

CONTENTS

	Page No.
PREFACE	I-II
ACKNOWLEDGEMENT	III-IV
CONTENTS	V-IX
LIST OF TABLES	X-XII
LIST OF FIGURES	XIV-XVI
LIST OF MAPS	XVII-XVII
LIST OF PHOTO PLATES	XIX
ABBREVIATIONS	XX-XXI

Chapter: I

Conceptual Framework and Methodology	1-27
1.1. Statement of the Problem	
1.2. Conceptual Framework	
1.3. Review of Literature	
1.3.1. Global Context	
1.3.2. National Context (Nepal)	
1.4. Objectives of the Study	
1.5. Hypotheses	
1.6. Limitations of the Study	
1.7. Research Techniques and Methodology	
1.7.1. Research Process	
1.7.2. Research Design	
1.7.3. Sources of Data	
1.7.4. Methods of Data Collection	
1.7.4.1. Tools of Data Collection	
1.7.4.2. Universe and Samples/ Selection of Study Area	
1.7.4.3. Household Sampling Procedure	

- 1.7.4.4. Sample Size Allocation
- 1.7.5. Data Analysis and Interpretation
- 1.8. Organization of the Study
- 1.9. Signification of the Study

Chapter: II

The Study Region: Physical and Cultural Setting 28-66

- 2.1. Location and Extent
- 2.2. Physical Setting
 - 2.2.1. Topography/ Physiography
 - 2.2.2. Drainage
 - 2.2.3. Soil
 - 2.2.4. Climate
 - 2.2.5. Forest /Natural Vegetation
- 2.3. Socio-cultural Setting
 - 2.3.1. Population
 - 2.3.2. Religion
 - 2.3.3. Language
 - 2.3.4. Ethnicity / Caste
 - 2.3.5. Main Festivals
 - 2.3.6. Land Use
 - 2.3.7. Settlement
 - 2.3.8. Transportation
 - 2.3.9. Regional Economy

Chapter: III

Existing Status of Urban Facilities and Functions 67-122

- 3.1. Physical Infrastructure
 - 3.1.1. Road Facilities
 - 3.1.2. Drinking Water
 - 3.1.3. Air Transport Facilities
 - 3.1.4. Electricity

- 3.1.5.Sewerage Service
- 3.1.6.Communication Facilities
- 3.2.Socio-Economic Infrastructure
 - 3.2.1.Educational Facilities
 - 3.2.2.Health Facilities
 - 3.2.3.Administrative Facilities
 - 3.2.4.Financial and Commercial Institutions
- 3.1.1.Functional Weightage and Hierarchy of Municipality

Chapter: IV

Patterns and Trends of Urbanization 85-122

- 4.1.Urban Growth and Urbanization
- 4.2.Urbanization in Nepal
 - 4.2.1.Changing Definition of Urban Area
 - 4.2.2.Historical Growth of Urban Centers in Nepal
 - 4.2.3.Trends of Urbanization in Nepal
 - 4.2.4.Degree of Urbanization in Nepal
 - 4.2.5.Pace of Urbanization in Nepal
 - 4.2.6. Size Class of Urban Places in Nepal
 - 4.2.7.Spatial Pattern of Nepal
 - 4.2.8.Urbanization by Development Region
 - 4.2.9Urbanization Level by Districts
- 4.3. Urbanization in Far-Western Development Region
 - 4.3.1.Urban Growth and Urbanization
 - 4.3.2.Spatial Pattern of Urbanization
 - 4.3.3.Urbanization by District
 - 4.3.4.Size Class of Urban Places
 - 4.3.5.Ranking of Urban Areas
- 4.4. Urbanization in Far-Western Terai Region
 - 4.4.1.Trends of Growth of Urban Population
 - 4.4.2.Degree of Urbanization



- 4.4.3.Comparative of Urban Growth in Nepal FWT
- 4.4.4.Urban Growth and Development of Urban Places
- 4.4.5.Hierarchy of Urban Places

Chapter: V

Urban-Rural Differences and Transformation

123-152

- 5.1. Demographic Differences
 - 5.1.1.Population Growth
 - 5.1.2. Household Size and Population
 - 5.1.3. Sex Ratio
 - 5.1.4. Population Distribution and Density
 - 5.1.5. Age Composition of Population
 - 5.1.6. Dependency Ratio
- 5.2. Socio-Cultural Differences
 - 5.2.1.Religion
 - 5.2.2.Caste and Ethnicity
 - 5.2.3.Family Types
 - 5.2.4.Family Size
 - 5.2.5.Literacy
 - 5.2.6.Drinking Water
 - 5.2.7.Source of Lighting
 - 5.2.8.Use of Cooking Fuel
 - 5.2.9.Toilet Facilities
 - 5.2.10. Other Facilities
- 5.3.Economic Differences
 - 5.3.1.Source of Income
 - 5.3.2.Family Income
 - 5.3.3.Economically Active Population
- 5.4.Rural Transformation and Emerging Urban Centre

Chapter:VI

Urban Structure and Morphology

153-183

- 6.1. Urban Land Use
- 6.2. Bhimdatt Municipality
 - 6.2.1. Setting and Origin
 - 6.2.2. Population Growth and Distribution
 - 6.2.3. Land Use and Morphology of Bhimdatt Municipality
- 6.3. Dhangadi Municipality
 - 6.3.1. Setting and Origin
 - 6.3.2. Population Growth and Distribution
 - 6.3.3. Land Use and Morphology of Dhangadi Municipality
- 6.4. Tikapur Municipality
 - 6.4.1. Setting and Origin
 - 6.4.2. Population Growth and Distribution
 - 6.4.3. Land Use and Morphology of Tikapur Municipality
- 6.5. Factors Affective Land Use and Morphology of Urban Areas

Chapter: VII

Urban Environmental Status and Change

184-197

- 7.1. Urban Environmental Status Evaluation: A Case of Nepal
- 7.2. Far-Western Development Region
 - 7.2.1. Physical Environment
 - 7.2.2. Socio-Cultural Environment
- 7.3. Environmental Situation and Problems in Far-Western Terai
 - 7.3.1. Forest Degradation
 - 7.3.2. Land Fragmentations
 - 7.3.3. Air Pollution
 - 7.3.4. Water Pollution
 - 7.3.5. Slums
 - 7.3.6. Solid Waste Generation
- 7.4. Perception about Environmental Pollution
- 7.5. Types of Pollution
- 7.6. Causes of Environmental Pollution

Conclusions, Findings and Recommendations	198-207
Bibliography	209-219
Annexure- I,II& III	220-231

LIST OF TABLES

Table No.	Description
1.1.	Selected Wards of the Study Area
1.2.	Sample Size Allocation of the Study Area,2001
2.1.	Characteristics of Physiographic Regions of Nepal
2.2.	Main Rivers in Far-Western Terai
2.3.	Lakes and Pounds of Far-Western Terai
2.4.	Mean Temperature and Rainfall Far-Western Terai
2.5.	Season-wise Average Temperature and Rainfall
2.6.	Population Size, Growth Rates, Doubling Time and PopulationDensity
2.7.	Population Composition by Age and Sex in Far-western Terai, 2011
2.8.	Population Distribution of VDCs and Municipalities in Far-Western in Terai, 2011
2.9.	Population Composition of Far-Western Terai by religion, 2011
2.10.	Population Composition of Far-Western Terai by Language, 2011
2.11.	Ethnic Composition of Far-Western Terai, 2011
2.12.	General Land Use Pattern of Far-Western Terai, 1998
2.13.	Road Types and Length in Far-Western Terai
2.14.	Some Important Roads Links in Far-Western Terai
2.15.	Estimated Area under Food Crops and Production in Far-westernTerai
3.1.	Municipality -wise Road Length
3.2.	Municipality -wise Road Density
3.3.	Drinking Water in Urban Area of Far-Western Terai
3.4.	Distribution of Sampled Households by Various Sources of Drinking byMunicipality

- 3.5. Division of Airports in Far-Western Terai
- 3.6. Municipality -wise Status of Electricity Facilities
- 3.7. Urban Sewerage Services by Municipal
- 3.8. Number of Telephones and Related Facilities
- 3.9. Municipality -wise Other Communication Facilities
- 3.10. Municipality- wise Number of Educational Institutions
- 3.11. Municipality -wise Number of Health Institutions
- 3.12. Municipality- wise Health Workers
- 3.13. Municipality -wise Number of Administrative Office
- 3.14. Municipality -wise Number of Banks in Far-Western Terai
- 3.15. Criteria of Classification of Banks and Financial Institutions in Nepal
- 4.1. Nepal: Changing Definition of Urban Area (1952/54 to 2011)
- 4.2. Categorization of Designated Urban Areas by Local Self Governance 1999
- 4.3. Population of Nepal by Residence
- 4.4. Degree of Urbanization
- 4.5. Annual Growth Rates of Population by Residence
- 4.6. Number of Urban Centers and Per cent of Urban Population by Size Class
- 4.7. Distribution Urban Population and Urban Places by Geographical Region inNepal
- 4.8. Distribution of Urban Population by Development Region (2014)
- 4.9. Level of Urbanization Development Region.
- 4.10. Urbanization Level by Districts of Nepal 2014
- 4.11. Urban Population of Far-Western Development Region (2001 to 2014)
- 4.12. Urban Population Growth in Inter-censusPeriod (1981-2014)
- 4.13. Urban Population Distribution by Ecological Area in 2014
- 4.14. Ecological Distribution Pattern of Urban Areas

- 4.15. District-wise Urbanization (2014)
- 4.16. Size Class Distribution of Urban Areas and Population (2014)
- 4.17. Change in Ranking of Urban Areas (1981-2014)
- 4.18. Trends and Growth of Urban Population and Centers in Far-Western Terai
- 5.19. Population Change in Far-Western Terai 1981-2011
- 4.20. Degree of Urbanization and Rural Urban Ratio
- 4.21. Comparison of Annual Urban Population Growth Rates
- 4.22. Urban Places and Population Growth
- 4.23. Urban Area and Their Population in Far-Western Terai
- 4.24. Size Class and Number of Urban Places on Far-Western Terai
- 4.25. Changing Hierarchy of Urban Municipalities
- 4.26. Urban Population and Density
- 5.1. Population Growth Rates in Far-western Terai
- 5.2. Average Households Size of Sampled Areas
- 5.3. Rural-Urban Sex Ratio
- 5.4. Rural-Urban Population Distribution and Density
- 5.5. Rural-Urban Population by Age Group in Far-western Terai
- 5.6. Rural-Urban Dependency Ratio
- 5.7. Rural-Urban Households by Religions
- 5.8. Rural-Urban Households by Caste and Ethnicity
- 5.9. Rural-Urban Households by Family Type
- 5.10. Rural-Urban Family Size
- 5.11. Rural-Urban Literacy Rates in %
- 5.12. Sex wise Rural-Urban Literacy Rate in %
- 5.13. Distribution of Households by Sources of Drinking Water
- 5.14. Households by Sources of Lighting
- 5.15. Households by Usual Type of Fuel Used for Cooking
- 5.16. Households by Usually Toilet Facilities

- 5.17. Households by Using Other Facilities
- 5.18. Number of Households and Their Main Sources of Incomes
- 5.19. Family Income(per month in Nepalese Rupees)
- 5.20. Economic Activity Rate by Urban and Rural Population
- 5.21 Rural Transformation and Emerging Urban Centres
in Far-Western Terai
- 6.1. Population Growth of Bhimdatt Municipality
- 6.2. Land Use of Bhimdatt Municipality
- 6.3. Population Growth of Dhangadi Municipality
- 6.4. Land Use of Dhangadi Municipality
- 6.5. Land Use of Tikapur Municipality
- 7.1. Waste Generation by Urban Areas of Nepal
- 7.2. Change of Forest Area in Far-Western Terai
(area in ha.)
- 7.3, Number of Vehicles Registered in Far-Western Terai
- 7.4. Slum Dwellings of Far-Western Terai
- 7.5. Solid Waste Generation in Municipality
- 7.6. Perception about Environmental Pollution
- 7.7. Types of Environmental Pollution

LIST OF FIGURES

Figure No.	Description
2.1.	Mean Monthly Temperature and Rainfall 2011
2.2.	Season wise Temperature and Rainfall 2011
2.3.	Population Size (1951-2011)
2.4.	Population Pyramid
2.5.	Population Composition by Religion
2.6.	Population Composition by Language
2.7.	Population Composition by Caste
2.8.	Land Use Pattern
2.9.	Road Types and Length
3.1.	Municipality-wise Road Length and Class
3.2.	Municipality- wise Road Density
3.3.	Sources of Drinking Water in Urban Area
3.4.	Sources of Drinking Water in Municipality
3.5.	Municipality-wise Status of Electricity Facilities
3.6.	Length of Sewerage Service by Municipality
3.7.	Telephone and Related Facilities
3.8.	Municipality- wise Population and Health Workers
3.9.	Municipality -wise Number of Administrative Office
3.10.	Municipality -wise Number of Banks
4.1.	Population of Nepal
4.2.	Degree of Urbanization
4.3.	Pace of Urbanization in Nepal
4.4.	Urban Population by Development Region, 2014
4.5.	Development Region-wise Total Population and Urban Population, 2014
4.6.	Total Population and Urban Population of FWDR

- 4.7. Increasing Trends of Urban Population
- 4.8. Distribution of Total and Urban Population by Ecological Region, 2014
- 4.9. Urban Places in Different Ecological Region
- 4.10. District-wise Total and Urban Population
- 4.11. Size Class Distribution of Urban Area
- 4.12. Trends of Rural, Urban and Total Population Growth
- 4.13. Trends of Total Population and Urban Population GrowthRate
- 5.14. Degree of Urbanization
- 4.15. Annual Urban Growth Rates
- 4.16. Urban Population Growth
- 4.17. Municipality-wise Areas and Population Density
- 5.1. Population Growth Rate
- 5.2. Rural-Urban Sex Ratio
- 5.3. Rural-Urban Population Density
- 5.4. Urban Population Pyramid
- 5.5. Rural Population Pyramid
- 5.6. Rural-Urban Dependency Ratio
- 5.7. Rural-Urban Difference by Religions
- 5.8. Rural-Urban Difference by Caste
- 5.9. Rural-Urban Difference by Family Types
- 5.10. Rural-Urban Literacy Rates
- 5.11. Sources of Drinking Water
- 5.12. Sources of Lighting
- 5.13. Fuel Used to Cooking
- 5.14. Toilet Facilities
- 5.15. Using Different Facilities
- 5.16. Sources of Income
- 5.17. Family Income
- 6.1. Population Growth in Bhimdatt Municipality
- 6.2. Land Use Pattern ofBhimdatt Municipality

- 6.3. Population Growth in Dhangadi Municipality
- 6.4. Land Use Pattern of Dhangadi Municipality
- 6.5. Land Use Pattern of Tikapur Municipality
- 7.1. Waste Generation by Urban Areas of Nepal
- 7.2. Change of Forest Area in Far-Western Terai
- 7.3. Number of Vehicles in Far-Western Terai
- 7.4. Municipality-wise Solid Waste Generation
- 7.5. Perception about Environmental Pollution
- 7.6. Types of Environmental Pollution

LIST OF MAPS

Map No.	Description
2.1.	Location Map
2.2.	Topographic Map
2.3.	Drainage Map
2.4.	Land Use Map
2.5.	Settlement Map
2.6.	Transportation Map
3.1.	Nepal Urban Centre
3.2.	Urban Centre (including proposed in 2014)
3.3.	Urban Centre of Far-Western Development Region
3.4.	Urban Centres of FWDR (including proposed in 2014)
3.5.	Far-Western Terai Urban Centres
3.6.	Terai Urban Centres (including Proposed in 2014)
3.7.	Far-Western Terai Urban Population
6.1.	Map of BhimdattMunicipality
6.2.	Population Density of BhimdattMunicipality
6.3.	Existing Land Use of BhimdattMunicipality
6.4.	Residential Area
6.5.	Commercial Area
6.6.	Administrative Area
6.7.	Educational Area
6.8.	Religious and Tourist Places
6.10.	Map of Dhangadi Municipality
6.11.	Population Density of DhangadiMunicipality
6.12.	Existing Land Use of DhangadiMunicipality
6.13.	Residential Area

- 6.14. Commercial Area
- 6.15. Administrative Area
- 6.16. Educational Area
- 6.16. Map of Tikapur Municipality
- 6.17. Population Density Tikapur Municipality
- 6.18. Existing Land Use of Tikapur Municipality
- 6.19. Residential Area
- 6.20. Commercial Area
- 6.21. Administrative Area
- 6.22. Educational Area

LIST OF PHOTO PLATES

Table No.	Description
2.1	Maghi Festival of ChaudharyTharu
2.2	Dance of RanaTharu
2.3	Dance of DangaraTharu in Maghi Festival
2.4.	Gaura Festival of Brahman and Chhetri
2.5.	Gaura Festival of Brahman and Chhetri
2.6.	Panche Baja of FWDR
2.7	Panche Baja of FWDR
2.8.	Deauda Dance of FWDR
2.9.	Gaura Dance of Women in FWDR
2.10.	Dhangadi Municipality
2.11.	DhangadiBajar
2.11.	Google Photo of Dhangadi
2.12.	Bhimdatt Municipality
2.13.	Bhimdatt Municipality
2.14.	Bhimdatt Main Market
2.15.	BhimdattBuspark Area
2.16.	Tikapur Main Market Area
2.17.	Tikapur Park Area
5.1.	Belauri Market
5.2.	Attariya Market
5.3.	Attraiya Market Google Photo
5.4.	Lamki Market

ABBREVIATIONS

CBS	=	Central Bureau of Statistics
AD	=	Anno Domini
PRB	=	Population Reference Bureau
CBD	=	Central Business District
GIS	=	Geographical Information System
RS	=	Remote Sensing
VDC	=	Village Development Committee
DDC	=	District Development Committee
FWT	=	Far-Western Terai
FDR	=	Far-Western Region
CDR	=	Central Development Region
WDR	=	Western Development Region
FWDR	=	Far-Western Development Region
Sq.	=	Square
Km	=	Kilometer
HHs	=	Households
No.	=	Number
Mt.	=	Mount
LRMP	=	Land Resource Mapping Project
NP	=	Nagar Palika
DC	=	Degree Centigrade
MM	=	Millimeters
M. Ton	=	Metric tons
he.	=	Hectare
WHO	=	World Health Organization
BTR	=	Black Toppled Road
GR	=	Graveled Road
ER	=	Earthen Road

TR	=	Total Road
MD	=	Doctor of Medicine
MBBS	=	Bachelor of Medicine Bachelor of Surgery
CDMA	=	Code Division Multiple Access
GSM	=	Global System Mobile
ADSL	=	Asymmetric Digital Subscriber Line
FM	=	Frequency Modulation
RGTP	=	RateofGrowth Total Population
RGUP	=	Rate of Growth Urban Population
RGRP	=	Rate ofGrowth Rural Population
U/R	=	Urban / Rural
T.V.	=	Television
NC	=	Nepali Currency
ADB	=	Asian Development Bank