DEVELOPMENT OF PRACTICAL SPATIAL DATA APPLICATIONS FOR WATER MANAGEMENT

By

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ABSTRACT

Planning for any development concepts are overwhelmed with complex and varied diversities of requirements creating a situation where decision makers and implementers have to analyze considerable amount of data sets before implementing any such plans.

Land and water are limited scarce resources. The proper management of these resources can be greatly facilitated by the use of GIS and spatial statistical methodologies. However, the discipline of spatial statistics has not developed well in Sri Lanka. In order to fill the vacuum of knowledge it was decided to compile various spatial statistical techniques available and describe those using local examples especially they are related to water management.

Background of spatial statistics with some reference to present need of spatial statistical techniques used to capture the natural variability is discussed in the ten chapters of the thesis. Spatial statistical techniques such as central tendency, spatial distribution of spatial data, spatial sampling techniques, bivariate observations in spatial phenomena, spatial autocorrelation, time series analysis, and few spatial statistical problems are discussed in detail. Development of these practical examples was difficult due to lack of already worked out examples under local conditions. Most of these examples are developed hypothetically and may not work out as it is in the field. Hence, it is advisable to use appropriate statistical techniques when and where necessary according to actual field conditions.