

**Application of Geographic Information  
Systems for Government School Sites  
Selection**

by

**K. D. Nethsiri Jayaweera**

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# **Application of Geographic Information Systems for Government School Sites Selection**

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K. D. Nethsiri Jayaweera

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## DECLARATION

The work described in this thesis was carried out by me under the supervision of Associate Professor Mrs. T.M.S.P.K Thennakoon, Department of Geography, University of Sri Jayewardenepura and Mr. H.H. Leelananda, Teaching Faculty Member of the M.Sc. Degree in GIS and Remote Sensing, Director Land Use Planning, Mahaweli Authority of Sri Lanka and confirm that this has not been submitted in whole or in part to any university or any other institution for another Degree or Diploma.

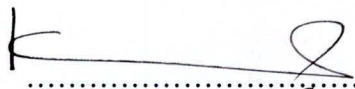
  
.....  
(Signature of the Candidate)

Mr. Nethsiri Jayaweera


2017/6/15  
.....  
Date

## APPROVAL OF THE SUPERVISORS

We certify that the above statement made by the candidate is true and that this thesis is suitable for submission to the University for the purpose of evaluation.

  
.....  
Prof. Mrs. T.M.S.P.K. Thennakoon  
Department of Geography  
University of Sri Jayewardenepura  
Sri Lanka

2014.06.15  
.....  
Date

  
.....  
Mr. H.H. Leelananda  
Director Land Use Planning  
Mahaweli Authority of Sri Lanka  
Sri Lanka

2014/06/15  
.....  
Date

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## LIST OF ABBREVIATIONS

AHP	- Analytical Hierarchy Process
DESL	- Department of Education Sri Lanka
DSD	- Divisional Secretariat Division
ESRI	- Environmental Systems Research Institute
GIS	- Geographic Information System
GND	- Grama Niladhari Division
HSEB	- Higher Secondary Education Board
IT	- Information Technology
MCDA	- Multi Criteria Decision Analysis
MCDM	- Multi Criteria Decision Making
MESL	- Ministry of Education Sri Lanka
RS	- Remote Sensing

**Application of Geographic Information Systems for Government School  
Sites Selection.**

**Mr. Kuda Durage Nethsiri Jayaweesa**

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**ABSTRACT**

The application of GIS has become more popular among the policy planners and decision makers of the education sector in many countries. GIS application in the education sector has several advantages such as effective education planning and more particularly in the estimation of numbers and identification of site for the location of new schools. In Sri Lanka today defining the school catchment area and determining the shortest and safest school route is one of the problems facing education authorities at present.

The purpose of this study was to develop a public school site selection model using Graphical Information Systems (GIS) integrated new approach. The study has used GIS based MCDA technology to improve the accuracy of school site selection model. The model appeals to school development planners as well as to the education decision makers and higher authorities of the school education system in both local and central governments who seeking the optimum selection of the site of a public school facility in the country of their competence.

The first step of the study focuses to evaluate the existing school system of the country and also the study area. It was most important to identify and analyze the current situation of the resource allocation to schools and the school education planning system in the area. Secondly, the collected data was analyzed in order to identify of the potential school sites for developing as national level based on geospatial technology using the ArcGIS Software tools.

Next, developed model was applied to determine the suitable school sites for development in the study area. As a result, it was possible to identify most suitable two sites for locating principal schools for the area. According to the evaluation of the current development project locations, there is considerable evidence that because of

poor geographical accessibility, current school development project does not reach the equitable quality education access to the population in the study area.

This study reveals the consideration factors of education system for equality resource allocation process to optimum and sustainable development within the society. Hence, this model can be used for any spatially related resource allocation applications by changing parameters based on concerning subject. The study is very opportune and timely as GIS application used for education sector development is very rare in Sri Lanka. Therefore, the present research would be an offer for the use of GIS application in the education sector in Sri Lanka.

**Key Words:** GIS, Education, Multi Criteria Decision Analysis, MCDM,