ABSTRACT

Water: *An Indispensable Resource* – is used for drinking, washing, and to perform all our hygienic activities. When summer begins, the heat of water scarcity spreads and the frequency of water supply is extended for a greater number of days, the allotted volume is reduced, the time duration of supply is shortened, and the quality is still a mystery. With this context in mind, it was decided to investigate the current domestic water management practices of homemakers. A feasibility study was conducted to determine the socio-demographic background of the selected homemakers, housing details, the water distribution system from the point of supply to the free-flowing outlets of the distribution network, the water consumption profile and the water collection and storage methods.

Water purity and water preservation are the two benchmarks to gauge the available water. In light of the results of the household survey, further research was conducted to evaluate the physical, chemical and biological qualities of drinking water that had been preserved. It was observed that various water treatments were espoused to improve the quality of water among the households. The quality of drinking water after common purification methods and the quality of water preserved in various containers were evaluated. It was evident that the water storage containers and duration of storage had a direct effect on the quality of potable water.

Water consumption analysis was made by analysing the amount that each water based activity required (micro components) in a house. Maximum usages of water for such activities were identified. A prototype of IoT Enabled Artificial Intelligence System was developed which would be one of the best ways to combat water insecurity by reducing water consumption, managing utilization and detecting and control leakage at any water outlet.

Creating awareness to homemakers and disseminating knowledge allowed for positive behavioural, attitude and value changes. Utilization of the prototyped technology for effective domestic water management would result in an enduring solution for our family and society's brighter future.

Keywords: *Water Quality, Water Conservation, Artifical Intelligence, IoT Enabled, Domestic, Water Management, Smart Home, Awareness*