Drinking Water Quality Monitoring and Community Outreach Activities in Majuro, Marshall Islands

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ABSTRACT

This project was conducted on Majuro, the capital island of the Marshall Islands. The islands have a warm and humid climate making rainwater catchment systems particularly vulnerable to bacterial contamination. Rain water is the primary drinking water supply for most of the islanders who cannot afford bottled drinking water. During the month of September, safe drinking water workshops were conducted to test participants’ water samples and to educate the community on proper drinking water quality including construction and maintenance of wells, rainwater catchments, and water tanks. Prior to the workshops, over 100 sterile bottles were distributed to workshop participants including students from the College of the Marshall Islands and the general community. Water samples were tested for Total coliforms, E. coli, pH, Hardness, Total Dissolved Solids, Ammonia-Nitrogen, Ammonium, Iron, Zinc (+Copper), and Salinity. Of 100 water samples tested, 88 water samples were positive for Total coliforms and 55 samples were positive for both Total coliforms and E. coli. Most other parameters met standards suggested by the EPA except 5 samples with higher total dissolved solids (> 500 mg/L), 54 samples with pH below 6.5, and 1 sample with pH above 8.5. Water test results and fact sheets in English or Marshallese were provided to help inform participants about the issues for their drinking water (Picture 4). Because of increased interest during the first workshop and program activity publication in the RMI News, participants doubled during our second workshop (Picture 5).

WORKSHOPS AND DRINKING WATER TESTING

Two water quality workshops and testing programs were conducted:

- On September 2, 2009, the 1st Workshop was conducted in Land Grant Program Arrak Campus College of Marshall Islands for the residents living in the southern part of the island;
- On September 29, 2009, the 2nd Workshop was conducted in Community Center for the residents living in northern part of the island and was hosted by one of the Land Grant Extension Agents, Mrs. Nelly Lakabung.

Prior to workshops, Radio Advertisements were prepared and advertised in the Radio and the College of Marshall Islands, Campus Security Office was provided with sterile bottles to be available for the residents in surrounding areas.

Mr. Jina David prior to 1st Workshop and Mrs. Lakabung prior to 2nd Workshop distributed about 40 sterile bottles for each workshop in their neighborhood and surrounding areas.

We had total of 22 residents during the 1st workshop and total about 40 residents during the 2nd workshop attended to the workshops and seminars (Picture 3).

Some of the residents could not attend the workshops due to their prior obligations however findings, fact sheets were developed to demonstrate how to update rainwater catchment systems with screens and first-flush diverters. We also installed first-flush diverters at homes on either end of the island to allow other residents to examine the systems. The CMI Land Grant Program funded video demonstrations of these diverters, translated in Marshallese, for island residents.

CONCLUSION

The main problem noticed in many rainwater catchment systems was the lack of adequate screening leading into the water tank and a high level of contaminants in the first few minutes of rain collection. Based on these findings, fact sheets were developed to demonstrate how to update rainwater catchment systems with screens and first-flush diverters. We also installed first-flush diverters at homes on either end of the island to allow other residents to examine the systems. The CMI Land Grant Program funded video demonstrations of these diverters, translated in Marshallese, for island residents.

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