Access to safe drinking-water is very essential to health, a basic human right and a component of effective policy for health safety. It is important as a health and development issue at a national, regional and local level. Groundwater provides drinking water to more than 1.5 billion people daily and to many more in times of surface water. But for almost last two decades, research on arsenic in groundwater has gained a significant momentum as a response to the harmful health effects of the element. The recognition of the scale of arsenic enrichments in groundwater of West Bengal, India and Bangladesh and elsewhere has opened up serious apprehension in the scientific community. However, new reports are coming from different areas regarding the arsenic contamination. Several factors involved for the ever expanding impure water tables throughout the world, involving new aquifers that are yet to be recognized. The present study highlighted the detailed groundwater quality in 8 different blocks of Golaghat district. Around 31% of the water sources of tubewells found having arsenic contamination more than the 0.05ppm and 35.3% in between $\geq 0.01$ppm to $0.05$ppm $\leq$. Again, high percentage of iron contamination (77%) and manganese contamination (25.5%) in the tubewell waters of the region indicate the severity of the heavy metal pollution in the region. However the tubewell water of the region is safe in terms of other water quality parameters mentioned in the present study. Therefore, the primary concern to counter the problem of groundwater contamination especially with high priority toxic substance like arsenic, iron etc. in newly reported region is early survey based detection of the pollution and identification of the affected sources to remediate the crisis. From the study it was revealed that, the residents of Golaghat district had been chronically exposed to low to moderate levels of heavy metals like As and Fe, in comparison with highly exposed populations in West Bengal, India,
Bangladesh, Taiwan, Chile and Argentina. Understanding the groundwater movements requires in-depth characterization and routine verification of physical hydrogeology. Moreover, community participation to make understand the signs and symptoms of chronic arsenic toxicity to the villagers of the affected regions is of utmost necessary. There is no medicine to cure chronic arsenic toxicity except healthy diet and safe water. Therefore investigation of new alternative water sources for drinking is very much essential in Golaghat district, the region of the Brahmaputra river basin of North East India. It is interesting to note that the surface water resources viz. ponds, ring wells, river water etc. of Golaghat district are almost safe in terms of arsenic, other trace elements and sodium, potassium, magnesium, calcium, TH, pH except few samples for Fe and Mn. Therefore these water sources can be used as alternatives for groundwater in the region. But these surface water sources are needed to be implemented with controls for bacterial contamination. Providing safe drinking water to the rural habitations and schools has been accepted as the most challenging and priority task by the government of Assam. Public Health Engineering Department is the nodal Government Department for the rural water supply programmes in the state. Recently the PHED, Golaghat district has planed for arsenic mitigation programme by providing surface water, mainly river water to the rural people of Golaghat district, for drinking purposes. The PHED, Golaghat have selected three main rivers namely Dhansiri, Doiang and Kakodonga for their water supply schemes. About 20,000 people will be benefited by this scheme where consumption will be about 55 liters per capita per day. By proper planning and management, surface water of the region can be used as alternative source of drinking water in the badly arsenic affected areas of Golaghat district. The mitigation strategy for the problem in the area might be specific to the location, taking into considerations of geomorphological variations and
socioeconomic conditions. Understanding the groundwater movements requires in depth characterization and routine verification of physical hydrogeology. Moreover, community participation to make understand the signs and symptoms of chronic arsenic toxicity to the villagers of the affected regions of the district studied is of utmost necessary. Again, cost-effective, user friendly technologies providing pure water are required to counter the serious health hazards due to consumption of As &/or Fe contaminated water. A holistic approach involving medical practitioners, scientists and social workers will need to work coherently to find out a solution that can lessen sufferings of the humanity and making a provision for safe drinking water.