(4) determine the content and delivery systems for technical training of maintenance personnel, local management systems for community ownership and operation of the device to ensure its ongoing functioning.

We plan to start up the field sites for UVWw in a phased manner, thus enabling us to improve our approach in the later stages of the work from the lessons learned in the early stages. The first site, operational since August 1997, has been monitored biweekly with pre- and post-treatment samples. The next two sites will be intensively monitored (about 50 samples a week for 50 weeks) for the bacterial contamination along the drinking water chain, from the outlet of the device, to the household storage cisterns, to the water in the drinking cups.

The community placement of the device, and community education and management of the technology will be organized by working with local NGOs who have the trust of the community and who understand the local customs, politics, and issues. We will document the outcome of various approaches to address these important dimensions of the problem.

UVWw PERFORMANCE AT THE FIRST SOUTH AFRICAN FIELD SITE

We measured the borehole water from the field test site to have a UV extinction coefficient almost identical to that of distilled water. It also was visually clear. In lab tests in Durban (Test #5, above), exposing three 170ml samples in a 4 cm deep layer for ten seconds in the UV unit reduced initial coliform concentrations of 6 million CFU/100ml to an average of 6 CFU/100ml, a 10^6 reduction. With these results in hand, we installed the unit to disinfect the water supplied to the kitchen at the Lily of the Valley HIV hospice for orphans, outside Durban. The UV lamp in the unit is continually on, and water is passed through the unit on demand. Flow to the unit is pressurized and controlled by a manually-operated ball valve. The maximum flow rate was set at 8 liters/minute, which is adequate for the hospice needs (primarily preparation of baby formula and providing drinking water in feeding bottles). The treated water is delivered immediately by gravity flow from the unit to the kitchen sink by a four-foot length of copper pipe. In our initial test of the installation, we measured 4,000 coliform (including 200 E. coli) CFU/100ml in the untreated water entering the unit, and no detectable coliforms in the treated water leaving the UV unit.

The biweekly sampling of the unit began in November (Table 2). Two samples are collected for analysis. Untreated ("Before UV") samples are collected at a separate tap slightly upstream of the unit; treated ("After UV") samples are collected at the kitchen sink pipe outlet.

Samples collected from December 22 onwards began to indicate worsening water quality at the kitchen tap, but data were inconsistent. Attempts to resolve the inconsistencies and identify the cause of bacterial contamination in the water at the kitchen tap (by suggesting various additional tests) were unsuccessful between January and March 1998. One of the authors (DG) visited the site in April 98 and with various tests determined that the unit was functioning fine and