# The Benchmark

**Newsletter of the Water Research Commission Benchmarking Project**

**Issue No. 6**


## *PROGRESS UPDATE ON THE WATER RESEARCH COMMISSION PROJECT ON BENCHMARKING*

The demands being placed on officials to supply data to various government departments has meant that very few can, or are willing to spare the time to provide data for the Water Research Commission project and put this onto the web site.

This may be because the web site is not so user friendly as it perhaps could be. A number of the participants have experienced difficulties, some arising from slow log on times due to overload on the local server and others through not understanding the system.

In order to overcome these problems, a spreadsheet has been prepared to simplify and reduce the demands on the officials.

The spreadsheet comprises three worksheets.

On the first is a list of the performance indicators that were agreed at the series of workshops that were held over 2003 and 2004. Against each performance indicator is a reference to the data that is required to calculate the performance indicator.

The data can be entered on the second sheet. This can be done by the year for data required for the institutional profiles and by the month for the performance data. Most of this information should be available from either the monthly reports that are delivered to the Councils or from the water services development plans. It is surprising that a number of these plans lack the essential data.

Thereafter the third worksheet performs the calculations for each of the performance indicators selected. These can be entered directly onto the web site.

Some of the problems that occur are that the engineering staff do not have ready access to financial information, the financial staff are not interested in the benchmarking project. The two sections do not communicate that easily.

There is also the problem of the definition of the data. Participants should realise that, with a few exceptions the data for the institutional profile is not used in the calculation of the performance indicators. It is more important to get some data than to worry whether the third decimal point is correct. Only when we have the data will it be possible to detect and eliminate the funnies that arise.

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## *WESTERN AUSTRALIAN WATER PERFORMANCE INFORMATION*

The Economic Regulation Authority of Western Australia has released a booklet titled “Water Performance Information”. It is a most interesting document with information on a variety of indicators, a few of which are the same, or nearly so, as those selected for the Water Research Commission project.

However, much of the information is related to the institutional profiles and as such is not the subject of direct managerial intervention.

The first point to recognise is that there is one regulator for the whole of Western Australia, which has an area that is equal to twice that of South Africa. However, the majority of the population lives in Perth, which has a water consumption that is roughly 85% of the total for the territory. Hence the data is split as between Perth and the rest.

To give some idea of how small the remaining towns are a few “averaged” statistics for the smaller towns but omitting those of Perth.

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|---|---|
| Average population | 11 200 |
| Number of connections | 5000 |
| Residential connections | 4250 |
| Non-residential connections | 750 |
| Total Annual water consumption | 2 318 Mλ |
| Residential Annual Water Consumption | 1445 Mλ |
| Average weekly consumption | 45 Mλ |
| Peak week consumption | 80 Mλ |
| Volume of water per head | 570 λ/c/d |
| Average Annual per Property | 930 kλ/d |

From this it can be deduced that not a great deal goes on Western Australia outside of Perth. The towns are small, the households are small and the water consumption is high.

One of the indicators used is the number of bursts per 100 km of water main. This does not conform to the definition adopted for the Water Research Commission project, which measures all leaks and bursts per 100 km. The Western Australian figures are presented below.

The average for 2003 of all the towns, excluding Perth is 10.13 bursts per 100 km of water main. The highest was 24.59 but in 2000 the highest had been 54.56. This was in a town called Merredin, which by 2002 had reduced the number to 42.12 and by deduction, because it was not the highest in 2003 it had reduced the number of burst to below 24.19 for that year.

At the other end of the scale the best figures over the past four years varied between 1.47 and 3.61. In all cases, both for the highest and the lowest there was an improvement over the years.

This is a simple example of how improvement can come about through benchmarking.

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## *SOUTH AFRICAN BENCHMARKING MISSION TO CANADA: September 11 to 18 2004*

Three Department of Water Affairs and Forestry officials, together with 2 representatives the South African Local Government Association and 3 from South African Association of Water Utilities visited Canada during September 2004. The visit was funded by the Canadian International Development Agency. The purpose of this visit was to assess and evaluate the benefits of the Canadian National Water and Wastewater Benchmarking Initiative and consider how the Canadian approach or model could assist the South African water services sector.

The team first visited Earth Tech the consultant for the Canadian National Water and Wastewater Benchmarking Unit in Toronto.

Discussions were held on the implementation, the challenges and benefits of the Canadian National Water and Wastewater Benchmarking. The details of the project and the performance indicators that were being used became the subject of the discussions.

The delegation then made visits to utilities in the area for discussions and presentations with the utility managers on the benchmarking project and its benefits.

This was followed by a journey across Canada to Vancouver for more discussions and presentations with utility managers in the area.

It was found that there are significant areas of applicability and similarity between the CNWWBI and the SAAWU benchmarking project in South Africa and many of the Performance Indicator's used in the Canadian National Water and Wastewater Benchmarking are similar to those used by SAAWU. Many of the performance challenges faced by Canadian Utilities are similar to those in South Africa.

The short term results of the mission are linked to the follow up visit to South Africa by a representative of EarthTech in October 2004.

The medium term results could be the ongoing refinement of SAAWU benchmarking project Performance Indicators. In addition there would be exchanges of information and results on benchmarking and the building of a benchmarking relationship between Canadian and South African utilities and municipalities.

The long term results would hopefully be linked to formalized and ongoing interaction on benchmarking between Canadian and South African utilities or municipalities.

The following is a summary of the findings of the visits.

The Canadian National Water and Wastewater Benchmarking is well established in Canada, strongly supported by the participating utilities and is seen to deliver "value for money" benefits to the participants.

Canadian utilities are well capacitated and are able to deploy dedicated resources to data gathering and champion the benchmarking project.

The benchmarking project is run as a business venture by a consulting company (Earth Tech) and this company does all the data collection verification and report generation.

Canadian utilities pay annual fees to participate in this project.

The benchmarking is only done on annual data and consequently all reports generated reflect a situation that is 18 months historic.

A critical success factor is that all benchmarking data is validated and participants feel that they can trust the data.

Many of the Performance Indicator's used in the Canadian National Water and Wastewater Benchmarking are similar to those used by SAAWU.

It takes 2 to 3 years for the benchmarking project to "bed down" and produce good competitive indicators.

The benchmarking project reports have been used successful to motivate and support key investment decisions for Canadian utilities.

A very strong "continuous improvement "ethic and culture is evident in the staff of Canadian utilities.

It was also clear that there was a range of additional benefits that can be derived from establishing a more formal relationship with the CNWWBI and exploring the potential for facilitating benchmarking on selected Performance Indicator's between Canadian and South African utilities.

The Canadian project data collection and validation processes are clearly superior to the South African projects and this is an area where improvements can be achieved.

The Canadian approach to defining Performance Indicators and the calculations for data collection are well established and this can be leveraged to assist and improve the South African projects.

There is a strong focus on wastewater which is not the case in South Africa

The visits to Canadian utilities and the ability to have face to face discussions on project implementation challenges, how these were addressed and the benefits of benchmarking provided great value.

The Canadian visit and the reciprocal EarthTech visit to South Africa were most useful and have led to the following:

A greater understanding and acceptance on the value of benchmarking for the South African water services sector.

Improvements to the SAAWU benchmarking project Performance Indicators.

Some of the SAAWU performance indicators have been adopted by the Canadians.

SALGA has decided to give support for the benchmarking of municipal water services.

A national Steering committee on benchmarking is to be convened by the Department of Water Affairs and Forestry.-

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## *BENCHMARKING BEST PRACTICE BY THE IWA*

Free market mechanisms increasingly influence former monopoly sectors such as water and wastewater services with requirements for more transparency and efficiency. Small and large-scale consumers alike demand greater insight into how drinking water tariffs are structured and into the level of service.

Public and private shareholders require guarantees on water supply at a reasonable price, with the requisite quality (both of service and product) and reliability together with careful eco-management. Developing sound policies requires information on key industry issues such as water resources, public health, water services, the environment and the cost of providing the level of the service demanded by customers and regulators.

Similarly, informed decision-making on issues of ownership, industry structure, competition policy and effective regulation requires accurate analysis of performance across the industry throughout the world.

In many sectors of industry Performance Indicators and Benchmarking exercises are widely used as suitable management tools for gaining and maintaining continuous improvement and competitive advantage. Addressing the need to promote best practice principles as part of the advocacy for the advancement of water and sanitation services is currently one of the major governance issues that IWA is challenged to tackle.

The objective is to develop generally accepted procedures and methodologies able to provide decision makers with an overall perception of the utility performance as a sound basis for making strategic choices. This requires the definition of a reference framework for Performance Indicators and Benchmarking methodologies, as well as adequate models of aggregation that fit the basic needs of the key types of user.

The Task Force on Performance Indicators (operating within the IWA Operation and Management Specialist Group) and the Task

Force on Benchmarking (operating within the IWA Statistics and Economics Specialist Group) were set up with the remit to develop the definition of such a common language.

The Task Force on Benchmarking carried out a survey among the countries represented inside the Statistics and Economics Specialist Group with the aim of designing a framework of the various national approaches to Benchmarking in terms of:

The type, degree evolution and main adopted concepts of Benchmarking
Development of the above concepts in focusing Benchmark objectives

The survey indicated that, in the main, initiatives of Process Benchmarking are voluntary and non-systematic. It is evident that many water utilities are on what the European Foundation for Quality Management calls the "start-up" level in terms of Business excellence (or continuous improvement) and are keen to find best practices to compare with.

The Task Force on Benchmarking moved to the second step, borrowing the European Commission's DG III recommendation that identify benchmarking as an important tool to improve competitiveness of small and medium sized enterprises in Europe according to the methodologies developed and applied in large corporations.

With the objective of developing a generally accepted concept and a methodology with wide applicability, deeper analyses were then made of Process Benchmarking procedures adopted in the Nordic countries and in The Netherlands. As a result this Manual aims to present well-devised guidelines for establishing a management tool based on the use of Process Benchmarking methodologies that will allow future systematic and rigorous performance comparisons to be made within the water industry.

*From the Manual of Best Practice Series produced by the International Water Association.*

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## *REGULATIONS FOR WATER SERVICES*

The following is taken from the Global Water Partnership web pages. The authors are not stated in the article, which looks at the role of benchmarking in the regulation of water services.

"Water service providers should be subject to the general quality and quantity regulations outlined. In addition, governments will be concerned to ensure that providers deliver services in an efficient and cost-effective manner and at appropriate service standards. Service providers typically enjoy significant monopoly power; their output levels, service standards and investments all tend to be lower than under competitive conditions, while their prices tend to be higher. Performance regulation has often been seen as only necessary when the private sector is involved but public monopoly providers also need to be put under regulatory pressure to improve their performance. Effectively monitored performance targets, possibly employing benchmarking and the publishing of performance league tables, can play a critical role in public sector institutional reform.

The regulation of private sector providers will depend upon the Private Sector Participation (PSP) option chosen and the amount of competition which is allowed in the sector. Regulation is typically least onerous for service and management contracts, but realistic specification of performance targets, good output delivery data and monitoring capacity are essential. The regulatory burden for concessions and divestiture is considerable. Contracts or operating licences will need to establish mechanisms for tariff adjustments, service standard specification, investment requirements, complaint resolution, dispute arbitration and the imposition of sanctions for delivery failures. Price regulation (and preventing hidden price rises through reduced standards of service) is a critical regulatory task, as is ensuring that companies make efficient investment decisions. [See World Bank Toolkits; Selecting an option for Private Sector Involvement].

In designing a regulatory system for public and private service providers, governments need to:
- clearly specify the regulatory duties, decide how decentralised regulation should be; consider the level of discretion given to and the independence of regulators; ensure regulatory accountability and transparency and ensure that the regulators have the capacity to monitor and obtain unbiased performance data.

**Lessons learned by the Global Water Partnership**

The monopolistic character of most service providers means that self-regulation is typically inappropriate. Regulation should be separated from provision.

The regulatory burden can be reduced by allowing comparative (yardstick) competition and benchmarking.

Regulation of decentralised service providers should normally occur at a higher tier of government to avoid capture and facilitate benchmarking.

Good independent information on asset conditions, performance standards, operating costs and investment efficiency is an essential prerequisite for effective regulation.

To be effective regulators must operate independently from both short term political pressures and the regulated companies.

Regulation is likely to be most effective if it employs incentives as well as sanctions.

Regulation should be transparent, with maximum use of published performance targets and achievement levels.

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## *A SCORECARD FOR WATER UTILITIES IN DEVELOPING COUNTRIES*

Moderated by Nicola Tynan and Bill Kingdom

Information from the World Bank

Many water utilities in developing countries are failing to achieve acceptable levels of performance. Cross-country and within-country benchmarking of performance indicators helps to expose the best and worst performers. Data from 246 utilities – large and small – in 51 countries show that in developing countries:-

About a third of the utilities cannot account for more than 40% of the water they supply. This is a measure of physical losses due to poorly maintained assets, and commercial losses due to inefficient billing or illegal connections. The mean for developed countries is 16%

A significant number of the utilities fail to cover operating costs — leading to under-investment in assets and a lower level and quality of service. The working ratio is more than 1 for about 17% of the utilities. The mean for developed countries is around 0.7. (A working ratio of more than 1 means that a utility fails to recover its operating costs from annual revenue. Less than one and it recovers operating costs and some or all of investment costs.)

The cost of providing service is often inflated by overstaffing. Many developing country utilities report more than 20 staff per 1,000 connections compared to about 2 in developed countries.

Many utilities in developing countries are very slow to collect revenues. Even some of the best performers have a collection period of nearly 10 months.

Connection fees tend to be very high in developing countries. In some cases connection fees exceed 60 percent of per capita GDP.

Water tariffs can also be high. Customers of the most expensive utilities in developing countries pay more than 0.2 percent of annual per capita GDP for a minimal water requirement — between 150% and 500% more than in developed countries.

Service coverage is less than 50% for nearly one third of developing country utilities.

Service is often intermittent — around 42% of utilities provide water services for 12 hours or less a day, compared to 100% providing 24 hour service in developed countries.

Based on the actual performance of the top 25% of developing country utilities, the following "best practice" targets seem realistic:

Unaccounted-for water of less than 23%.

Five or fewer staff per 1,000 connections

A working ratio of about 0.7.

A collection period of 3 months or less for water billing.

Connection fees no higher than 20% of annual per capita GDP.

24 hour service. (In fact, half the developing country utilities for which data are available achieve this target.)

100% coverage with appropriate levels of service for each household.

Scorecards and targets such as these serve three main purposes. First, they highlight the wide variation of performance to be found even among developing country utilities. Second, they help to generate target indicators already being achieved by utilities in developing countries thus giving them a grounding in reality. Third, they can be a starting point for a more comprehensive analysis and debate by stakeholders on how to achieve better services.

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## A GENERIC FRAMEWORK FOR PERFORMANCE ASSESSMENT OF WATER SUPPLY UTILITIES

**Mukul Kulshrestha*, Atul K. Mittal***

Abstracted from a paper presented at Marrekech, Sep. 2004

The large variety of types of managements, regulations, legislation and operating socio-economic cultural set-ups effectively hinder the evolution of a uniform world-wide benchmarking system in the water industry, in terms of quality, analysis, depth, use and focus area. Due to these factors, and the fact that

water supply sector has a decentralized organization, the World Bank lias recommended use of publicly shared and defined "Core set of Indicators", to build individual "customized" frameworks for benchmarking rather than have a centralized rigid framework (World Bank, 2003).

## PROPOSED PERFORMANCE ASSESSMENT FRAMEWORK

With the agreed broad ambit of flexibility in choosing PI's, it is still possible to evolve a framework that is flexible in content but generic in approach. Such a framework is proposed, and can employ any of the standard set of PI's evolved, such as those from the IWA or the World Bank. It can further use these indicators to finally evolve a single numerical score that ranks and compares a given set of water utilities by integrating the various scores in terms of different PI's.

The Framework comprises 5 steps:

### Stage I: Planning

This would incorporate the goals of benchmarking which shall be a function of the stakeholder for whom the exercise is being performed. Planning will also involve a decision on what kind of benchmarking is to be undertaken (Operational Financial/ Cross-sectional/Time-series etc.) and on the choice of participating utilities. The choice of partner utilities is vital and the indicators selected as well as the analysis are influenced by the partner utilities (Cabrera et al, 2002).
Some of the factors that need to be considered while choosing potential and willing competing partners are:

1. The kind of institutional arrangements that the partner utilities posses. For example, it may not be always fair to compare public utilities and private utilities since their dispositions and objectives may not be similar. The fact that such utilities are mutually compared should always be mentioned specifically and unambiguously in any benchmarking exercise undertaken.
2. The scale of operations of the partner utilities must be similar. This would assure that economies of scale are not unduly favourable to certain partners.
3. Environment conditions of the operation of partner utilities must be similar. This would require similarities in political set-ups, demographic behaviours and socio-economic conditions of the consumers.
4. Similarities in the type of services provided by the partner utilities. It must be observed if the utilities broadly serve the same class of consumers (example, utilities serving industries exclusively must not be compared with those serving the domestic sector, unless the exercise is undertaken by design).

It may be possible to find partners through clearinghouses, such as the World Bank and the IWA. The number of indicators chosen must be decided carefully. Too many indicators render the data collection process costly., The use of too few indicators will simplify the benchmarking process and reduce cost of data collection, but may result into dilution of the entire exercise and render it ineffective.

### Stage II: Field Work

This stage incorporates collection of field data from the selected and willing partner utilities. It is important for the success of the benchmarking exercise that effective and constant communication be maintained with these partner utilities. The partner utilities must be conveyed a comprehensive list of indicators for which data is required with a precise definition of each indicator to avoid ambiguity. Depending on the type of benchmarking being undertaken, the data may be cross-sectional, time-series or panel data.

### Stage III: Data Analysis and Methodology

Once the data is collected, it has to be verified for consistency and subsequently analysed. The analysis may be done using a standard framework (example, that of IWA or The World Bank) or some other methodology. Simple spreadsheets can also be employed for data analysis.

### Stage IV: Analysis of the Results

Once the results are obtained, inter-utility comparisons can be made on an indicator-by-indicator basis. The results can then be compared with the prevailing best practices. Goals and targets for the partner utilities can be evolved.

### Stage V: Post-Benchmarking Activities

Based on the results of the benchmarking exercise a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis may be carried out to identify improvement opportunities for the utilities (and also determine the weaknesses and threats). This, along with a comparison with international best practices would help establish realistic goals and targets for the utilities. Based on the set goals and targets an action plan can be developed for the partner utilities. Finally, it would be important to implement identified recommendations and regularly monitor results.

All of this would invariably require an active communication and co-ordination between the benchmarking agency, partner utilities, engineers, planners and managers to fully derive the benefits of benchmarking.

## SWOT ANALYSIS FOR PERFORMANCE ASSESSMENT IN WATER INDUSTRY

To ensure the delivery of the desired goals, the utility must identify the barriers that may impede progress and understand the root and contributing causes. Based on the issues, risks, and constraints identified, the utility will need to develop strategies to address the barriers and implement mechanisms to track the success of the initiatives. Answers to these questions will guide the work within the change journey to reduce barriers and improve ease of implementation.

SWOT analysis can be employed to identify the internal and external forces that drive a utility's competitive position in the market. A utility can also use a SWOT analysis to assess a department's positioning. The process of conducting a SWOT analysis would enable a group to move from everyday problems and traditional strategies to a fresh perspective. This technique can act as a facilitator for an input to strategy development or a visioning work session, in designing strategies to leverage the organization's strengths and opportunities and to minimize weaknesses and threats. This framework is readily understood by both the project team and organization executives, thus allowing it to be used in a number of interactive environments, it can often be used as a preliminary 'ice-breaker' before starting more detailed analysis. Results from a SWOT Analysis can thus, lead to solving problems, implementing change and in developing strategies and plans for achieving the utility's objectives and mission.

## CONCLUSIONS

Water utilities and regulatory agencies are increasingly adopting formal benchmarking to assess performances, create competitiveness and to introduce efficient operations. The trend is now visible even in the developing countries of Asia and Africa where the utility operations are often sub-optimal. Evolving a generic framework that has inbuilt flexibility to incorporate the best PI-systems developed and tested by various international organizations would facilitate strategy development for the partner utilities, imparting a focus on improvement of operational & financial efficiencies, and can significantly pave way for reforming the water sector sustainably.