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**Watershed Restoration by using Vetiver Grass Systems for Downstream
Water Quality Improvement in Southern Guam**

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Abstract:

Soil erosion and sedimentation, as the result of the runoff is the principle anthropogenic water pollutant and a threat to the coral reefs in the Pacific Island of Guam. Sever soil erosion as the result of forest burning and mismanaged land resources not only is the major cause of land degradation of Guam's landscapes but sediment loss due to erosion from the watersheds, ranches and farmlands clogs rivers, lakes, waterways and more importantly damages the coral reef that is the major attraction for the tourism industry in Guam. Sediment loss also reduces the water storage capacity of reservoirs and canals and increases flooding. In this project Vetiver grass technology is used as a watershed management technique to mitigate the sediment loading and improve the water quality downstream hence better the health of reef ecosystem of the Island. Four flumes (72ft X 4ft) are installed on a uniformly sloped selected watershed area to measure the runoff and estimate the sedimentation rate under four different treatments. Treatments are: a) "as it is condition", 2) completely exposed condition, 3) "burned surface" and finally 4) establishment of "Vetiver Technology" as the sediment trap technology. Sets of suspended runoff/sediment samplers are constructed in a runoff-collecting tank placed at the bottom of each flume (treatment plots) for the measurement of sediment discharge as well as for runoff assessment. Samples are used to measure the turbidity and the amount of sediment collected under each treatment for assessing the sedimentation level and for evaluating the effect of Vetiver Grass Systems (VGS) as an erosion control Technology.

Key Words: Vetiver Grass Technology, Erosion Control, Sedimentation, Water Quality, Watershed Management, Environmental Quality

Impact Statement:

This project has already had major impact by implementing the technique developed in this project by some agencies in Guam for protecting the water resources in southern Guam

Category: Watershed Assessment and Restoration
Type of Presentation: Oral Presentation