Island Director’s Workshop/Conference

An effort was made to publish the conference proceedings for selected presentations made at the conference. However, a number of book publishers that were contacted declined, mostly due to the relatively narrow audience of specialized conference proceedings. Effort is underway to publish the proceedings as a Water Resources Research Center’s publication. The selected authors will be contacted about submitting an updated version of their contributions.

Tentative Title
Water Resource Sustainability Issues on Tropical Islands

Editor
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Overview
This volume will include selected papers presented at the Water Resource Sustainability Issues on Tropical Islands conference held in Honolulu, Hawaii, November 14–16, 2011. The issue of sustainability is especially critical for islands due to resource limitation and water vulnerability to contamination. The ever-increasing and competing demands include water supply to urban and rural communities, tourist facilities, industry, and farm animals. Additional non-consumptive uses include hydropower generation, navigation, and recreation. Further, alternative energy sources, such as bio-energy, have added more strain on water resources. Demands are multiplying due to population growth and urbanization. In some cases, water supplies are unable to deliver water on a 24-hour basis due to high leakage and sometimes wastage. The issues related to the coordinated management of surface water and groundwater are of prime importance. Water resources are particularly sensitive to climate change due to islands’ particular nature. Water scarcity and vulnerability to drought, flooding, and other natural disasters considerably increase as island size decreases. Major factors affecting water resources include physical island characteristics, such as size and topography, climate, and human impact. Climate change can lead to further degradation of water quality, which is already a major problem in many islands. Contamination originates from point and non-point sources. Pollution sources include discharges of untreated or partially treated wastewater and animals farms, inadequate solid waste disposal sites, agricultural chemicals, leakage of petroleum products and toxic chemicals, sediment erosion, and saltwater intrusion. The small size and steep slopes of catchments on high islands enable water and pollutants to move quickly to downstream areas. The highly permeable soils and shallow water tables on small coral islands facilitate the rapid migration of pollutants to the subsurface. The reversal of these negative impacts is difficult and time consuming. Pollution affects human health due to microbiological contamination and elevated chemical levels in water supplies. High turbidity and suspended solids are experienced by consumers after periods of heavy rainfall. The effectiveness of water supply intakes and treatment systems is compromised by high-suspended sediment loads, leading to higher costs of providing clean, safe water supplies. Sedimentation in water supply reservoirs and rivers lead to disturbances in upstream catchments. Finally, sediments, bacteria, and chemicals are negatively affecting riverine and coastal environments. The conference presentations, addressing the issues outlined above, are grouped in sessions covering wastewater, flooding, climate, water supply and management, groundwater recharge, surface water and groundwater quality, water for energy, and submarine water discharge. Although most of the presentations are related to tropical
in some method-oriented presentations were included that could be applied to these islands as well.