ENVIRONMENTAL QUALITY OF SAVAR POURASAVA: A GEOGRAPHICAL ANALYSIS

M. PHIL. THESIS

SUBMITTED BY

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Declaration

I do hereby declare that the research work done by me entitled, 'Environmental Quality of Savar Pourasava: A Geographical Analysis' is an original work for the degree of Master of Philosophy (M.Phil.) under the supervision of Md. Sofi Ullah, Associate Professor, Department of Geography and Environment, University of Dhaka..

This thesis or any part of it has not been previously submitted elsewhere for the award of any Degree, Diploma or Certificate.

_____

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Certificate of Supervisor

The thesis titled 'Environmental Quality of Savar Pourasava: A Geographical Analysis' is submitted by Tahera Dil Afroz, Registration No: 089, Session: 2012-2013 has been accepted as satisfactory in partial fulfillment of the requirements for the degree of Master of Philosophy (M.Phil.) from the Department of Geography and Environment, University of Dhaka.

This research work has been carried out under my supervision.

Supervisor (Md. Sofi Ullah)
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Dedication

This thesis is dedicated to my respected parents who always give their effort in every step of my success

Abstract

The study aims at identifying the overall environmental quality of Savar Pourasava. Different types of environmental pollution are recognized along with their major causes and levels of severity. With the increasing amount of urban sprawl of Dhaka in recent years, the peripheral cities around Dhaka are increasingly becoming urbanization and industrialization hotspots. There is however a deterioration of overall environmental quality accompanied with the fast development. The overall quality of air, water, soil and also the sound level were also assessed as part of the study. The study tried to recognize the major parameters of environmental quality by assessing their causes and assessing the level of severity. The spatial distribution of severity of these parameters was also recognized as part of the findings.

The overall methodology followed a series of steps including both collection of primary and secondary data. Primary data collection was conducted by a detailed questionnaire survey to assess the levels of severity, the types of pollutions and their associated environmental impacts. A sample size of 267 questionnaire surveys was estimated keeping a 95% confidence limit and error of 6%.

Land use change analysis between 1981 to 2017 was generated using satellite image classification. Spatial analysis of severity was conducted using two separate weighted overlay techniques, firstly using equal weights for all pollutions and secondly using weight according to the causal factors of pollution.

Major results of the study may be summarized as follows. From spatial analysis of severity, it is seen that ward numbers 1, 6 and 9 are most susceptible to pollution with severity levels of 4 in a 1 to 5 scale, that indicates that these wards have high levels of severity. The overall distribution shows that the wards that are on the peripheral area of the Pourasava have higher levels of pollution. From Land use change analysis it is seen that both the amounts of vegetation and water in the area has decreased by 35% and 23% respectively between 1981 and 2017. Therefore, the study first identified the environmental problem and then further identified the particular environmental problems in details.According to the assessment of people's perception, the level of water, air, sound and soil pollutions is increasing in the Pourasava. Disposal of solid waste, chemical disposals and also leakages in sewerage lines have been identified as key causes of water pollution. Open incineration and solid waste disposal are identified to be key reasons for air pollution. Faulty vehicles and hydraulic horns contribute most to sound pollution. Land fill sites are identified to cause the greatest amounts of soil pollution. Detergent production industries and dyeing industries are identified as causing the maximum pollution from industries. The study shall help with ward-level plans for promoting sustainable development in Savar Pourasava.

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ABBREVIATIONS

SPARRSO	:	Bangladesh Space Research and Remote sensing Organization
GIS	:	Geographic Information System
RS	:	Remote Sensing
LANDSAT	:	Land Satellite
TM	:	Thematic Mapper
BBS	:	Bangladesh Bureau of Statistics
SPSS	:	Statistical Package for Social Science
BAEC	:	Bangladesh Atomic Energy Commission
DB	:	Decibel
WHO	:	World Health Organization
DOE	:	Department of Environment
HEI	:	Health Effects Institute
IHME	:	Institute for Health Metrics and Evaluation
AQI	:	Air Quality Index
USEPA	:	United States Environmental Protection Agency
BOD	:	Biological oxygen demand
COD	:	Chemical oxygen demand
IEE	:	Initial Environmental Examination or Evaluation
IUCN	:	International Union for Conservation of Nature
NGO	:	Non-government Organization
EIA	:	Environment Impact Assessment

EIS	:	Environment Impact Statement
UNB	:	United News of Bangladesh
HEI	:	Health Effects Institute
SDG	:	Sustainable Development Goals
ETP	:	Effluent Treatment Plants
WASA	:	Water and Sewerage Authority
IAEA	:	International Atomic Energy Agency
AIS	:	Agriculture Information Service
FAO	:	Food and Agriculture Organization
EPA	:	Environmental Protection Agency