



Management of the Nanpil River Watershed, Pohnpei Island, The Federated States of Micronesia



Funded by:
US Geological Survey, Water Institute Program
P.I.'s
Shahram Khosrowpanah
Mark Lander
Leroy F. Heitz
Funding: \$38,837

The Nanpil Watershed is situated in the Sokehs and Nett Municipalities on the Northern side of Pohnpei Island. It is unique in many aspects. This area of approximately 3 square miles provides inflow to the Nanpil River that is the main source of the island's water supply. In recent years large areas of native forests and ecologically sensitive areas have been cleared for housing and road development projects and unmanaged agricultural activities (e.g., sakau/kava plots). These new development activities are now negatively impacting the biodiversity of much of the area, the headwaters and freshwater resources as well as the mangrove forests and coral reefs of Pohnpei Island. To implement any watershed management/protection plan requires having a better understanding of the physical and environmental components of the watershed. This includes how much rain the watershed receives, how much flow runs through the streams, what is the sediment load in the streams during the year, and how all these dynamic components are related to man's activities within the watershed. The lack of baseline information about the components of watersheds is a critical issue throughout the Federated States of Micronesia. When the political status of the Federated States of Micronesia with the United States changed from Trusteeship into Free Association in 1986, all the stream flow gages that were built and monitored by the US Geological Survey were deactivated and have remained effectively abandoned. Since 1986 there has been no information on how much flow runs through the streams and how much sediment is being carried to the reefs.

The objectives of this project are to: 1) install stream flow, sediment, and rain gages for selected sites within the Nanpil Watershed; 2) monitor the gages and develop a rating curve for the selected site; 3) develop a correlation between stream flow, sediment load and rainfall; and 4) develop a database of flow and sediment data for future use. This project will generate baseline information and correlations among the dynamic components of the Nanpil watershed environment. The baseline information will be used for future comparison between Nanpil watershed and the ongoing study of the Enipein Watershed. The findings will reveal the impact of the various activities such as land clearing, land slide/slope failures, and population growth on the quality of the watershed. This information will help various parties such as the Conservation Society of Pohnpei (CSP), Land Management, the Pohnpei Environmental Protection Agency (EPA), and local mayors to implement plans for protecting the watersheds in Pohnpei. Pohnpei's Public Utilities Commission (PUC) will be able to operate the water treatment plant more efficiently by knowing the level of the stream's turbidity and the available water in the stream. Also the information obtained in this project may be used by Pohnpei's Weather Service to enable them to provide flash flood warnings for the Nanpil River.