
Chapter 6 Water Qualities

6.1 Sampling Points And Items of Analysis

The water quality analysis in Phase 1 was carried out to make clear the water quality characteristics in the rainy season, and also to make clear whether quality of water being used in the rural area is good or not for domestic use particularly for drinking. Sixty-three samples were taken from the water points of the 120 villages visited. The locations of the villages, from where the samples were collected, are shown in Figure 6-1.

The objectives of the water quality analysis in Phase 2 were

- 1) to evaluate potability of existing sources at the 100 prioritized villages, and
- 2) to understand the groundwater quality characteristics by area by taking samples from the areas of different geological composition throughout the entire study area.

All of the 100 villages were visited, and 65 water samples were collected from the existing water sources. An additional 33 groundwater samples were taken from existing boreholes, springs used for water supply to urban areas, test wells in pilot study sites and district water supply project sites. The distribution of sample points is shown in Figure 6-2.

The target of the Phase 2 water quality analysis, which was based on the geographical/geological characteristics and the previous water quality analysis results, consisted of 19 items (common counts, 12 items; detrimental substances, 7 items).

Common counts include water temperature, pH, electricity conductivity (EC), turbidity, dissolved oxygen (DO), sodium (Na), potassium (K), calcium (Ca), magnesium (Mg), bicarbonate as HCO_3 , sulfate as SO_4 , and chloride (Cl). The items concerned with detrimental substances include *Escherichia coli*, iron (Fe), fluoride (F), nitrate as $\text{NO}_3\text{-N}$, ammonia as $\text{NH}_3\text{-N}$, manganese (Mn) and arsenic (As).

With regard to the 6 items of temperature, pH, DO, turbidity and *Escherichia coli*, the insitu measurement was taken, and another 13 items were analyzed at the laboratory of the Mtwara regional water department.

The analysis data from both Phase 1 and Phase 2 are attached in the Data Book, and outlines are described in the following clauses.

