, and discusses the benefits and limitations when applied to a regulated water company. In all, 71 benchmarking studies have been carried out in Severn Trent

Water looking at metrics, processes or a combination of the two. Examples of detailed benchmarking studies carried out by Severn Trent are described under the following headings:

☒ Internal benchmarking
☒ Operational process benchmarking
☒ Other benchmarking initiatives

The paper does not deal with market testing or competitive tendering, which some consider to be forms of benchmarking. Here the term is restricted to the comparison of processes and/or metrics for the purpose of identifying performance improvement opportunities. It is accepted that market testing or competitive tendering may be means of delivering improved performance, with or without the preliminary step of benchmarking.

The Context for Benchmarking

The role of benchmarking in the water industry needs to be seen in the context of the industry's historical and future development. It is important to recognise that benchmarking is only one weapon in the performance improvement armoury. Much can be (and has been) achieved through internally driven continuous or step change improvement programmes.

There are a number of water industry operational specifics which, render benchmarking of less value than it might be in other industry operations. The key problems which we have identified are summarised below. These observations do not undermine the value of benchmarking *per se,* but it must be seen in the particular circumstances of the industry. It is not a panacea.

☒ he only valid comparators for benchmarking in the areas which constitute more than 75% of water industry asset management costs are other water and sewerage organisations. The growing issue of competition is bound to affect the availability of willing partners within the sector.

☒ The capital intensive nature of the industry prohibits wholesale replacement or improvement of assets on the basis of inefficiency alone. Plant efficiency improvements generally can only be implemented at the time of scheduled replacement of the assets or enhancement to meet higher output standards.

☒ The historical legacy of diverse assets and processes, coupled with the capital intensity problem, means that it is difficult to find valid comparators even within the industry. This is compounded by the diversity of raw material quality (ie water), and local environmental conditions.

☒ Like-for-like efficiency comparisons must be based on whole-life costs, not merely operating costs and Ofwat has recognised this in its comparative efficiency report.

☒ Any valid comparison of costs must take into account the degree of risk assumed. This is not an issue of risk aversion, but different companies will have different risk tolerance profiles which need to be taken into account. We do not believe this is practically possible at this time.

Despite these issues our experience confirms that benchmarking can help improve some aspects of performance, and will continue to do so. Where partners can be found who have similar processes, and where capital intensity is not an issue, benchmarking is a useful tool. In Severn Trent procurement, customer relations, project management and asset maintenance have all benefited from benchmarking against the best, as described below. However, competitive advantage cannot be achieved and exploited simply by copying others. Vision, leadership and innovation are required

Internal Benchmarking

Prior to 1997 extensive and continuous internal, as well as external benchmarking was used to drive the company's performance improvement programme. This was based on so called "framework agreements" with each of our then 15 multi-functional operational districts. The agreements, introduced in 1992, set activity based performance and unit cost targets for each district following comparative analysis to identify best practice across the company. The success of this approach, which was extended to cover support activities and our sewerage agencies, is evident from the fact that, between 1992/3 and 1996/7, we achieved significant base operating efficiencies of some 3% per annum.

However, emerging weaknesses in the district structure led to a fundamental review culminating, in April 1997, in the establishment of a functionally based, centrally directed organisation focused on sewage and water treatment, network and customer relations activities. . This change allowed the company to develop a critical mass in operations, and to put much greater emphasis on process management and standardisation.

Operational Process Benchmarking Studies

Of the 71 benchmarking studies carried out in Severn Trent Water, 63 relate to operational aspects of the company covering customer relations, capital procurement, engineering and operations, human resources and other support services.

It is difficult to quantify all of the benefits associated with this work, but examples of claimed performance improvements include:

☒ **Customer Relations** - significant budget reduction, whilst absorbing 13% increase in call volumes as a consequence of meter insstallation, and reducing telephone response times from 20 seconds to 10 seconds. This performance compares favourably with call centres outside the water industry (eg Halifax BS - European Call Centre of the Year 1997/8). Further operational improvements will involve consolidation onto fewer sites, investment in advanced telephony and improved front/back office processes. Further efficiency savings are targeted as a result of these changes.

☒ **Procurement** - Strategic procurement is being introduced for pipes and pumps, which will lead to discounted purchase costs and reduced whole-life costs in addition to other benefits, such as extended warranties. Also, our small value ordering process has been re-engineered end to end, resulting in a 75% reduction in whole-life order costs.

Two examples of detailed process benchmarking are discussed below, featuring capital procurement and asset maintenance:

Capital Procurement

A key study was carried out in 1993/4 to examine processes for procuring capital assets and covered four key areas

☒ Project Management
☒ Risk Management
☒ Value Engineering
☒ Know-How Management

The study looked at best practice but did not use metrics, and consequently no potential cost savings were identified.

11 benchmarking partners were selected including British Airports Authority, BG, Rolls Royce, Wellcome, Arup, Davy, Nuclear Electric, PWT Projects, Taylor Woodrow, United Distillers and WS Atkins.

Severn Trent proved to be a good, solid performer compared with the benchmarking partners, with two outstanding practices:

☒ Quality of Design Manual
☒ Achievement of project objectives (outputs, cost and deadline)

However, a number of potential improvements were identified in each of the four key areas:

☒ Project Management
- improved focus on the earliest stages of the project
- inclusion of post project appraisal
- clear definition of roles, particularly Project Promoter and Project Manager

☒ Risk Management
- clear statement of policy, objectives and allocation of responsibilities
- appropriate training
- access to support tools and data

☒ Value Engineering
- savings opportunities greatest at start of projects; project objectives defined carefully at the outset

☒ Know-How Management
- communication infrastructure established
- use of QA techniques to support organisational learning

These improvements were implemented in 1994 to create a tighter approach to asset procurement, which has helped to deliver a more focused and efficient capital

programme for the AMP2 period (1995-2000).

We believe that these improvements together with other continuous improvements resulting from our quality management approach put us at the forefront of modern good practice. This belief was confirmed by a benchmarking study conducted by PA Consulting and Imperial College in 1998, which we participated in, but did not commission. The study included 23 other organisations managing large capital programmes.

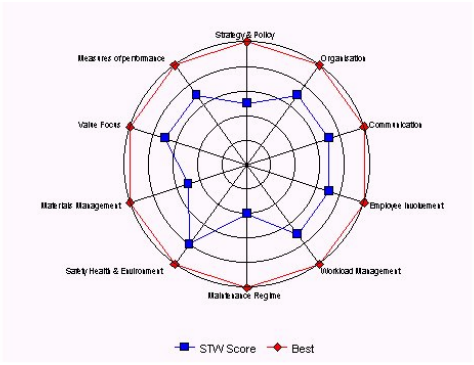
The project looked at the degree of development of procurement processes, and their effectiveness. It revealed a strong positive relationship between these two characteristics. In essence, as the portfolio management process develops, the process becomes increasingly effective. On this measure Severn Trent has highly developed and effective capital procurement processes.

It demonstrated that the existence of a strong link between the level of management functions and process effectiveness. The study concluded that comprehensive management functions, active at all stages of the portfolio management process, are essential for an effective system. Again, Severn Trent appears at the frontier on this measure.

Asset Maintenance

Recently, Severn Trent engaged the ATL Consulting Group to benchmark maintenance planning and performance, and then identify the improvement potential available by adopting best practice techniques and work processes. The study took a best in class approach using the following as benchmarking partners: 3M, Astra Charnwood Ltd., Texaco, Shell, Weir Engineering Services, Kvaerner Oil & Gas, Yorkshire Water Services, South West Water.

The work began by auditing current practices and comparing with the benchmarking partners. The results of the audit are shown on the figure below, and demonstrate that Severn Trent is generally an average performer on these measures. The work indicated that the areas where Severn Trent has the most scope for improvement are: maintenance strategy development, pump maintenance, reliability improvement, asset life extension, proactive maintenance, life cycle supply and service contracts.



The study went on to quantify the scope for potential efficiency and operational improvements

☒ Total maintenance spend could potentially be reduced by approximately 20% per year, primarily via rightsizing maintenance to impact on material and labour costs.

☒ CAPEX on refurbishment/modifications could potentially be reduced by approx. 10%.

☒ Improved equipment reliability would contribute to smoother running of supply, network and treatment systems - leading to fewer process upsets or quality excursions, and consequential cost savings which are more difficult to quantify.

Other Benchmarking Initiatives

International Comparisons

The recent PA report produced for Ofwat cites France, Australia and the USA as being the most appropriate international comparators against which to benchmark UK performance. Analysis of available data, however, shows that, for France in particular, lack of suitable information prohibits any meaningful analysis. Our own studies to date, therefore, have concentrated on comparisons with the USA and, to a lesser extent, with Germany which is one of the few European countries other than the UK where the water industry is required to cover its costs.

In the case of Germany, we have commissioned two studies comparing Severn Trent and other UK companies with Berliner Wasser Betriebe, (BWB), which is considered to be a leading German water company. The results of

this work, subsequently extended to include two other leading German companies, clearly show that it would not be appropriate to look to Germany as an exemplar of efficient performance. This is illustrated in Figure 5 showing that the UK companies have a much higher performance profile than their German counterparts.

Against the US, the general conclusion is that while, on average the UK tends to perform as well as the US comparators, there is a gap of some 6% between the leading UK company and the leading US company. The results of this work suggest that an industry frontier shift, based on "catch up" with current US best practice would be around 1% per annum.

Service Provision

Between 1995 and 1997, three separate studies sponsored by Severn Trent and led by London Business School examined service management and performance in UK organisations, in the US, and comparisons between the two. The latter two studies were also supported by the DTI and the Department of National Heritage, and by the University of North Carolina and the University of South Carolina.

The conclusions of the studies were that in general the US has more "world class" service organisations, but that the UK is catching up and has more contenders. The popular perception that US customers are more demanding and are more willing to express themselves was confirmed. The reports also highlighted the key challenges facing UK organisations including better management of employees and better change management. They also indicated how UK organisations could improve performance by adopting best practices from the US on leadership, organisation and culture, service design, service delivery and service value.

Severn Trent has also participated in the development of the CBI's ServicePROBE, a world-class service provision benchmarking model, based on the existing PROBE tool used for manufacturing industries. The work built on the results of the three studies described above. The conclusions of the pilot study carried out in 1998 using the model were that Severn Trent is on the verge of world class in terms of service provision, and is above the industry weighted average for water companies and utilities, but also pointed to areas where further improvement could be made.

Benefits and Costs`

Generally, it can be demonstrated that on a benefit/cost basis, benchmarking has proved to be a worthwhile activity. It is essential to make a clear case at the outset for the benefits to be achieved and the costs involved. However, it is inevitable that the full benefits and costs will only be known when the benchmarking is completed. At that stage a further benefit/cost analysis is required to assess whether it makes sense to close the perceived performance gaps, if any.

Conclusions

☒ Benchmarking can be successfully applied to aspects of a regulated water company's business; net benefits have been realised from judicious application.

☒ Customer relations and support areas are the most appropriate targets for benchmarking activity; there is no problem in finding suitable comparators.

☒ There are limitations on finding suitable comparators outside the sector for some water specific operational activities; this is aggravated by the legacy of diverse assets, and associated processes.

☒ These limitations will be exacerbated by the onset of intensified competition.

☒ The capital intensity of the industry hampers the implementation of efficiency improvements which require asset replacement.

Comparative risk profiles are required to make valid comparisons for key operational processes.

The above paper has been condensed and for reasons of space certain tables and diagrams have been omitted.

The paper was originally presented to a a conference "Implementing Benchmarking in the Water Industry." Held in London in October 1999.