Chapter One

Disease Ecology:
Basic Concepts and Review of Earlier Literature

1.1 Introduction 1
1.2 Mosquito-Related Factors 3
1.3 Man-made Environmental Factors 4
1.4 Mosquito Survival 4
1.5 Malaria incidences 5
1.6 Vector breeding sites 6
1.7 Larval Habitat and Survival 7
1.8 Effective Vector Characteristics 8
1.9 Environmental conditions for vector survival 9
1.10 Environment and Stimuli concept 12
1.11 Physical Stimuli 13
1.12 Biological Stimuli 15
1.13 Cultural Stimuli 20
1.14 Ecology of Malarial Parasites 21
1.15 Climatic Conditions for Vectors 23
1.16 Altitude and Distribution 24
1.17 Vector Ecological Zones 25
1.18 Mosquito Breeding Sites 25
1.19 Ecological Disturbance 26
1.20 Mapping Vector Zones by Remote Sensing Technology 27
1.21 Vector Behaviour 27
1.22 Malaria Transmission 29
1.23 Filariasis 29
1.24 Japanese Encephalitis 31
1.25 Ecological and Environmental Factors for New Vector 32
1.26 Public Health 33
1.26.1 Positive Health 34
1.27 Conceptual Framework 35
1.28 Review of Earlier Literature 35
1.29 Statement of the problem 46
1.30 Aim and objectives 47
1.31 Methodology 48
1.32 Techniques of analysis 50

Chapter Two

Profile of the Study Area and Disease Ecology

2.1 Introduction 51
2.2 Historical background 51
2.3 Geological Structure of Ariyalur 53
2.4 Climate 54
2.5 Population growth 55
2.6 Literacy rate: 2001 60
2.7 Morbidity Pattern 62
2.8 Mortality Pattern 63
2.9 Health care 64
2.10 Agriculture 66
2.11 Transportation 66
2.12 Regulated Markets 66
2.13 Soils 68
Chapter Three
Satellite Remote Sensing to Identify Disease Ecological Zones

3.1 Introduction
3.2 Background
3.3 Remote sensing
3.4 Current Remote Sensing Systems
3.5 Application of remote sensing data in disease vector surveillance
3.6 Predictive Studies
3.7 Malaria
3.8 African Trypanosomiasis
3.9 Lyme disease
3.10 Riceland Mosquito Studies
3.11 Tracking Environmental Viable Zones in Ariyulur and Environs
3.12 Tracking Ecological Problem areas in Ariyalur using Remote Sensing Digital Data
3.13 Pig Shed Locations: Integration with GPS Data

Chapter Four
Environmental Quality of Life: People's Perception

4.1 Health and Environment
4.2 Food Hygiene
4.3 Health Behaviours
4.4 Traffic pollution monitoring
4.5 Water Quality
4.6 Health and Socioeconomic Circumstances
4.6.1 Education
4.6.2 Employment
4.6.3 Families on benefits/low incomes
4.6.4 Housing
4.7 Socioeconomic and Health Inequalities
4.8 Dimensions of Quality of Life in Ariyalur Town
4.9 Factor Analytic Model
4.10 Factor Dimensions
4.10.1 Dimension I: Socio-economic status of the family
4.10.2 Dimension II: Residential Environmental Quality
4.10.3 Dimension III: Quality of Life Nearby
4.10.4 Dimension IV: Problem of Solid waste
4.10.5 Dimension V: Perception about the Mosquito related problem
4.10.6 Dimension VI: Women and Child Health care
4.11 Grouping the Environmental Quality Variables in Ariyalur: A Cluster Analysis