

## SHORT ABSTRACT

Many government water supply schemes fail in terms of public acceptance, primarily due to lack of public awareness, transparency on water tariff policy, and agony of water privatization. The present work attempts to develop and propose a framework for integrating people in water supply projects. It has been worked out considering a standing case of South-West Guwahati water supply project, which is a fully government owned turnkey based project, but facing public opposition. A mixed research approach methodology has been adopted and executed in 4 phases. Phase 1 has been designed to understand the reasons for public opposition. In phase 2, quantitative method has been employed for groundwater quality assessment in the study area. In phase 3, groundwater quality awareness has been carried out through door to door interaction and in phase 4, semi-structured questionnaire is designed to generate primary data in conjunction with secondary data, and finally a framework is formulated in accordance with the identified critical success factors (CSFs).

The study of public opposition and perception on groundwater quality reveals casual public approach towards groundwater quality irrespective of profession, education and financial status of household. A questionnaire survey, groundwater sample collection and laboratory analysis of 1568 (sample size determined statistically) household groundwater samples was conducted. Laboratory analysis revealed that 55%, 12% and 9% of groundwater samples exceeded WHO guidelines for iron, fluoride, and arsenic, respectively. The public perception on groundwater quality found far away from reality, only 3-4% people were aware of contamination and the rationale for public opposition were more of public misconception and/or in erudite nature. Public awareness on groundwater quality and its adverse health effects were found to be the most influencing factors affecting public willingness to procure (WtP) that improved from 58 to 74% after creating awareness. The findings of public WtP were fortified by logistic regression model which uncovered interesting trend of public hesitation and explicitly thrown light upon sensibility of people who disclosed their income during survey.

In framework development, extensive literature review (secondary data collection) has identified 9 CSFs. Primary data evolves three additional thematic codes (themes) apart from those

closely matching eight CSFs from secondary data. Study of theories of public participation depict a ladder for public participation. Finally, a framework was formulated in accordance with the identified CSFs from primary and secondary data and the review of various theories on public participation. The framework is developed to achieve effective public participation in five levels viz. inform, educate, consult, involve, and collaborate. Each level satisfies a set of CSFs and ultimately all CSFs addresses to deemphasize the effects of disincentives in water supply projects. Further, framework was validated by 16 experts and received exceptionally copacetic rating for all six validation aspects. Satisfactory expert ratings demonstrated appropriateness, objectivity, replicability, practicality, reliability, and suitability of framework for water supply projects.

