Watershed Management for the Senpehn Watershed, Pohnpei Island, Federated States of Micronesia

Funded by:
US Geological Survey, Water Institute Program

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Funding: $36,064

The Senpehn watershed basin is located in the southeastern section of Pohnpei and is the largest watershed on island (8.6 square miles). The combined annual discharge of the two rivers in the basin exceeds 94,450 acre-feet/year (A-FT/year). The interior of the Senpehn Watershed basin is heavily forested. The vegetation consists of several forest types including upland, palm, and swamp forests and, at the highest elevation, dwarf of cloud forest. Much of the lower slopes and coastal areas of the Senpehn are characterized by agro forest and secondary vegetation with a few small areas of grass and fern savanna. Lowland areas consist of swamp forest and taro patches. Mangrove forests of moderate width extend along the coast. The Senpehn watershed is relatively pristine and unimpacted by the activities of man.

The Senpehn watershed contains of five kousapws (village units), each with a Soumas (village chief). The kousapws that make up the Senpehn include Diadi, Elieliwi, Nan Kepin Sapwehrek, Nan Kepra, and Pohnauleng. The total population of the five kousapws in 1978 was 592. Currently, it exceeds 14,000. The watershed is typical of many of Pohnpei's rural areas. The majority of the population practice a largely subsistence lifestyle, with a strong dependence on the forest and lagoon to provide their daily needs. Only a small percentage of the population is employed for wage income (9%).

According to the Conservation Society of Pohnpei (CSP), the water quality of some Pohnpei streams has been seriously degraded in recent years as a result of land clearing for agriculture, road construction and housing development. To implement any watershed management/protection plan requires a complete understanding of the physical and environmental components of the watershed.

The overall objective of this project is to study the impact of man's activities on the quality of the watershed and make recommendations to reduce the impact of these activities. The specific objectives are to: 1) install stream flow, sediment, and rain gages for selected sites within the Senpehn watershed; 2) monitor the stream gages and develop a streamflow vs. stage rating curve at each site; 3) develop a correlation between stream flow, sediment load and rainfall; and 4) make a comparison with the findings of other previously examined watersheds on the island, e.g., the Enipein and Nanpil watersheds.

The result of this project will be the development of baseline information and identification of relationships between the dynamic components of the Senpehn watershed environment. The baseline information obtained will provide a useful comparative measure for the Enipein watershed, which currently supports a relatively high degree of anthropogenic and associated activity, e.g., land clearing, land sliding/slope failures, and population growth. The results will reveal the impact of these various activities on the quality of the watershed. This information will help various parties such as Conservation Society of Pohnpei (CSP), Land Management, the Pohnpei EPA, and local mayors to implement plans for protecting all watersheds in Pohnpei.