

A Review of the Future of Sustainable Urban Water Supply in South Africa

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Abstract : Water is a critical resource for sustainable economic growth and social development. It enables societies to thrive and influences every urban center's future. Thus, water must always be available in the right quantity and quality. However, in South Africa - a known physically water scarce nation - the future of sustainable urban supply of water may be in jeopardy. The country facing a water crisis influenced by insufficient infrastructure investment and maintenance, recurrent droughts and climate variation, human induced water quality deterioration, as well as growing lack of technical capacity in water institutions, particularly local municipalities. Aside of the eight metropolitan municipalities for the country, most municipalities struggle with provision of reliable water to their citizens. These municipalities contend with having now capable engineers, aging infrastructure with concomitant high system water losses (of 30% and upwards), coupled with growing water demand from expanding industries and population growth. Also, a significant portion (44%) of national water treatment plants are in critically poor condition, requiring urgent rehabilitation. Municipalities also struggle to raise funding to instate projects. All these factors militate against sustainable urban water supply in the country. Urgent mitigation measures are required. This paper seeks to review the extent of the current water supply challenges in South Africa's urban centers, including searching for practical and cost-effective measures. The study followed a qualitative approach, combining desktop literature research, interviews with key sector stakeholders, and a workshop. Phenomenological data analysis technique was used to study and examine interview data and secondary desktop data. Preliminary findings established the building of technical or engineering capacity, reversal of the high physical water losses, rehabilitation of poor condition and dysfunctional water treatment works, diversification of water resource mix, and water scarcity awareness programs as possible practical solutions. Other proposed solutions include the use of performance-based or value-based contracting to fund initiatives to reduce high system water losses. Out-come based arrangements for revenue increasing water loss reduction projects were considered more practical in funding-stressed local municipalities. If proactively implemented in an integrated manner, these proposed solutions are likely to ensure sustainable urban water supply in South African urban centers in the future.

Keywords : sustainable, water scarcity, water supply, South Africa

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