

## **Innovation in the water sector to ensure controlled water consumption and water shortage prevention.**

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### **Abstract**

Water is our life. We all need water to survive, plants need water to make food, animals need water. Most of the essential activities like cleaning, cooking, production industries need water. Therefore, we all need water for survival and power our daily activities forward. However, we always experience perineal water shortages in the country which leads to disruption of lives and loss of lives. That said and done! Can we utilize the emerging technology such as internet of things and Artificial Intelligence to solve the water shortage problem and always ensure water is available for use? This paper will elaborate on the importance of water and how we can utilize Science, Technology, and Innovation to control the perineal water shortage not just in Kenya but Africa and whole world at large. The paper will involve data collection on water consumption, quality and leakages, data visualization, analytical approaches of the results, discussion, and technological approaches to solving the water shortage and consumption control. Data collection will be on daily consumption and usage from households and industries. This will be done using internet of things. Sensors are deployed to collect real time water usage, water leakages and further, collect data on conditions of water pipes to monitor on leakages and water flow in pipes. Data analysis and visualization to be done determine behavior of water consumption and further develop ways to reduce uncontrolled water usage and unnecessary water usage and further enable future planning on expenditure. This will be achieved by use of technological approaches to be applied in analysis. The paper will explain how Artificial Intelligence will be used to predict water consumption for households and industries to ensure proper planning and expenditure. Further, the paper will show how remote sensing can be applied to monitor conditions of the water pipes and how they are laid down on the ground to avoid unnecessary destruction. This will reduce water shortages and hence ensure water is available for usage. In conclusion, the paper will give a roadmap that should be adopted to ensure water conservation is adhered to in the community. The roadmap will include the use of innovation and technological approaches to ensure water quality and conservation is at the highest standards.

**Keywords:** water, internet of things, remote sensing, artificial intelligence.