



Prediction of Flow Duration Curves for Use in Hydropower Analysis at Ungaged Sites in Pohnpei, FSM



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In 1987, the Pohnpei State legislature passed the Pohnpei Watershed Forest Reserve and Mangrove Protection Act in which close to 5,000 hectares (12,500 acres) of upland forest were set aside as a protected Watershed Forest Reserve. The purpose of this act was to halt the degradation of the interior forests from road construction and population encroachment as well as to protect the watershed and water supply for the island's population. However, when surveyors attempted to mark the boundary of this reserve, suspicious and angry villagers with machetes and guns turned them back. With this single act, the story of watershed management on Pohnpei began and continues to unfold today.

According to the Conservation Society of Pohnpei (CSP), recent land clearing for agriculture, road construction and housing developments have been paralleled by a degradation of water quality in some of Pohnpei's major rivers and streams. Such negative changes emphasize an urgent need for developing and implementing sound watershed management strategies. A fundamental prerequisite for the development of any watershed management/protection plan is a complete understanding of the physical and environmental components of the watershed and their interrelationships with one another.

The overall objective of this project is to study the impact of man's activities on the quality of the water in the watershed and make recommendations to reduce the impact of these activities. The specific objectives are to continue to 1) monitor stream flow, turbidity, and rain gages for previously selected sites within the Senipehn and Nanpil Watersheds; 2) develop a correlation between stream flow, turbidity and rainfall; 3) make a comparison with the findings of these two watershed with Enipein Watershed that have been monitored during previous studies, and 4) develop recommendation on watershed management.

The result of this project will be the development of baseline information and correlations among the dynamic components of the Senipehn watershed environment. The baseline information will be used for comparison between Senipehn watershed, where there is less human activity, and other watersheds such as Enipein and Nanpil where there is a high human impact in the watershed. The results will reveal the impact of the various activities such as land clearing, land sliding/slope failures, and population growth 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 the watersheds in Pohnpei.