EXECUTIVE SUMMARY

Arsenic is generally present in atmosphere, soils, rocks, organisms and in ground water. Evaluation of Arsenic contamination in groundwater is considered important because in most cases the groundwater is the main source of drinking water supply. Owing to reports regarding the presence of Arsenic in groundwater of Sindh, especially in districts of Khairpur and Dadu and its ill effects on health, UNICEF (Pakistan) launched a programme for arsenic monitoring in collaboration with Sindh Agricultural and Forestry Workers Coordinating Organization (SAFWCO). To implement this programme, SAFWCO made collaboration with Districts, Tehsils and Union Council Nazims and Naib Nazims. With the cooperation of community representatives, 20158 water samples were collected from 67 Union Councils of 6 Tehsils of District Khairpur and Dadu by SAFWCO team. Water samples were analyzed by using the field testing kits. It was decided that 10% of the total samples (approx 2000) would be got analyzed by Pakistan Council of Research in Water Resources (PCRWR) using the Atomic Absorption Spectrophotometer for verification and validation of the results obtained by field testing kits.

The analysis of Khairpur district showed that 25% samples had arsenic above the WHO recommended level of 10ppb and 10% beyond 50ppb. In Dadu district, 51% samples had arsenic concentration greater than 10ppb while 23% samples had arsenic contamination above 50ppb. Overall about 36% water samples of Central Sindh were found with arsenic beyond safe limits prescribed by WHO (10 ppb) and more than 16% water samples were found unfit according to the PSQCA standard (50 ppb). More water samples of Sindh were found arsenic contaiminated as compared to Southern Punjab. Comparison of laboratory testing and testing with field kits revealed a difference of 3-8%.

Findings of the study indicate possible health effects of local population, which are continuously using arsenic contaminated water for drinking and domestic use. Therefore, remedial measures developed by PCRWR for arsenic removal from drinking water are recommended for the effected areas.