

EFFECT OF PIPELINE SOURCES ON DRINKING WATER QUALITY IN SELECTED AREAS IN JAFFNA PENINSULA, SRI LANKA

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People in the Jaffna peninsula depend mainly on groundwater for their utilities as other water sources such as tanks and rivers are not available, and fresh water ponds and rainfall are not sufficient. However, the groundwater in Jaffna is in danger due to over exploitation and pollution caused by excessive use of agrochemicals and fertilizer.

In this study, the quality of groundwater was analysed for physical and chemical parameters, such as colour, odour, pH, cations (Ca^{2+} , Mg^{2+} , K^+ , Fe^{3+}) and anions (total alkalinity, NO_3^- , Cl^- , PO_4^{3-} , SO_4^{2-}). Well water samples (Kondavil, Kalviyankadu, Thirunelvely and Nallur) and water samples distributed through pipelines (Maintank, Yamunari, Kurunagar and Ariyalai) were taken into consideration.

The chloride content of water samples from Kondavil, Kalviyankadu, Yamunari and Main tank was found to be greater than 300 mg L^{-1} . The water samples from Thirunelvely and Kondavil were rich in nitrate content as compared to other places. This could be attributed to excessive usage of nitrogen fertilizers as these are agricultural areas. Further, water samples from Kondavil and Thirunelvely were found to contain high amount of calcium which causes water hardness. Iron, potassium, sulphate and phosphate contents did not show significant variation in the selected areas. The pH of the water samples was found to be almost neutral (7.0 – 7.7). Total alkalinity was high in the water samples collected from Kalviyankadu, Thirunelvely and Kondavil.

Analysis of water samples from pipelines made of asbestos, cement, cast iron and PVC revealed that the quality of water in pipelines is the same as that from their sources of origin.

It can be concluded that the high levels of alkalinity, chloride and water hardness are detected in the Jaffna peninsula.

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