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## **"DUGWELL" - A VIABLE OPTION TO COMBAT THE INCIDENCE OF ARSENIC TOXICITY IN GROUND WATER AND IMPENDING THREAT OF ARSENICOSIS EPIDEMIC IN PARTS OF WEST BENGAL**

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Arsenic, the 'king of poison' in antiquity, has become a global menace in this twenty-first century. This menace, first detected in West Bengal in the beginning of the 1980s, has left about two lakh people suffering from various stages of arsenicosis caused by the drinking of arsenic contaminated ground water spread over nine districts. Recent reports confirm that a population of 42.7 million residing in 2600 villages in 74 blocks of these districts is at risk of exposure to this disease. Various safe water options available to combat this menace include; supply of water from rivers and natural lakes after disinfection, supply of arsenic contaminated ground water after removal of arsenic through various chemical methods, supply of normally arsenic free ground water from deep aquifers, and supply of arsenic-safe ground water from shallow unconfined aquifers through dugwells after disinfection. The present paper embodies the findings of a research project on dugwells sunk in the Maslandpur area of North 24 Parganas, West Bengal, which were monitored over a period of one-and-a-half years. The salient findings indicate that arsenic concentrations of the dugwell water consistently remained below the permissible limit of 0.05 ppm (Indian Bureau Standards) and 0.01ppm(WHO) excepting one value of 0.027ppm out of 15 samples, which exceeded the latter. However, the bacterial count was high and maximum values of total coliform and fecal coliform were 950/100ml and 390/100ml respectively. Application of disinfectants like Potassium permanganate and Sodium hypochlorite (Theoline) reduced these bacterial counts to zero. It has been established that fortnightly disinfection of the dugwells keeps the bacterial count to levels comparable to those prevailing in piped water supply of Kolkata. This feature, along with the low unit cost of construction with indigenous methods, makes the dugwell a sustainable and viable option for supplementing the supply of arsenic-safe drinking water in affected areas.

**Key Words:** Arsenic toxicity, Arsenicosis, Dugwell, Safe Water Option, Disinfection.