

Trans-National Water Supply Benchmarking: The Cross-Border Co-operation of The Bavarian EffWB Project and The Austrian OVGW Project

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Abstract

Based upon the IWA performance indicator system benchmarking projects for water supply enterprises have been carried out in Bavaria (Germany) and Austria. Due to the similar water supply structure of these neighbour countries a cross-border co-operation was defined to develop a compatible system and to conduct trans-national comparisons. In this paper, the two projects and the cross-border co-operation are described. First comparison results are presented for key indicators showing a good overall performance in both projects, especially with reference to international levels.

Keywords

Austria, Bavaria, benchmarking, co-operation, performance, water supply

INTRODUCTION

Over the last few years a large number of benchmarking projects, most of them on regional scale, has been carried out in the sector of water supply. They have arisen from different motivations and pursue different objectives. They reflect on specific regional structures and framework conditions. Therefore a variety of benchmarking systems have been developed to meet these requirements.

On the other hand the need for comparability between benchmarking activities came to the fore. Firstly, discussions on European and international scale call for information regarding the performance of public water supply monopolies. Moreover, special enterprise groups (such as large cities or bulk suppliers) often lack the opportunity to compare themselves with similar utilities due to a too small "sample volume".

Against this background, the International Water Association (IWA) has developed an overall indicator system (Alegre et al. 2000) and carried out several national field tests in order to adapt the system to practical application. This set of performance indicators (PI) has been used as the general basis and further developed within the Bavarian EffWB and the Austrian OVGW project. Since the main objective of this concluded cross-border co-operation is to successively intensify cross-border comparisons, the indicator systems have been kept compatible with each other and, as far as possible, with the IWA system as well. Thus, the Bavarian-Austrian co-operation can be seen as an innovative application and further development of the IWA system generating the chance of large participation (200 participants and more) in these benchmarking activities.

The Bavarian Project

Project structure. Together with water suppliers and representatives of the city and municipal council, the Bavarian Wasserwirtschaftsverwaltung (= Water Conservation Authority) and the Verband der Bayerischen Gas- und Wasserwirtschaft (VBGW = Bavarian Gas and Water Conservation Association) have realised a project for the purpose of enhancing the efficiency and ensuring the quality of the municipal water suppliers in Bavaria (EffWB). In Bavaria, around 2,500 water utilities supply 12 mio inhabitants in rural, urban and metropolitan areas. From the 1,350 utilities with more than 0.1 mio m³ supplied water per year, 95 utilities took part in the first round of the benchmarking exercise from 2001 to 2003. Utilities size in terms of water supplied was between 0.1 and 116 mio m³/year. The Freestate of Bavaria sponsored the project, which is part of a number of measures aiming at the stabilisation of the fees and charges relating to drinking water supplies while the requirements and services increase as well. The project is about to be repeated, and another 80 companies are currently participating.

Objectives. In the course of the Bavarian project, the participating companies have the opportunity:

- to analyse the efficiency and quality of their services
- to clearly define their position compared to other companies
- to detect their own deficiencies
- to identify the reason for such deficiencies and possible alternatives for improvement
- to initiate – if need be – targeted measures for optimisation

Both the sponsors of the project and the representatives of ten suppliers have formed a project team which in regular meetings follow the progress of the whole project and to be decisively involved in the project.

Project process. The analysis procedure was developed based on the IWA ratio comparison, modified and adjusted based on special objectives of the analysis. It is ensured at any time that the structure corresponds with the system of the IWA. The tasks and operating processes were analysed in detail and made comparable for various types of companies. For this purpose, a clear, practice-oriented system of ratios and structural data for municipal water suppliers in Bavaria has been developed and tested with a few pilot companies. Then, the corresponding figures were determined for all participating water suppliers. The analysis ensures that the position of the individual water suppliers in the whole sector and within a comparable group of companies can be assessed. Furthermore, the reasons for any deviation and the alternatives for improvement were determined. The analysis focuses on the following aspects: efficiency of the supplier, reliability of the supplying system, quality of the supplies, sustained activities of the supplier and customer support provided by the supplier.

A decisive aspect is that the general settings of the individual suppliers and the individual tasks of the suppliers is taken into account as well. Another aspect of the analysis was the question to which extent the participants correspond with the requirements of the W 1000 (worksheet of the DVGW regarding the organisational requirements applying to suppliers of drinking water). For this purpose, a specific index, based on the significant elements of said worksheet, was developed.

A third aspect of the analysis focused on some core processes of the whole value added structure of the water supplier. Hence, data regarding the construction of new pipelines, the installation of private service connections, the changing of meters or the accounting and invoicing of the supplies consumed were assessed.

The Austrian Project

Similarly to the small structured Bavarian situation, around 3,000 water utilities centrally supply 8 mio inhabitants in rural, urban and metropolitan areas. Based upon the international and national debates on requirements concerning improvement of efficiency and ensuring quality of drinking water services, the Austrian Association for Gas and Water (OVGW) developed a mid-term strategy for setting up and carrying out benchmarking activities (Figure 1). In summer 2004 the pilot project (“stage A”) was completed. Kick-off for the main project (“stage B”) was – shortly after the submission deadline for this paper – in autumn 2004.

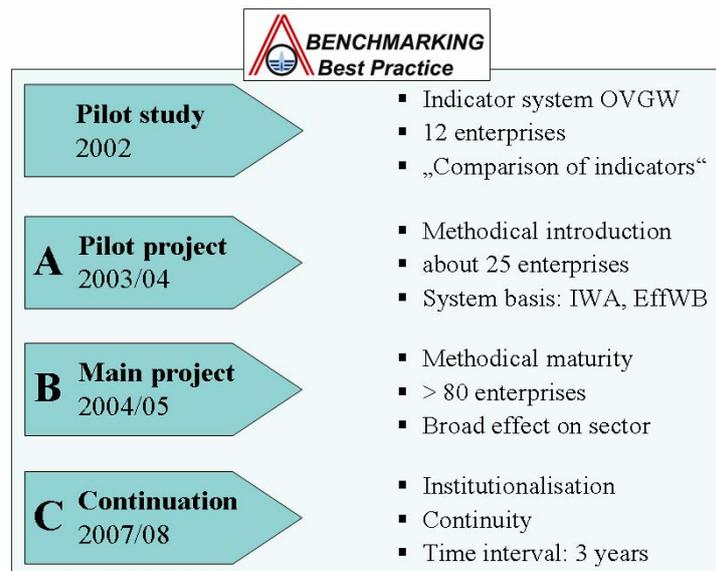


Figure 1. OVGW strategy for benchmarking water supply enterprises (Theuretzbacher-Fritz and Kölbl 2003, amended)

Project structure. The Austrian pilot project “Benchmarking and Best Practices of Austrian Water Supply Enterprises – Stage A” (Neunteufel et al. 2004) was launched and conducted by the Austrian Association for Gas and Water (OVGW) and largely funded by the Austrian Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW). OVGW commissioned three academic institutes to operationally run the project from an external, objective and confidential point of view: University of Technology Graz, University of Natural Resources and Applied Life Sciences Vienna, University of Applied Sciences Wiener Neustadt. Twenty-three water supply enterprises (from 0.04 up to 140 mio. m³ supplied water per year) participated in the pilot project. Seven of them joined the OVGW benchmarking working group for project supervision and for incorporating practice needs into the indicator system.

Objectives. The main aim of the pilot project was to implement a benchmarking system in Austria's drinking water management in line with the following sub-objectives.

In comparison to the EffWB project, the OVGW project emphasises more strongly the utilisation of benchmarking for internal purposes, serving as a controlling instrument for continual improvement (“learning from the best”). Nevertheless, the Austrian benchmarking also provides public transparency of the sector’s performance and shows the sector’s freewill to arrange a quasi-competition, based upon the principles of voluntary and anonymous participation.

Besides thematic aims methodical objectives were defined: OVGW benchmarking activities have to be conducted at high-quality level. Strong focus was therefore laid on aspects of comparability (homogeneous data collection, data verification including company visits, classification of similar enterprises etc.), on a holistic approach (according to the IWA performance indicator system, Alegre et al. 2000) and on data security and confidentiality. Continuity was the second methodical goal – to be achieved by developing a system which can be reapplied for the future project stages and which also reflects the international benchmarking development. Therefore a close connection to the IWA system and the co-operation with the EffWB project were strategically defined.

Project process. Started in January 2003, the first step of the pilot project was to develop the indicator system which was based upon the systems of IWA and EffWB and further developed and practically tested by the work group. The collection of data for year 2002 and their verification happened in summer and autumn 2003, reporting (both individually and publicly) and presentation of the comparison results were carried out in spring 2004. Analyses of the results had been started at each enterprise from the early date of data verification when the project team first presented preliminary comparison results on each company visit.

Motivation, objectives and potential barriers of cross-border co-operation

Motivation. The starting point of entering into a co-operation was the fact that the neighbour countries Bavaria and Austria are similarly structured as regards their water supply conditions and characteristics as well as their cultural, legal and socio-economic background. Besides these framework conditions also the pre-condition of a common view on basic principles were fulfilled: voluntary and anonymous participation, self-reliance of participants in utilising the results, high quality demand on project execution. Hence, a cross-border co-operation was virtually suggesting itself. Conducting conjoint benchmarking projects with larger samples will lead to better comparability (more sub-groups of similar utilities by multi-criteria classification) and therefore higher significance of the results obtained. Furthermore, a common system development with bundling of resources and competencies and exchanging experiences was regarded to be more efficient and effective than working out and operating self-contained projects in parallel.

Objectives – embedded in the European community. The discussion about the future modernisation of the water supply industry is also vivid in Brussels and the European authorities. Modernisation of that sector is a pan-European task. Therefore the co-operation between Austria and Bavaria is very promising and likely to promote the interests of their water industries at a European level.

Potential barriers. A critical criterion in each benchmarking project is the participants' concerns about the adverse use or interpretation of sensitive data and of comparison results. This applies even more to cross-border situations with data management abroad. Therefore, a common benchmarking effort of Bavarian and Austrian water suppliers first of all requires stabilised separate projects, meaning that critical masses of benchmarking proponents have to be reached among the participants of each project. Thus, it was decided to first carry out separate projects twice – one pilot project, one main project. Nevertheless, first cross-border comparison results have already been derived from the public project reports. For this paper further analyses have been carried out by using unified classifications for a subset of key indicators. Also analyses between single utilities which are already up-front with cross-border comparisons (e. g. Munich and Vienna) will follow soon.

METHODS

Organisation of the cross-border co-operation

The Contract. In a framework contract between the Bavarian State Ministry for Water Management / VBGW and OVGW the co-operation was defined, granting OVGW access to the Bavarian system. *Vice versa* OVGW committed itself to report back its experiences to Bavaria. Two formal transfer meetings per year were agreed upon, complemented by continuous informal exchange. Focus was first laid on the methodological collaboration; common benchmarking projects were defined as subsequent activities when the co-operation would prove to be successful on the methodological level and should therefore be intensified step-by-step.

Co-operation process. Due to the staggered execution of “EffWB 2003”, “OVGW stage A”, “EffWB 2004” and “OVGW stage B” the exchange and further application of experiences could be managed well. In a first step, the system of EffWB 2003 was forwarded to Austria for application in the pilot project. Further developments and adaptations to the Austrian situation were carried out with special emphasis on compatibility with the Bavarian system. Experiences from the Austrian pilot project were transferred to Bavaria and implemented in the “EffWB 2004 system”.

Comparing EffWB and OVGW benchmarking systems

As already mentioned, a best possible compatibility of the two systems is aspired. While the core of the two systems is compatible, there are some differences reflecting national legal conditions and due to some diverging views within the two project teams regarding the volume and intensity of data analysis. However, different approaches also provide the opportunity of testing the systems in a dialectical manner and afterwards deciding together which common path can be filtered as a synthesis and be forged for the future. In the following, the main distinctions are described briefly.

Performance of duties and outsourcing grades. This part of the benchmarking system, which was introduced and applied for the first time by the EffWB project (Rödl & Partner 2003), represents an essential advancement of the IWA system and was therefore also implemented in the German IWA field test. Aim of this system component is to especially reflect efficiency results versus the fulfilment of tasks. Outsourcing data are required particularly with regard to personnel indicators. Regarding the performance of duties, both EffWB 2003 and OVGW stage A asked about the fulfilment (yes / no) of partial tasks based upon a detailed catalogue of duties. The difference between the two projects was that EffWB inquired answers with reference to the year of investigation while OVGW asked about overall fulfilment of duties. As a result, the Bavarian method proved to be superior in meeting the aim of qualifying efficiency results. For calculation of outsourcing indices, EffWB sampled running costs for each partial task subdivided into in-house expenses and expenses for outsourced activities. The OVGW project group decided not to ask about cost data due to the high acquisition effort. Instead, the outsourcing grades within each single duty were quoted in percent based upon costs estimations. While the Bavarian system focuses on outsourcing data for running costs, the current Austrian system includes both tasks referencing running and capitalised costs.

Benchmarking of processes. In addition to the IWA-system and the system applied in Austria, the Bavarian project also embraces six different key-processes. The chosen processes cover all aspects of the water supply chain from the extraction to the analysis of invoicing. The analysis is more detailed and provides specific information about cost-drivers in an integrated manner. In Austria processes will be optionally offered to the utilities by the project team within stage B.

RESULTS OF FIRST CROSS-BORDER COMPARISONS

Economic efficiency analysis. Total costs per m³ supplied water

Average total costs decrease with increasing size of the utility between the two smaller groups in Bavaria (Figure 2). An increase of the average total costs in the group > 8 million m³ is basically caused by special effects (e. g. higher task fulfilment and organisation grades).

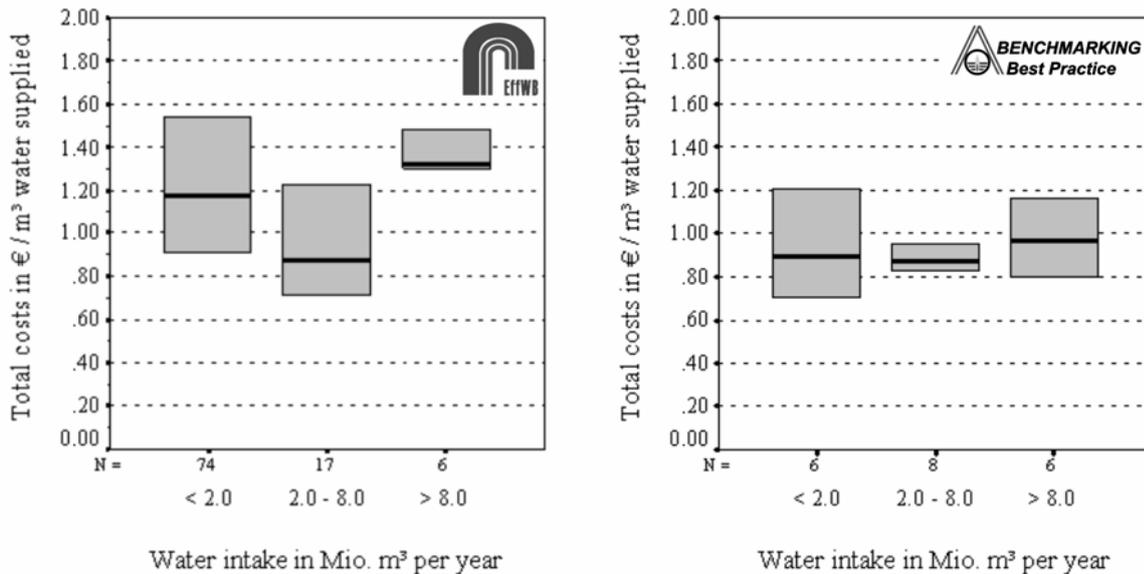


Figure 2. Median, lower and upper quartiles of total costs per m³ supplied water, classified by utility size (left: Bavarian EffWB, right: Austrian OVGW)

Economic efficiency analysis. Running costs per m³ and ratios for administration and technical services

With 72 % to 82 %, the running costs are mainly attributed to technical services, and 18 % to 28 % to administration costs (Figure 3). The running costs within the group of the large utilities have to be interpreted with regard to increased organisational quality and a higher degree of task fulfilment.

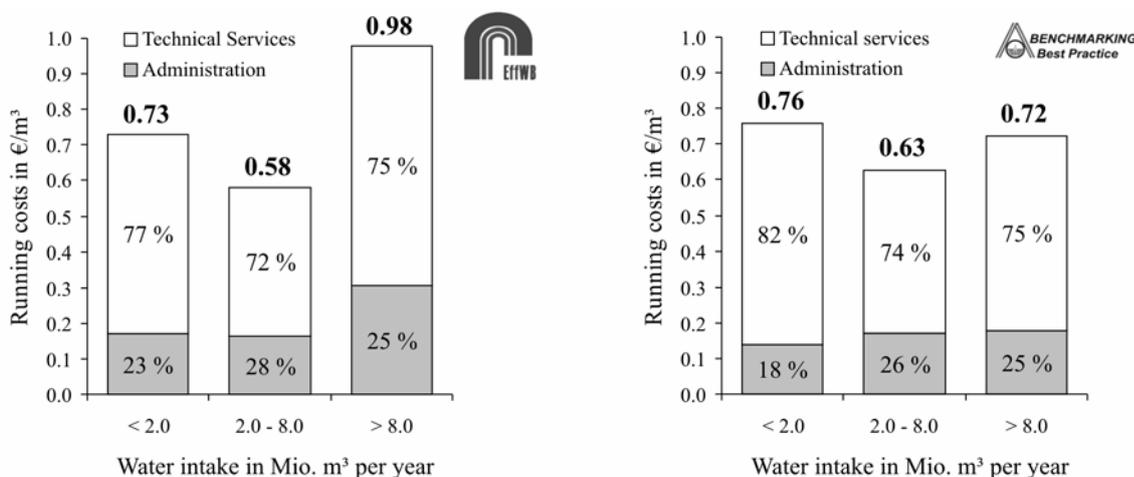


Figure 3. Running costs per m³ and ratios for administration and technical services, classified by utility size (left: Bavarian EffWB, right: Austrian OVGW)

Sustainability analysis. Rehabilitation rates for distribution mains in % per year

In Bavaria, the median rate of network renovation rises with increasing enterprise size from 0.4 % to 0.75 % (Figure 4). The results of the OVGW project show, independently of enterprise size, values between 0.85 % and 1 %. For both projects these figures (based on data of a single year) are below the necessary long-term rate for network renewal (1.5 % to 2 %).

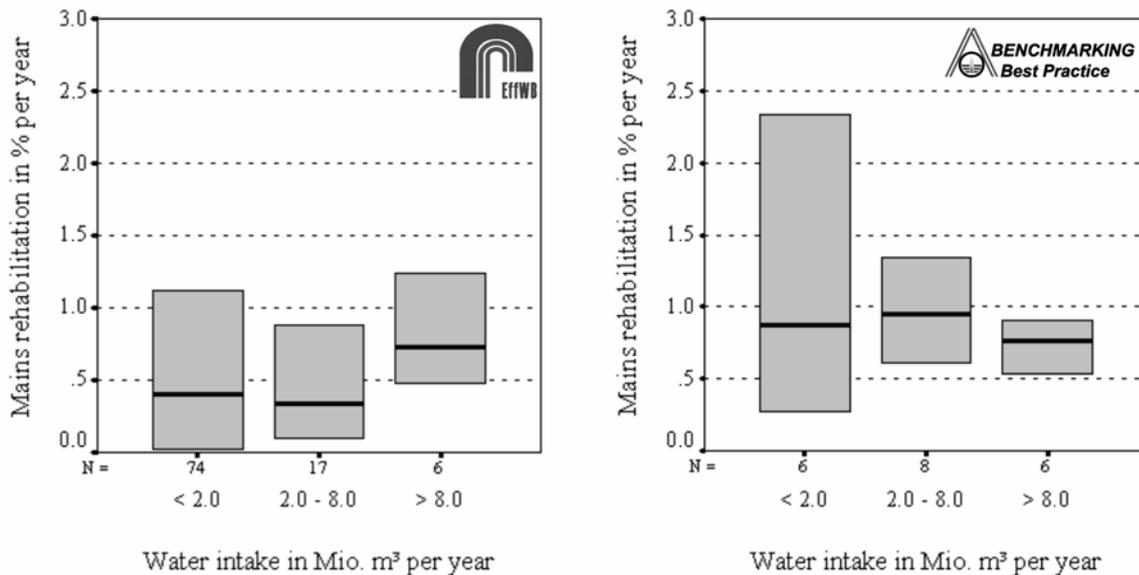


Figure 4. Rehabilitation rates for distribution mains in % per year, classified by utility size

Supply quality analysis. Technical water losses in m³ / (km hour)

Water losses were measured in terms of technical water losses (in m³/km/hour) (Figure 5) and of non-revenue water as percentage of the total volume of water intake. 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 values of 9 % (EffWB) and 12 % (OVGW) of non-revenue water are also low, cp England (29 %), Italy (27 %), France (25 %) (Rödl & Partner 2003).

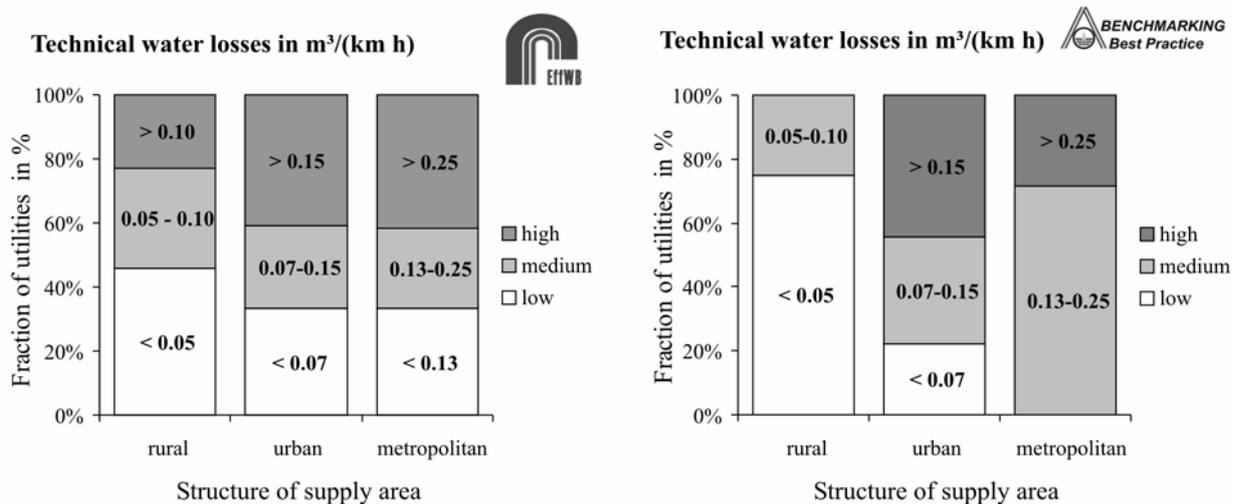


Figure 5. Technical water losses in m³ / (km hour), classified by the structure of the supply area

Supply quality analysis. Mains failures within the distribution network per 100 km and year

The median quantity of failures of distribution mains ranges between 6 and 14 per 100 km network length. The median quantity of service connections failures varies between 23 and 31 per 100 km connection length. These results, which correlate with the low water losses, bear witness to good network qualities of the participating water suppliers within the Bavarian and Austrian project.

CONCLUSIONS

From the on-going projects in Austria and Bavaria and their co-operation, several important conclusions can be drawn:

- The application of PI concepts has been a self-organised process so far: developed by the water suppliers to be used by water suppliers although possibly accelerated by the political discussion.
- PI applications and benchmarking exercises are gaining in interest and acceptance in the on-going process of modernisation.
- Cross-border comparisons include another benefit of benchmarking: not only orientation for single enterprises, but also assessment of regional and national performance levels.
- Performance of the Bavarian and Austrian water supply industry (as far as the results represent the whole sector) is in most aspects comparable or even above the international level. This is particularly true regarding multi-dimensional evaluation in terms of quality, reliability, customer service, sustainability and economic efficiency.

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