



## Comprehensive Survey of the Current State, Infrastructure, and Usage of Freshwater Resources in the Mortlock Islands, Chuuk State, Federated States of Micronesia



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Atolls and other carbonate islands in the Federated States of Micronesia are extremely limited in area and resources yet support a disproportionately high number of residents. The so-called Outer Islands of Chuuk State alone, for example, are home to well over 10% of the entire Micronesian population. Due to the islands' truly minuscule sizes, the resultant population densities are among the highest in the world. Their freshwater resources are threatened by overuse due to population growth and changing lifestyles, damage by pollution and unsustainable practices, and obliteration by global climate change. However, the extent of specific problems on individual islands cannot be evaluated at present due to the lack of baseline information. In response to that concern, we have begun two years ago a comprehensive effort to characterize freshwater resources, infrastructure, and practices on each of Pohnpei State's low islands and have already acquired an exhaustive body of vital data. That information is currently being processed for dissemination and publication, so that it can be provided to government planners, resource managers, engineers, educators, environmental scientists, and others involved in sustainable development in Micronesia. We now propose to continue the comprehensive study of the current state, infrastructure, and usage of freshwater resources on FSM's low islands by surveying the most densely populated atolls in Chuuk State: the Mortlock Islands. We intend to investigate the islands of Ta, Satowan, Moch, Kuttu, Lukunor, Oneop, and Ettal, and document the condition of their freshwater resources and related infrastructure, as well as examine the local people's relationship with those resources. Such information is urgently needed from the Mortlocks in order to clarify the water situation there and help us avoid or better respond to fresh water emergencies, agricultural difficulties, food shortages, health problems and other environmental crises that may arise due to

lack of knowledge, awareness or preparation. Specifically, we intend to use a combined hydrogeologic/engineering/sociologic fieldwork approach to document hydrologically relevant natural aspects and infrastructure, as well as people's usage patterns and perceptions of freshwater resources on each of the mentioned seven islands. Essentially, the project will comprise of separate research trips (one per island), each of which will include hydrogeologic component comprising of field observations and mapping, engineering component comprising of infrastructure examinations and measurements, and "people-oriented" component comprising of standardized surveys and freeform interviews of local residents. The immediate objectives of the project are to: a) compile a comprehensive reference source for the Mortlock Islands; b) examine and describe the state of freshwater resources and their usage patterns on each island, as well as other relevant lifestyle practices; c) inventory, assess and map the hydrologically significant infrastructure on each island; d) record each island residents' attitudes and other relevant cultural norms, perceptions, behavior and opinions related to freshwater resources; e) Identify and report any critical problems related to freshwater resources.

Information outlined above is urgently needed for the Mortlock Islands. We wish to make it available as information-packed technical reports, supporting databases, and photo and GIS data collections, all readily accessible to government bodies, regulatory and utility agencies, NGOs, research and academic institutions, and the private sector entities involved in the utilization, monitoring, management, and protection of the freshwater resources of Chuuk State.