

Climate Change Studies and Environmental Monitoring in Antarctica

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Abstract—*The Larsemann Hills is an ice-free coastal oasis with exposed rock and low rolling hills. The Larsemann Hills contain hundreds of freshwater lakes of varying sizes, depth and biodiversity. An environmental study was being conducted at Larsemann Hills in East Antarctica to evaluate the climate change scenario using the monitoring of Ambient air quality, Lake and Sea water quality, soil and sediment characteristics, Noise level, solid waste generation, handling and disposal practices, etc. Geographically, the study area (Bharti Island) is situated on Latitude 69° 24' 00.0" S and 76° 10' 00.0" E on southern part of the Earth. Air, water, soil and sediment samples were collected from various locations of different Islands/Peninsulas like Bharti Island, Fisher Island, McLeod Island, Broknes peninsula and Stornes peninsula.*

The main aim of this study was to assess the general characteristics, metal content, pesticide, radiation contamination and bacteriological analysis of water, soil and sediment. The air quality of different islands was also conducted to assess the level of particulate matter, oxides of nitrogen, sulphur dioxide, carbon monoxide and volatile compounds in air. The present work was aimed towards developing base line data for the local environmental settings and to evaluate the impacts of various activities on the environmental components in east Antarctica and its possible role in climate change studies.

Keywords: *Antarctica, climate change, environmental monitoring, water quality, environmental components*