

Managing City Pipe Leaks through Community Participation Using a Web and Mobile Application in South Africa

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Abstract : South Africa is one of the driest countries in the world and is facing a water crisis. In addition to inadequate infrastructure and poor planning, the country is experiencing high rates of water wastage due to pipe leaks. This study outlines the level of water wastage and develops a smart solution to efficiently manage and reduce the effects of pipe leaks, while monitoring the situation before and after fixing the pipe leaks. To understand the issue in depth, a literature review of journal papers and government reports was conducted. A questionnaire was designed and distributed to the general public. Additionally, the municipality office was contacted from a managerial perspective. The analysis from the study indicated that the majority of the citizens are aware of the water crisis and are willing to participate positively to decrease the level of water wasted. Furthermore, the response from the municipality acknowledged that more practical solutions are needed to reduce water wastage, and resources to attend to pipe leaks swiftly. Therefore, this paper proposes a specific solution for municipalities, local plumbers and citizens to minimize the effects of pipe leaks. The solution provides web and mobile application platforms to report and manage leaks swiftly. The solution is beneficial to the country in achieving water security and would promote a culture of responsibility toward water usage.

Keywords : urban distribution networks, leak management, mobile application, responsible citizens, water crisis, water security

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