WATER AND SANITATION PROJECT
TRIP REPORT
REPUBLIC OF THE MARSHALL ISLANDS, MAJURO
18-21 MARCH 1996

Ed Burke
Project Manager

This project is funded by the United Nations Development Programme
Monday, 18 March 1996

Arrived at Majuro airport at 18:30.

Tuesday, 19 March 1996

Republic Marshall Islands Environmental Protection Agency (RMIEPA)

I met with Mr Jorelik Tibon, the newly appointed General Manager of RMIEPA. Mr Tibon has been General Manager for a few months and replaced Mr Ken Anitok, Acting General Manager, who I met with during my previous trip to Majuro in July 1995. (See SOPAC Trip Report 207)

The RMIEPA was formed to protect the environment by preparing, monitoring and enforcing various regulations. Regulations regarding water quality, liquid waste disposal, marine waters and earth moving activities have been prepared based on existing USEPA standards. The regulations include penalties for non-compliance. However, violations are rarely enforced mainly due to limited RMIEPA resources. RMIEPA is also involved with coastal management including marine pollution.

I briefly explained SOPAC and the Water and Sanitation Project to Mr Tibon and how we may best assist RMI. Mr Tibon was disappointed that a Marshallese was not nominated to attend the three year Earth Science and Marine Geology Certificate Course currently being held in Suva, Fiji. SOPAC had requested a nominee from the RMI Government.

The Draft National Water Policy and Strategy Statement dated September 1994 and it's Addendum, Assessment of Priorities dated October 1994 (prepared by the previous UNDP regional project) were discussed with Mr Tibon who wishes to complete this exercise with the preparation of an Action Plan (the final phase of the Sector Strategy and Action Plan (SSAP) process). I explained to Mr Tibon that on several occasions SOPAC had requested official comments on the draft documents to ensure that any Government concerns were dealt with before the Action Plan is started. Mr Tibon agreed that official comments are required to initiate the process and that he would arrange for these and advise SOPAC accordingly.

It was suggested that a meeting with other water sector organisations be held to discuss any follow-up work and other water and sanitation issues. A meeting was scheduled for the following day, Wednesday 20 March 1996.

It was difficult to find reports within the office. The filing and report retrieval system needs to be improved.

At the request of Robert Smith (SOPAC Marine Geologist) I mentioned to Mr. Tibon that SOPAC would be in Majuro in April to undertake an aggregate survey. Mr. Tibon was unaware of this trip and requested more details. I showed Mr. Tibon a communication between Mr. Riyad Mistry and Mr. Smith noting that the survey was going to take place. Mr. Tibon agreed that the SOPAC team could store its container and associated gear at the RMIEPA compound.
I also met with Mr. Abraham Hicking, RMIEPA Water Quality Section Manager, assisted Mr. Hicking in preparing a fee structure to charge for the collecting, analysing and reporting on the water quality of the Majuro water supply. Mr. Hicking provided me with some water quality data and RMI water-borne disease information (See Appendix 1 for detail). Mr. Hicking is a very keen member of the RMIEPA team.

While at the RMIEPA office I located a copy of the draft design drawing of the Majuro Water Supply Project. I was able to assess from that plan that storage facilities are to be increased and a new transmission pipeline will be installed and interconnected to the existing pipelines to balance water pressures through the system. There did not appear to be a provision for bulk meter installations.

**College of the Marshall Islands (Cooperative Research and Extension)**

I met with Ms Diane Myazoe, Water Quality Extension Agent, who manages a water quality monitoring program on selected atolls in RMI. Ms Myazoe's project is funded by USA Land Grant and she is assisted by the RMIEPA.

She has visited two atolls (Mili and Wotje) and has collected water quality data on roof catchments and dug wells (see attached results in Appendix 1). I suggested that she also record roof areas and storage tank size and type. Also the type of sanitary system (toilets) used and distance from water wells should be recorded as well.

Ms Myazoe has prepared handouts in Marshallese to help educate outer island residences on safe water supply practices (See Appendix 2). She requested SOPAC technical assistance with handpump selection, installation and maintenance. I mentioned the possibility of using infiltration galleries and solar energy for village water supply systems similar to the systems currently being installed in Kiribati.

Ms Myazoe requested to be included on our SOPAC mailing list and in any PEACESAT interactions.

She is keen to assist outer island residents and to learn how to install handpumps and how to train women in the operation and maintenance of village water supplies.

**Wednesday, 20 March 1996**

**Majuro Water and Sewer Company (MWSC)**

Met with Mr. Hackney Takju, Manager of the MWSC. The MWSC is responsible for providing water for Majuro only. Current water charge for domestic use is $US6.00 per 1000 US gallons ($US1.59 per m$^3$). Commercial users are charged $US10.00 per 1000 US gallons ($US2.65 per m$^3$). Non-metered connections (approximately 600 remaining out of 3000 connections) are charged $US8.00 per month.

MWSC operates a reticulated sea water system used to flush toilets and for fire fighting. The charge for this service is $US7.00 per month per connection which includes the operating and maintenance of a pump/gravity wastewater disposal reticulation system for part of Majuro. Indications are that approximately 70% of the sea water reticulated is wasted through leakage (pipes and toilet systems). The wastewater collection system pumps seldom rest due to water entering the system through leaky toilets, sinks, taps, etc.
The revenue collected by the MWSC only covers a small part of the actual operational, maintenance and administration costs.

Mr Takju presented me with a cheque for $US2,500, MWSC’s contribution to the formation of the proposed Pacific Water Association (PWA). Note that this is the first contribution received from potential PWA members.

I was introduced to Mr Skanda De Saram who has recently joined the MWSC staff as operation and maintenance engineer (the only professional engineer on the MWSC staff). Mr De Saram will also be responsible for MWSC staff training.

Water Sector Meeting

A meeting was held at the RMIEPA Office with the following water sector people attending:

Jorelik Tibon, General Manager RMIEPA
Abraham Hicking, Water Quality Section Manager, RMIEPA
Ken Cook, Acting Director of the Public Works Department
Hackney Takju, Manager of MWSC
Skanda De Saram, Operations and Maintenance Engineer of MWSC
Diane Myazoe, Water Quality Extension Agent, CMI
Ed Burke, SOPAC

At the meeting I explained the Sector Strategy Action Plan (SSAP) process that was started for RMI in 1992 by UNDP. Ken Cook was on the committee that was involved with Barbara Barber’s water sector position paper but did not recall any discussion regarding the Draft National Water Policy and Strategy Statements dated September 1994 which was the third phase of SSAP. The final phase is the preparation of an Action Plan which Mr Tibon is keen to pursue and that is included in the SOPAC programme. However comments on the draft are first required as well as a request by the RMI Government to prepare an Action Plan. It was agreed that those attending the meeting plus anyone else named by RMIEPA would comment on the draft documents by the end of April 1996. RMIEPA being the lead agency will organise the comments from the various agencies and seek government permission to initiate the Action Plan.

Ken Cook was asked to brief the meeting on the progress of the approximately US$8m Majuro Water Supply Project that will be funded by an ADB loan. Consultants had carried out the designs and prepared tender documents. Tender pre-qualifications were called and a short list of 9 contractors have been requested to submit bids. It is expected to select a contractor by June 1996 and start construction in September/October 1996.

Works include a new fresh water transmission pipeline that should equalise pressure in the existing pipeline through interconnections of the two pipelines. Water storage capacity will be increased by approximately 15M US gallons. This includes a new 400,000 US gallon storage facility which will be constructed at Rita. Water treatment facilities will also be upgraded. The sea water reticulating line will be extended to the airport with the new and upgraded pumping stations. The wastewater (sewerage) pumping stations will also be upgraded. Provisions have also been made to
investigate the Laura groundwater lens to assess if increased abstraction can be made without damaging the lens. Funds are available to carry out recommendations made as a result of the Laura lens study.

Mr Cook indicated that the proposed freshwater system upgrade will probably not result in a 24 hour service. Currently the system operates every other day with an expected improvement with the proposed upgrade works.

The contract does not allow for any rehabilitation (or leak detection work) of the existing pipeline. Thus by constructing a new transmission pipeline there is a real possibility that the leaks in the existing pipeline may get worse. Leak detection and rehabilitation work is also required to minimise water wastage. Any reductions in leaks would result in extended hours of operation. Bulk water meters should be installed in the new pipeline and at connection points with the existing pipeline to assist in demand/leak management. The MWSC require meters within the reticulation system to be able to manage the water supply in a sustainable manner.

Ken Cook indicated that JICA may be interested in supporting water and sanitation projects in the outer atolls of RMI. This should be followed up.

RMIEPA staff indicated that the USEPA provided expertise and funding to collect septic tank effluent from properties in the Laura area in order to protect the Laura lens from pollution. However the task was not completed for some reason. With this groundwater lens utilised to provide Majuro with water during dry periods it is important to protect this water resource in conjunction with the planned ADB study of the lens. The protection of this lens should have very high priority.

Also RMIEPA indicated that there is a need to provide port facilities for ships to dispose of their liquid wastes. (ie pipeline to the sewer system or truck tanker) The alternative is often that ships discharges wastes into the lagoon. This needs to be followed up.

Diane Myazoe explained her outer atoll water quality programme and acknowledged support given by RMIEPA. This type of information is very useful in developing programmes to improve outer atoll water and sanitation facilities.

It was suggested that it would be beneficial for regular meetings to be held among water sector agencies to keep each other informed of activities that overlay their responsibilities. It was agreed that future meetings should be held.

Thursday, 21 March 1996

RMIEPA Office

Final meeting with Mr Tibon to discuss the proposed Action Plan was held. It was agreed that SOPAC will send RMIEPA six copies of the draft National Water Policy and Strategy Statements and it’s Addendum, Assessment of Priorities. RMIEPA will distribute the documents to the various water sector agencies for comments. RMIEPA will coordinate the comments and seek an official request for SOPAC to implement the proposed Action Plan. The target date for comments and request is by the end of April 1996.
MWSC Office

I met with Mr De Saram again. He provided me with information on Majuro’s water demands taken from an ADB report.

I also obtained information on water charges and meter readings from MWSC office staff. A random selection of 16 domestic users ranged from 1610 to 10,600 US gallons/month/connection with an average of 5737 US gallons/month/connection. The ADB report reports an average of 6473 US gallons/month/connection that equates to 23.5 US gallons/person/day (90 litres/person/day).

Departure

I departed Majuro at 14:00.

Follow Up Actions Required

RMIEPA

1. Send six copies of draft National Water Policy and Strategy Statements and it's Addendum, Assessment of Priorities.
2. Send copy of Barber's position paper.
3. Arrange resources for action plan.
4. RMIEPA should rigorously pursue the protection of the Laura groundwater lens from surface pollution and that this aspect should be included as part of the ADB loan to investigate and improve the Laura lens water supply.
5. RMIEPA should pursue the installation of facilities to dispose of liquid wastes from ships moored at the wharfs.
6. RMIEPA should organize and coordinate regular meetings with water sector agencies.
7. Include them on SOPAC mailing list.

MWSC

2. Send copy of guidelines to operate and maintain infiltration galleries.
3. Point out shortcoming of proposed ADB loan contract to upgrade Majuro water systems. (no rehabilitation/leak detection of the existing pipeline, no bulk water meter installations, pollution protection of the Laura lens is needed)

College of the Marshall Islands (Cooperative Research and Extension)

2. Include on SOPAC mailing list plus any PEACESAT communications.
3. Pursue possible funding of outer island water and sanitation projects by JICA.