Assessing the performance of urban water utilities in Mozambique using a water utility performance index

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ABSTRACT

Benchmarking analysis has become a strategic tool through which water regulators around the world measure the performance of water utilities. Since 2008, the Water Regulatory Council of Mozambique has been implementing a benchmarking framework to analyse the performance of urban water utilities. This paper develops a water utility performance index (WUPI) to analyse the performance of the regulated urban water supply utilities in Mozambique during 2010 and 2012. The WUPI is based on 12 key performance indicators grouped into 3 components (economic sustainability, operational sustainability and quality of the services). The WUPI was built in 6 different ways, using 2 weighting systems (equal weights and non-equal weights), and 3 different functional forms to aggregate the indicators (additive aggregation, hybrid aggregation and TOPSIS aggregation). The results obtained show that the performance of the water supply utilities in the analysed period has evolved positively. They also indicate that the performance level between the analysed water supply utilities is heterogeneous, with water supply utilities earning both high and low scores of the WUPI. Water utilities that were working through water operator partnership mechanics obtained higher performances in terms of the WUPI. This information should enable water supply utility managers and decision makers to prioritise activities and implement working models that allow for improvement of the performance of water supply utilities.

Keywords: Benchmarking; composite indicators; performance indicators; Mozambique

INTRODUCTION

Over the past two decades, the use of performance indicators has emerged as the main tool for measuring and monitoring the performance of water utilities (Canneva and Guerin-Schneider, 2011). Benchmarking techniques have become a strategic tool for water regulators (De Witte and Marques, 2012). Benchmarking tools are used: (i) to promote and motivate competition between different water utilities in order to improve their performance, (ii) to identify the strengths and weaknesses in the performance of water utilities, (iii) to promote information sharing and improve transparency in the reporting process, (iv) to identify performance trends, and (v) to provide information regarding the performance of water utilities to water consumers (Corton, 2003; Alegre et al., 2009; Padowski, 2008).

Urban water utilities commonly operate in a monopoly environment (Alegre et al., 2009; Marques et al., 2011). Furthermore, in developing countries where major efforts have been made to improve water services consumers are paying high tariffs for those services, considering their socio-economic context (Banerjee and Morella, 2011; Hoque and Wichelns, 2013); yet these services are usually of poor quality (Mugabi et al., 2007; Padowski, 2008; WHO-UNICEF, 2013). Water regulators in both developed and developing countries have conducted performance evaluations of water utilities using benchmarking techniques (Romano and Guerrini, 2011; Marques et al., 2012). Sub-Saharan African countries are no exception. For instance, benchmarking analysis is being applied in Zambia (the National Water Supply and Sanitation Council), Tanzania (the Energy and Water Utilities Regulatory Authority), Kenya (Water Services Regulatory Board), Rwanda (Rwanda Utilities Regulatory Authority), South Africa (the Department of Water Affairs) and Mozambique (Water Regulatory Council).

Over the past 5 years, the Water Regulatory Council of Mozambique has been implementing a benchmarking framework to evaluate the performance of the main urban water supply utilities in the country. This tool is based on a set of 11 key performance indicators that are analysed separately. The evaluation is performed on a yearly basis, and the results reported to the Mozambican Council of Ministers. However, the system used does not provide an integrated evaluation of overall performance or enable comparison of the different utilities evaluated.

Therefore, the main objective of this research was to develop a water utility performance index to evaluate the performance of the urban water supply utilities in Mozambique. The use of composite indicators should enable the evaluation of performance in an integrated manner. Empirical application focused on the performances of water supply utilities in the years 2010 and 2012. The results of this study are intended to serve as a support tool for the managers and decision makers of water supply utilities to implement the most appropriate actions for improving performance.

Urban water supply utilities in Mozambique as a case study

We focused our analysis on the regulated urban water supply utilities in Mozambique. The institutional water sector framework in Mozambique is led by the National Directorate of Water within the Ministry of Public Works and Housing.

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