

TEXT BOOK

2008

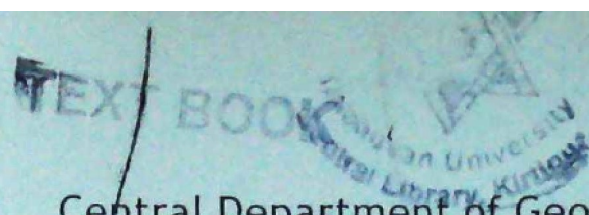


Master level

Syllabus

Geography





N. K. Singh

Central Department of Geography  
Tribhuvan University

Master's Degree in Geography  
Course Structure  
2008/2009 (2065)



Introduction

The courses of Master's degree in Geography consist of two major types: Compulsory or required and Optional. The students are required to take 10 courses, each with 100 full marks. All students must take compulsory courses, whereas optional courses are offered to the students as suggested by the Department. Compulsory and optional courses are given in the table below.

Admission Criteria

Students should have successfully completed three years Bachelors' degree from a recognized university with Geography as their major or Bachelor's degree in any disciplines recognized by the Tribhuvan University shall be considered eligible to apply for admission to M.A. geography degree course. Other requirements are as per the Tribhuvan University rules.

As per the Tribhuvan University rules, an applicant seeking admission to M.A. Geography must appear in an Entrance Examination of two hours-duration conducted by the Central Department of Geography/Campus. The applicant who fails to appear in the Entrance Examination or to obtain a minimum qualifying score will not be given admission. Admission of the students will be based strictly on the merit list and on the enrollment capacity of the Central Department of Geography or Campus.

Duration of the Course and Examinations

The duration of the course is of two years and there is a university examination at the end of each year. Seventy percent attendance in the class is compulsory.

According to the Examination Section of the Tribhuvan University, the students passed their two years of study will be graded on the basis of the two years' average marks, as follows:

- |                      |   |                 |
|----------------------|---|-----------------|
| 75 percent and above | - | Distinction     |
| 60 percent and above | - | First Division  |
| 50 percent and above | - | Second Division |
| 40 percent and above | - | Third Division  |



FIRST YEAR:

| Paper | Code No. | Subject | Full Marks |
|-------|----------|---------|------------|
|-------|----------|---------|------------|

Compulsory (Required) Courses

|    |          |                                              |     |
|----|----------|----------------------------------------------|-----|
| I  | Geog 531 | Modern Geographical Thought                  | 100 |
| II | Geog 532 | Research Techniques and Quantitative Methods | 100 |

Optional Courses (Any One)

|     |            |                                  |     |
|-----|------------|----------------------------------|-----|
| III | Geog 533-1 | Physical Geography               | 100 |
|     | Geog 533-2 | Mountain Landforms and Processes | 100 |

Optional Courses (Any One)

|    |            |                               |     |
|----|------------|-------------------------------|-----|
| IV | Geog 534-1 | Human Settlements and Ecology | 100 |
|    | Geog 534-2 | Human Ecology                 | 100 |

Optional Courses (Any One)

|   |            |                                               |     |
|---|------------|-----------------------------------------------|-----|
| V | Geog 535-1 | Geographic Information Systems                | 100 |
|   | Geog 535-2 | Agricultural Transformation and Food Security | 100 |
|   | Geog 535-3 | Advanced Political Geography                  | 100 |
|   | Geog 535-4 | Advanced Population Geography                 | 100 |
|   | Geog 535-5 | Rural Land Use Planning (to be developed)     | 100 |



SECOND YEAR:

| Paper | Code No. | Subject | Full Marks |
|-------|----------|---------|------------|
|-------|----------|---------|------------|

Compulsory (Required) Courses

|    |          |                                          |     |
|----|----------|------------------------------------------|-----|
| VI | Geog 536 | Workshop on Geographic Problems of Nepal | 100 |
|----|----------|------------------------------------------|-----|

Optional Courses: Any One

|     |            |                                                      |     |
|-----|------------|------------------------------------------------------|-----|
| VII | Geog 537-1 | Regional Development Planning and Techniques         | 100 |
|     | Geog 537-2 | Geography of Tourism                                 | 100 |
|     | Geog 537-3 | Rural Development Planning-I                         | 100 |
|     | Geog 537-4 | Geography of Transportation (to be developed)        | 100 |
|     | Geog 537-5 | Local Governance and Public Policy (to be developed) | 100 |

Optional Courses: Any One

|      |            |                                                     |     |
|------|------------|-----------------------------------------------------|-----|
| VIII | Geog 538-1 | Remote Sensing                                      | 100 |
|      | Geog 538-2 | Mountain Climate and Hydrology                      | 100 |
|      | Geog 538-3 | Biogeography                                        | 100 |
|      | Geog 538-4 | Glacial & Periglacial Environment (to be developed) | 100 |
|      | Geog 538-5 | Landscape Ecology (to be developed)                 | 100 |

Optional Courses: Any One

|    |            |                                              |     |
|----|------------|----------------------------------------------|-----|
| IX | Geog 539-1 | Natural Resources & Environmental Management | 100 |
|    | Geog 539-2 | Urban Planning and Management                | 100 |
|    | Geog 539-3 | Climate Change and Human Adaptation          | 100 |
|    | Geog 539-4 | Rural Development Planning-II                | 100 |
|    | Geog 539-5 | Population, Environment and Development      | 100 |

Optional Courses: Any One

|   |            |                                            |     |
|---|------------|--------------------------------------------|-----|
| X | Geog 540-1 | Thesis                                     | 100 |
|   | Geog 540-2 | Gender and Development                     | 100 |
|   | Geog 540-3 | Project Cycle Management (to be developed) | 100 |



### Compulsory Courses

|          |                                              |     |
|----------|----------------------------------------------|-----|
| Geog 531 | Modern Geographical Thought                  | 100 |
| Geog 532 | Research Techniques and Quantitative Methods | 100 |
| Geog 536 | Workshop on Geographic Problems of Nepal     | 100 |

### Optional Courses

|            |                                                     |     |
|------------|-----------------------------------------------------|-----|
| Geog 533-1 | Physical Geography                                  | 100 |
| Geog 533-2 | Mountain Landforms and Processes                    | 100 |
| Geog 534-1 | Human Settlements and Ecology                       | 100 |
| Geog 534-2 | Human Ecology                                       | 100 |
| Geog 535-1 | Geographic Information Systems                      | 100 |
| Geog 535-2 | Agricultural Transformation and Food Security       | 100 |
| Geog 535-3 | Advanced Political Geography                        | 100 |
| Geog 535-4 | Advanced Population Geography                       | 100 |
| Geog 535-5 | Rural Land Use Planning (to be developed)           | 100 |
| Geog 537-1 | Regional Development Planning and Techniques        | 100 |
| Geog 537-2 | Geography of Tourism                                | 100 |
| Geog 537-3 | Rural Development Planning-I                        | 100 |
| Geog 537-4 | Geography of Transportation (to be developed)       | 100 |
| Geog 537-5 | Local Governance & Public Policy (to be developed)  | 100 |
| Geog 538-1 | Remote Sensing                                      | 100 |
| Geog 538-2 | Mountain Climate and Hydrology                      | 100 |
| Geog 538-3 | Biogeography                                        | 100 |
| Geog 538-4 | Glacial & Periglacial Environment (to be developed) | 100 |
| Geog 538-5 | Landscape Ecology (to be developed)                 | 100 |
| Geog 539-1 | Natural Resources & Environmental Management        | 100 |
| Geog 539-2 | Urban Planning and Management                       | 100 |
| Geog 539-3 | Climate Change and Human Adaptation                 | 100 |
| Geog 539-4 | Rural Development Planning-II                       | 100 |
| Geog 539-5 | Population, Environment and Development             | 100 |
| Geog 540-1 | Thesis                                              | 100 |
| Geog 540-2 | Gender and Development                              | 100 |
| Geog 540-3 | Project Cycle Management (to be developed)          | 100 |



# Modern Geographical Thought

Geog: 531; Paper I

Teaching Hours: 150

Full Marks: 100

## Objectives:

This course aims at providing advance knowledge on the geographic ideas, theoretical developments and trends. The course also intends to take the students to critical analysis of geographic ideas and their contribution to scientific studies. It introduces contemporary geographical thoughts and highlights the development of Geography as a systematic discipline in Nepal.

| Course Units                                                                                                                                                                                                                                                                                 | Hours |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I. Foundation                                                                                                                                                                                                                                                                                | 30    |
| 1.1 Development period: classical, modern and contemporary                                                                                                                                                                                                                                   |       |
| 1.2 Trends in Geography: <i>fundamental concepts, traditions</i> (earth science, area studies, man-land, spatial, environment and society) and <i>themes</i> (environmental determinism, possibilism, and sustainable development, regional, quantitative revolution and critical Geography) |       |
| II. Theoretical Development                                                                                                                                                                                                                                                                  | 30    |
| 2.1 Philosophies, paradigms, dichotomies and approaches                                                                                                                                                                                                                                      |       |
| 2.2 Major schools of geographical thoughts: (i) <i>German, French, British, American and others</i> , (ii) <i>Positivism to behavioral, humanistic, radical/Marxist, structuralism, realism, post-structuralism to post modern, feminist and gender, spatial phenomena</i>                   |       |
| III. Current Geographical Debates:                                                                                                                                                                                                                                                           | 15    |
| 3.1 Time and Space                                                                                                                                                                                                                                                                           |       |
| 3.2 Nature and Culture                                                                                                                                                                                                                                                                       |       |
| 3.3 Agency and Structure                                                                                                                                                                                                                                                                     |       |
| 3.4 Local and Global                                                                                                                                                                                                                                                                         |       |
| IV. Changing Geographic Ideas and Contributions to Scientific Studies                                                                                                                                                                                                                        | 25    |
| 4.1 Tools and Technologies: (i) <i>idea of map: conceptual and methodological developments</i> and (ii) <i>technologies in spatial measurements and analysis: GIS, Remote Sensing, GPS and cartography</i>                                                                                   |       |
| 4.2 Man and environment interaction: (i) <i>spatial organization and interdependencies: between places and scales</i> , (ii) <i>Locational analysis: central place and others</i> , and (iii) <i>Landscape morphology and ecology</i>                                                        |       |
| 4.3 Current focus in human geography: (i) <i>Location: space and place</i> , (ii) <i>sense of place</i> and (iii) <i>Integration in place</i>                                                                                                                                                |       |
| V. Physical Geography and Environment                                                                                                                                                                                                                                                        | 25    |
| 5.1 Changing face of the earth: issues of resource use and environmental degradation                                                                                                                                                                                                         |       |
| 5.2 Human adjustment: environment, resource, hazard and policy                                                                                                                                                                                                                               |       |
| 5.3 Integrated environmental systems: river basin management as an example                                                                                                                                                                                                                   |       |



|                                                           |    |
|-----------------------------------------------------------|----|
| 5.4 Environmental perception and risk                     |    |
| 5.5 Climate Change and human adaptations                  |    |
| VI. Organizations towards Elaborating Scopes of Geography | 10 |
| 6.1 International Geographical Union (IGU)                |    |
| 6.2 Major National Geographical Societies                 |    |
| 6.3 Professional Societies                                |    |
| VII. Geography in Nepal                                   | 15 |
| 7.1 Development and Trend                                 |    |
| 7.2 Research, Curriculums and Applications                |    |
| 7.3 Challenges facing Geography                           |    |

### Required Readings

Dixshit, R.D. (1997), *Geographical Thought: A Contextual History of Ideas*. New Delhi: Prentice Hall of India.

Cloke, P.J. and Johnston, R., ed. (2005), *Spaces of Geographical Thought: Deconstructing Human Geography's Binaries*. SAGE Publications

Hanson, S., ed. (1997), *Ten Geographic Ideas That Has Changed the World*. New Jersey: Rutgers University press.

Holt-Jensen, A. (1999), *Geography - History and Concepts: A Student's Guide*. SAGE Publications.

James, P.E. (1972), *All Possible Worlds: A History of Geographical Ideas*. Indianapolis: The Odessey Press.

Johonston, R.J. (1991), *Geography and Geographers*. London: Edward Arnold.

NCCR, NGS and CDGTU (2005), *Geography and Geographers' Work in Nepal*. Kathmandu: NCCR, Nepal Geographical Society and Central Department of Geography, Tribhuvan University.

Peet, R. (1998), *Modern Geographical Thought*. Oxford: Blackwill Publishers Ltd.

Subedi, B.P. and Joshi, B.D. (1997), *Geography in Nepal: An Outline for Discussion*. In: Khatri, P.K. (ed.), *Social Sciences in Nepal*, Kathmandu: CNAS.

Trudgill, S. and Roy, A., ed. (2003), *Contemporary Meanings in Physical Geography: From What to Why?* Arnold Publisher.

### Reference Readings

Abler, R.A. and Gould, P.R. (1971), *Spatial Organization: the Geographers View of the World*. Englewood Cliffs: Prentice Hall.

Haggett, P. (1979), *Geography: A Modern Synthesis*. 3<sup>rd</sup> Edition, New York: Harper & Row.

Haggett, P. (1977), *Locational Analysis in Human Geography*. 2<sup>nd</sup> Edition. Hodder & Stoughton Educational.

McNally, H.D. (1973), *Explanation in Geography*. London: Edward Arnold.

Journals:

- Annals of the Association of American geographers
- The Professional Geographers
- Geographical Journal
- Geographical Review
- Transactions of the Institute of British Geographers
- Progress in Human Geography

  
 Faculty of Humanities & Social Sciences  
 Dean's Office  
 Kirtipur



# Research Techniques and Quantitative Methods

Geog: 532; Paper II

## Objectives

This course has two-fold objectives. First, it provides basic knowledge of research techniques and the processes and issues involved in research proposal writing. Secondly, it imparts the students with basic quantitative and qualitative techniques used in the geographical research.

## A. Research Techniques

Full Marks: 50

Teaching Hours: 75

| Course Units                                                                                                                                                                                                                  | Hours |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I. Geographical Research                                                                                                                                                                                                      | 5     |
| 1.1 Definition, types, cycle of research activities and trends                                                                                                                                                                |       |
| 1.2 Scientific methods and approaches: the "Beconian" and alternative route to scientific explanation, Deductive and inductive approaches                                                                                     |       |
| II. Foundation of Research                                                                                                                                                                                                    | 5     |
| 2.1 Paradigms: Relationship with theory and philosophy                                                                                                                                                                        |       |
| 2.2 Role of concepts, hypothesis, model, law, theory & perceptions in geographic research                                                                                                                                     |       |
| III. Philosophy and Methodology                                                                                                                                                                                               | 5     |
| 3.1 Philosophy: Elements                                                                                                                                                                                                      |       |
| 3.2 Types: Empiricism, Positivism, Humanism, Structuralism and Postmodernism                                                                                                                                                  |       |
| 3.3 Methodology: Relationship of philosophy with methodology                                                                                                                                                                  |       |
| IV. Review of Literature                                                                                                                                                                                                      | 5     |
| 4.1 Importance and Sources                                                                                                                                                                                                    |       |
| 4.2 Writing literature review                                                                                                                                                                                                 |       |
| V. Research Methods                                                                                                                                                                                                           | 15    |
| 5.1 Qualitative and quantitative methods & their relationship                                                                                                                                                                 |       |
| 5.2 Survey methods: Interview, Focus group discussion, RRA and PRA, Observation and Participation, Ethnography, Case studies and Field methods                                                                                |       |
| 5.3 Survey tools: Inventory/observation sheets, Questionnaire (question focused, content focused and informant/target focus, open ended and closed ended) and Checklist                                                       |       |
| VI. Data Analysis and Interpretation                                                                                                                                                                                          | 5     |
| 6.1 Analysis of qualitative data: categories, contents and codes; grounded theory analysis; narratives and meaning; discourse analysis, making sense of texts and metaphors and computers in the analysis of qualitative data |       |
| 6.2 Interpretation, explanations and generalization: cause and effects, temporal, spatial, functional and system                                                                                                              |       |



|                                                      |    |
|------------------------------------------------------|----|
| analysis                                             |    |
| VII. Developing a Geographical Research Design       | 5  |
| 7.1 Choosing a topic and Linking theory and practice |    |
| 7.2 Choosing method to generate and analyze data     |    |
| 7.3 Research ethics                                  |    |
| 7.4 Planning of practical considerations             |    |
| VIII. Proposal and Format for Research Report        | 30 |
| 8.1 Elements of research proposal                    |    |
| 8.2 Development of research proposal*                |    |
| 8.3 Format of research report and citation types     |    |

*\*Students require to developing research proposal on any topic of their interest.*

### Required References

CDG and NCCR (2009), *Manual on Research Methodology*. Kathmandu: Central Department of Geography and National Centre of Competence in Research.

Harvey, D.H. (2003), *Explanation in Geography*. Jaipur: Rawat Publications.

Hay, I. (2000). *Qualitative Research Methods in Human Geography*. New York: Oxford University Press.

Kitchin, R. and Tate, N.J. (2000), *Conducting Research in Human Geography: Theory, Methodology and Practice*. London: Pearson Education Limited.

Punch, K.F. (2005), *Introduction to Social Research: Quantitative And Qualitative Approaches*. London: Sage Publications.

### Reading References

Flowerdew, R. and Martin, D. (Eds.) (2005), *Methods in Human Geography: A Guide for Students Doing a Research Project*. England: Pearson Education Limited.

Harvey, M. E. and Holly, B.P. (Eds.) (1981), *Themes in Geographic Thought*. London: Croom-Helm.

Johnston, R.J. (1984), *Philosophy and Human Geography: a Contemporary Approaches*. London: Edward Arnold.

Wiersma, W. and Stephen, G.J. (2005), *Research Methods in Education: An Introduction*. Boston: Pearson.



## B. Quantitative Method

Full Marks: 50  
Teaching Hours: 75  
Hours

| Course Units                                                                                                                                                                     | Hours |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I. Overview of Quantitative Techniques                                                                                                                                           | 2     |
| II. Sampling Design, Methods and Estimation                                                                                                                                      | 6     |
| 2.1 Probability samplings: random, stratified-cum-random, systematic, and cluster-cum-random                                                                                     |       |
| 2.2 Non-probability samplings: purposive, judgmental, quota & snow-ball                                                                                                          |       |
| III. Areal Central Tendencies and Dispersions                                                                                                                                    | 5     |
| IV. Characteristics of Sample Distribution: outliers, normality & transformation                                                                                                 | 6     |
| V. Parametric and Non-Parametric Data Analysis                                                                                                                                   | 20    |
| 5.1 Parametric - Bivariate and Multivariate Data Analysis: <i>Correlations (simple, partial, multiple &amp; canonical), Regressions (simple, partial, multiple and logistic)</i> |       |
| 5.2 Non-Parametric Analysis: <i>Chi-square and Rank Correlation</i>                                                                                                              |       |
| VI. Analysis of Time Series Data: Introduction, utility, components, and trend and variation measurements                                                                        | 10    |
| VII. Statistical Inferences                                                                                                                                                      | 6     |
| 7.1 Estimation: point and interval                                                                                                                                               |       |
| 7.2 Hypothesis testing: $\chi^2$ , t, z, and F                                                                                                                                   |       |
| VIII. Factor Analysis                                                                                                                                                            | 4     |
| 8.1 Concept and theory                                                                                                                                                           |       |
| 8.2 Factor analysis operationalization                                                                                                                                           |       |
| IX. Cluster Analysis: Hierarchical, multivariate, and other clustering methods                                                                                                   | 4     |
| X. Model Building                                                                                                                                                                | 6     |
| 10.1 Models with single and double quantitative independent variables and model testing                                                                                          |       |
| 10.2 Models with one qualitative independent variables                                                                                                                           |       |
| 10.3 Model building: stepwise regression                                                                                                                                         |       |
| XI. Data Entry and Processing                                                                                                                                                    | 6     |
| 11.1 Manual data sheet format                                                                                                                                                    |       |
| 11.2 Computerized data sheet: SPSS, Access                                                                                                                                       |       |

### Required References

- Barber, G.M. (1988), *Elementary Statistics for Geographers*. New York: The Guilford Press.
- Chorley, R.J. and Haggett, P., eds (1967), *Models in Geography*. London: Methuen.
- Clark, W.A.V. and Hosking, P.L. (1986), *Statistical Methods for Geographers*. New York: John Wiley and Sons.
- Jobson, J.D. (1992), *Applied Multivariate Data Analysis*. Vol. 1: *Regression and Experimental Design*. Springer-Verlag.
- Jobson, J.D. (1992), *Applied Multivariate Data Analysis*. Vol. 1: *Categorical and Multivariate Methods*. Springer-Verlag.
- Kothari, C.R. (1997), *Quantitative Techniques*. Vikash Publishing House Pvt. Ltd.
- Rayment, R. and Jeroskog, K.G. (1996), *Applied Factor Analysis in the Natural Sciences*. Cambridge University Press.
- Williams, R.B.G. (1984), *Introduction to Statistics for Geographers and Earth Scientists*. London: Macmillan



## Physical Geography

Geog 533-1; Paper III

### A. Geomorphology

Full Marks: 50  
Teaching Hours: 75

| Course Units                                       | Hours |
|----------------------------------------------------|-------|
| I Concept, approaches and methods in geomorphology | 10    |
| II Morphologic evolutionary system                 | 5     |
| III Cascading processes                            | 5     |
| IV Diastrophism                                    | 5     |
| V Weathering and mass-wasting                      | 5     |
| VI Hill slope stratigraphy and forms               | 5     |
| VII Drainage basin                                 | 5     |
| VIII River and channel morphology                  | 5     |
| IX Fluvial landforms and processes                 | 5     |
| X Glacial landforms and processes                  | 5     |
| XI Periglacial landforms and processes             | 5     |
| XII Morphogenetic and polygenetic landforms        | 5     |
| XIII Applied geomorphology                         | 10    |

### B. Climate and Hydrology

Full Marks: 50  
Teaching Hours: 75

| Course Units                                    | Hours |
|-------------------------------------------------|-------|
| I Weather and climate                           | 5     |
| II Atmospheric composition                      | 5     |
| III Energy and temperature                      | 5     |
| IV Atmospheric moisture                         | 10    |
| V Atmospheric pressure and circulation          | 5     |
| VI Weather disturbances                         | 5     |
| VII Climatic classification                     | 5     |
| VIII Climate change                             | 5     |
| IX Applied climatology                          | 10    |
| X Hydrological cycle                            | 5     |
| XI Atmospheric, subsurface and surface water    | 5     |
| XII Hydrologic analysis                         | 5     |
| XIII Flood plain analysis and flood forecasting | 5     |



# Mountain Landforms and Process

Geog: 533-2

Full Marks: 100  
Teaching Hours: 150

## Objective:

| Course Units:                                                                                                                                                                                                                          | Hours |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I Overview of concepts, approaches and methods in geomorphology, morphologic evolutionary system and cascading systems                                                                                                                 | 15    |
| II Mountain: definition, origin and classification, mountain systems, mountain landscape, mountain geomorphological system                                                                                                             | 15    |
| III Mountain specificities, problems and prospects                                                                                                                                                                                     | 15    |
| IV Drainage basin and rivers                                                                                                                                                                                                           | 15    |
| V Hill slope stratigraphy and forms: stratigraphy and slope deposits, hill slope stratigraphy and forms, hill slopes in the hydrological cycle, weathering processes and landforms, strength and behavior of rocks and soil materials. | 15    |
| VI Hill slope processes: runoff processes and erosion, factors of erosion, forms of erosion, rates of erosion, mass wasting, stability analysis.                                                                                       | 15    |
| VII Models of hill slope development: types of model, evaluation of soil covered hill slope and rock slopes                                                                                                                            | 15    |
| VIII Mountain landforms and processes - fluvial, periglacial and glacial                                                                                                                                                               | 15    |
| IX Mountain ethno-engineering                                                                                                                                                                                                          | 15    |
| X Mountain hazards and risk assessment: types of hazards, hazard mapping and risk assessment, mitigation and adaptation                                                                                                                | 15    |



# Human Settlement and Ecology

## Geog: 534-1; Paper IV

### A. Human Settlements

Full Marks: 50  
Teaching Hours: 75

#### Course Objectives:

This course intends to impart knowledge to the students on concepts, theories, planning and measures used in settlement systems analysis in developing countries with particular reference to Nepal.

| Course Units                                                                                                                                                                                 | Hours |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I. Theories of Origin of Human Settlements                                                                                                                                                   | 4     |
| II. Factors of Growth and Development of Settlements                                                                                                                                         | 4     |
| III. Rural Settlements                                                                                                                                                                       | 15    |
| 3.1 Rural settlement and resources use                                                                                                                                                       |       |
| 3.2 Issues and planning implications                                                                                                                                                         |       |
| 3.3 Rural market centers - periodic markets: concepts and issues                                                                                                                             |       |
| 3.4 Rural settlement planning: policies and programmes                                                                                                                                       |       |
| IV. Urban Settlements                                                                                                                                                                        | 20    |
| 4.1 Conceptual/definitional issues of urban areas                                                                                                                                            |       |
| 4.2 Urbanization: factors, features and manifestations                                                                                                                                       |       |
| 4.3 Urban land use theories: von Thünen, bid-rent analysis, vertical and horizontal land uses and features of CBD, transition zones, (urban fringe), site and service in housing development |       |
| 4.4 Urban environment: slums and squatters and informal housing and entrepreneurial activities - features and management                                                                     |       |
| 4.5 Urban agriculture: meaning, issues and implications                                                                                                                                      |       |
| 4.6 Urbanization strategies and policies                                                                                                                                                     |       |
| V. Techniques of Settlements Analysis                                                                                                                                                        | 20    |
| 5.1 Location analysis                                                                                                                                                                        |       |
| 5.2 Spatial distribution and density                                                                                                                                                         |       |
| 5.3 Functional analysis                                                                                                                                                                      |       |
| 5.4 Linkage analysis                                                                                                                                                                         |       |
| 5.5 Flow analysis                                                                                                                                                                            |       |
| VI. Integrated of rural and urban settlements                                                                                                                                                | 12    |
| 6.1 Importance and issues                                                                                                                                                                    |       |
| 6.2 Strategies and programmes                                                                                                                                                                |       |
| 6.3 Case studies (students spend about 3 days in near by field on their own expenses and share their experiences through discussions in the class)                                           |       |

#### Required References:

Chapman, K. (1979), *People, Pattern and Process: An Introduction to Human Geography*. London: Edward Arnold.



Chisholm, M. (1962), *Rural Settlements and Land Use: An Essay in Location*. London: Hutchinson.

Fellmann, J.D., Getis, A. and Getis, J. (1999), *Human Geography: Landscape of Human Activities*. 6th Edition. WCB/McGraw Hill.

Pradhan, P.K (2004), *Rural-Urban Relations: with particular reference to Nepal*. Kathmandu: RUPP/UNDP and MLD.

Short, J. R. (1987), *An Introduction to Urban Geography*. New York: Routledge.

#### Reading References:

Bromley, R. (1984), Market centres, marketing policies and agricultural development, *Regional Development Dialogue*. Vol. 5, No.1. Nagoya (Japan): United Nations Centre for Regional Development.

CARE-Nepal (2008), *Unemployed Youths in Greater Kathmandu Valley*. Kathmandu: CARE Nepal.

Gurung, H. B. (1989), *Regional Patterns of Migration in Nepal*. Papers of the East-West Population Institute. No. 113. Hawaii: East West Institute.

Pradhan, P.K (2004), Population growth, migration and urbanisation and environmental change in Kathmandu Valley, Nepal. In: J. Unruh, M. Krol and N. Kliot (eds.). *Environmental Change and its Implications for Population Mitigation*. B.V. Dordrecht (The Netherlands): Kluwer Academic Publishers.

Sharma, P. (1989), *Urbanization in Nepal*. Papers of the East-West Population Institute. No. 110. Honolulu: East-West Center

Wanmalī, S. (1992), *Rural Infrastructure, the Settlement System and Development of the Regional Economy in Southern India*. Research Report 91. International Food Policy Research Institute.



## B. Human Ecology and Adaptation

Full Marks: 50  
Teaching Hours: 75

### Objectives:

The main aim of this course is to make students familiar with concepts and theories of human ecology and adaptations for critically understanding the relationships between man and environment with respect to Nepal.

| Course Units                                                                                                                                                                       | Hours |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I. Introduction to Human Ecology:                                                                                                                                                  | 10    |
| 1.1 Meaning, scope and principles                                                                                                                                                  |       |
| 1.2 Human ecology and its relation to general ecology                                                                                                                              |       |
| II. Theories and Approaches:                                                                                                                                                       | 15    |
| 2.1 Theories - Mountain degradation, cultural ecology, human adaptation & change, and population resource relationships (carrying capacity and change)                             |       |
| 2.2 Approaches - ecosystem, adaptation and cultural                                                                                                                                |       |
| III. Human Population Ecology:                                                                                                                                                     | 15    |
| 3.1 Population: interaction, growth, composition, distribution                                                                                                                     |       |
| 3.2 Population mobility: pattern, volume, factors and processes                                                                                                                    |       |
| IV. Human Ecology and Adaptation Patterns:                                                                                                                                         | 20    |
| 4.1 Agro-ecological zones and cultural zones and production strategies of selected economic activities (agro-, livestock-, forest-, and water-based)                               |       |
| 4.2 Adaptation patterns of indigenous communities (Sherpa, Rai, Gurung, Tharu)                                                                                                     |       |
| 4.3 Ethnic diversity and social mosaic                                                                                                                                             |       |
| V. Ecology and Changing Adaptation Strategies - based on selected case study valleys/regions of Nepal: Arun Valley, Khumbu Region, Annapurna Region, Chitwan Valley, Karnali Basin | 15    |

**Note:** It is recommended that the students visit for a one week long field study in their own expenses for visualizing, explaining and understanding the human ecology and adaptive strategies of human communities over the time in the selected area.

### Required References:

- Bates, R. (...), *Human Adaptive Strategies: Ecology, Culture and Politics*.  
Hawley, A.H. (...), *Human Ecology*. 2<sup>nd</sup> Edition. New York: Ronald Press Company.  
Parish, R. (2002), *Mountain Environment*. Harlow: Person Education Limited.

### Reading References:

- Bishop, B. (1990), *Karnali Under Stress*. Chicago: Department of Geography Research Publications.  
Balikie, P. and Brookfield, H. (1987), *Land Degradation and Society*. London: Methuen.  
Sharma, P. (2008), *Unraveling the Mosaic: Spatial Analysis of Ethnicity in Nepal*. Kathmandu: Himal Books.  
T.U. and U.B. (2007), *Local Effects of Global Changes in the Himalayas: Manang, Nepal*. Kathmandu: Tribhuvan University and University of Bergen.  
Journals: Mountain & Development, Man and Biosphere and others.



Human Ecology  
Geog: 534-2; Paper: IV

Full Marks: 100  
Teaching Hour: 150

Objectives:

The main objective of this course is to familiarize the students with the concepts and theories of Human Ecology and Mountain people and its Adaptation.

Course Contents:

A) General

| Units                                                                                                                                                                                                                                                                                          | Teach. Hrs. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| I Introduction                                                                                                                                                                                                                                                                                 | 15          |
| Meaning and Scope of Ecology, Ecosystem, Components, Energy flow, Man, Energy and Food Chain: The Hunter Food Chain, Early Agriculture, Modern Agriculture, Organism and Environment, The Web of Life, Man's Place, in the Biotic Community, Human Ecology and its Relation to General Ecology |             |
| II Theories and Approaches                                                                                                                                                                                                                                                                     | 15          |
| Theories of Man and Habitat Relationship: Environmental Determinism, Possibilism, Neo-Determinism, Approaches of Human Ecology: Cultural Approach, Population Approach, System Approach; Perception, Attitude, and Behavioral Approach, and Ethno-ecological Approach                          |             |
| III Basic Concepts of Human Ecology                                                                                                                                                                                                                                                            | 15          |
| Ecosystem Relationship: Population, Soil and Plant, Productivity, Energy Flow Model, Human Physiological Responses, Social and Cultural Adjustments, Information and Decisions                                                                                                                 |             |
| IV Human Population Ecology                                                                                                                                                                                                                                                                    | 15          |
| Population, Population Interaction, Population Growth, Population Growth and Regulation, Carrying Capacity, Population Composition                                                                                                                                                             |             |
| V Ecological Organization of Human Beings                                                                                                                                                                                                                                                      | 15          |
| Community Structure, Spatial Aspects of Ecological Organization, Ecological Process of Organization, Spatial Pattern of Ecological Organization.                                                                                                                                               |             |

B) Mountain People

|                                                                                                                                                                                                                                                                                    |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| VI Mountain Human Ecology                                                                                                                                                                                                                                                          | 10 |
| Characteristics of Mountain Ecological System, Adaptation to Hypoxia, Adaptation to Cold Stress, Adaptation to Mountain Landscape: Topography, Isolation, Barriers, Limited Resource Base and Low Product, Adaptation Strategies and Adjustment to /Mitigation of Mountain Hazards |    |
| VII Agriculture, Settlement and Land Use in Mountains                                                                                                                                                                                                                              | 10 |
| Sedentary Agriculture, Pastoralism: Nomadic and Transhumance, Fixed Agriculture                                                                                                                                                                                                    |    |
| VIII Human Impact on Mountain Environment                                                                                                                                                                                                                                          | 10 |
| Major Sources of Human Impact: Increasing Population, Settlements, Overgrazing, Deforestation, Roads, Dams and Reservoirs, Urban Built-up, Mining, Recreation and Tourism, Cultural Traits, Preservation of Mountain Environment                                                   |    |
| IX Human Ecology and Adaptation on Peruvian Andes                                                                                                                                                                                                                                  | 10 |



|                                                                                |    |
|--------------------------------------------------------------------------------|----|
| X Human Ecology and Adaptation on the Nepal Himalayas                          | 10 |
| Human Ecology of Caste/Ethnic Groups (in Nepal) e.g. Sherpa,                   |    |
| XI Tharu.                                                                      | 10 |
| XII Human Ecology of an Area (specific to Nepal): Arun Valley, Khumbu, Karnali | 15 |

#### References

1. Bishop, Berry, *Karnali Under Stress*, Chicago: Department of Geography Research Publications, 1990.
2. Blaikie, Piers and Harold Brookfield, *Land Degradation and Society*, London: Methuen, 1987.
3. Hardesty, Donald L., *Ecological Anthropology*, New York: John Wiley and Son, Chichester, Brisbane, Toronto.
4. Howley, A. H., *Human Ecology*.
5. Moran, Emilio F.; *An Introduction to Ecological Anthropology*, Colorado: West View Press, Boulder, 1982.
6. Netting, Robert M., *Cultural Ecology*, Illinois: Waveland Press, 1986,
7. Odum, Eugene P., *Ecology*, London: Holt, Rinehart and Winston, 1975.
8. Price, Larry W., *Mountain and Man: A Study of Process and Environment*, England: University of California Press Ltd., London, 1981.
9. Sastrotomo, Soetikno S., *Principles of Ecology in Environmental Science and Management*, (ed.), S S. Sastrotomo, South Asia Regional Center for Tropical Biology, Indonesia: Bogor, 1983.
10. Stevens, Stanley F., *Claiming the High Ground: Sherpas, Subsistence and Environmental Change in the Highest Himalaya*, Berkley: University of California Press, 1993.

#### Journals and Periodicals

1. *Mountain and Development*, Boulder, Colorado
2. *Man and Biosphere*, Program on Man and Biosphere, UNESCO.
3. Publications of ICIMOD, Kathmandu, Nepal
4. Publications of IUCN, IUCN.

*all*





# Geographic Information Systems (GIS)

Geog: 535-1

Full Marks: 100  
Teaching Hours: 150

## Objective

The main objective of this course is to introduce the concept of GIS as a tool for geographic analysis and spatial planning. At the end of the course, the students will be able to understand the basic principles of GIS. Specifically, the students will be able to: (i) explain the concept of GIS, spatial database, GIS data modeling, analysis and applications, (ii) design GIS database, (iii) define and use of analytical functions of GIS for GIS applications and (iv) carry out GIS projects.

| Course Contents                                                                                                                                                                                                             | Hours |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I. Fundamentals of GIS                                                                                                                                                                                                      | 5     |
| 1.1 Direction and trend of Geographical data to GIS                                                                                                                                                                         |       |
| 1.2 Concept and definitions: components and basic functions                                                                                                                                                                 |       |
| 1.3 Areas of GIS applications                                                                                                                                                                                               |       |
| II. Representing Real World: GIS Data Formats                                                                                                                                                                               | 20    |
| 2.1 Basic mapping concepts: basic map elements, principles of cartographic design, scale/resolution, projection, data characteristics, classification and mapping methods                                                   |       |
| 2.2 Spatial data formats: (i) vector data model - geometry and topology, topological relations between spatial objects, (ii) Raster data model - geometry and topology of raster data (iii) use of raster and vector format |       |
| III. GIS and Data Processing                                                                                                                                                                                                | 20    |
| 3.1 Data sources (GPS, RS & others), methods of data input, data integration                                                                                                                                                |       |
| 3.2 Data Quality: sources of error, resolution, accuracy, consistency                                                                                                                                                       |       |
| IV. GIS and Database                                                                                                                                                                                                        | 15    |
| 4.1 Database management systems: types (hierarchical, network, relational and object oriented), schema and use                                                                                                              |       |
| 4.2 GIS database design: thematic data modeling (spatial & attribute)                                                                                                                                                       |       |
| 4.3 Data documentation                                                                                                                                                                                                      |       |
| V. GIS Analysis                                                                                                                                                                                                             | 15    |
| 5.1 Spatial analysis: measurements, queries, overlays, network analysis, proximity, neighborhood analysis                                                                                                                   |       |
| 5.2 GIS modeling: process models, analytical models                                                                                                                                                                         |       |
| 5.3 Spatial interpolation                                                                                                                                                                                                   |       |
| 5.4 Surface analysis: DEM, Digital Terrain Models (DTM)                                                                                                                                                                     |       |
| VI. GIS Presentation                                                                                                                                                                                                        | 10    |
| 6.1 Map design: visual perception, symbology, visual variables and map layout                                                                                                                                               |       |
| 6.2 Types of output                                                                                                                                                                                                         |       |
| 6.3 Potential and limitation of GIS for cartographic production                                                                                                                                                             |       |

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## VII Managing and Implementing GIS

15

- 7.1 Geographic information infrastructure, spatial data infrastructure, mountain spatial data infrastructure
- 7.2 Institutional aspects: data quality and standards, data sharing, data access, use, and challenges
- 7.3 Technical aspects: accuracy, documentation, compatibility
- 7.4 GIS project design and planning, decision support system, spatial decision support system
- 7.5 GIS development and issues in Nepal

## VIII. GIS Project

50

- 8.1 Field Work: Data collection, verification, updating of spatial and socio economic data
- 8.2 GIS project work: application of GIS in geography research

**Note:** The total 100 mark is divided into two evaluations:

|                            |    |
|----------------------------|----|
| Field and Lab Based Works= | 50 |
| Final Written Exam =       | 50 |

\*Some guest lectures in relevant issues are recommended.

### Required Readings:

Albert, C.T.L. and Yeung, K.W. (2002), *Concepts and Techniques of Geographical Information Systems*. Prentice Hall.

Bernhardsen, T. (1992), *Geographic Information Systems*. Viak IT, Norway.

Chakraborty, D. and Sahoo, R.N. (2007), *Fundamentals of GIS*. India: Viva Books.

Carver, S.J., eds (1998), *Innovations in GIS 5*. London: Taylor and Francis.

Demerf, M.N. (2000), *Fundamentals of Geographical Information Systems*. Joh Wiley and Sons.

Maguire, D.J., Goodchild M.F. and Rhind D.W., eds (1991), *Geographic Information Systems: Principles and Applications*. Vol I and Vol II Longman. London.

Pradhan, P.K., Shrestha, S. and Sharma, P. (2001), *GIS for Local Development Exercises: A Hands-on Exercise Manual*. Central Department of Geography, TU.

### Reading References

Aronoff. S. (1989), *Geographic Information Systems: A Management Perspective*. Ottawa: WDL Publications.

Birkin, 'M., Clarke G., Clarke M., and Wilson (1996), *An Intelligent GIS: Location Decisions & Strategic Planning*, *Geoinformation International*. Cambridge, UK.

Burrough, P. (1987), *Principles of Geographical Information Systems for Land Resource Assessment*, Oxford: Clarendon Press.

Pradhan, P.K. (1992), *Characteristics of GIS Users in Nepal*. Kathmandu: Strengthening Decentralized Planning Programme, UNDP/NPC.



# Agricultural Transformation and Food Security

Geog 535-2; Optional Paper V

Teaching Hours: 150

Full Marks: 100

## Objectives:

The aim of this course is to understand the agricultural transformation and food security and its process with special reference to Nepal. This course imparts knowledge on concept, approaches, theories and measures of agricultural transformation and food security to students.

## Course Units:

Hours

- I Agricultural Transformation: meaning, concept, approaches & theories
- II Factors of Agricultural Production and Its Measures
- III Agrarian Structure of Production Systems
- IV Changing Agricultural Landscape
- V Global Change and Its Impacts on Regional Production Systems
- VI Environmental implications & challenges of Agricultural Transformation
- VII Food Security: meaning, concept and issues
- VIII Geographical Analysis of Food Production and Food Security
- IX Vulnerability, Safety Nets and Market Access
- X Policies and Strategies for Agricultural Transformation & Food Security

## References

- Adhikari, J. (1996), *The Beginning of Agrarian Change: A Case Study in Central Nepal*. Kathmandu: T M Publication.
- Blaikie, P.M., Cameron, J. and Seddon, D. (2005), *Nepal in Crisis: Growth and Stagnation at the Periphery*. New Delhi: Adroit Publishers.
- Goodman, D. Watts, M. ed., (1997), *Globalizing Food: Agrarian Questions and Global Restructuring*. Routledge.
- Howard, D.L. and Fosters, P. (2004), *The World Food Problem: Tackling the Causes of Under Nutrition in the Third World*. Lynne Rienner Publishers.
- Jones, G. and Hollier, G. (1997), *Resources, Society and Environmental Management*. Paul London: Chapman Publishing Ltd.
- Kihara, H., ed. (1957), *Land and Crops of Nepal Himalaya: Scientific Results of the Japanese Expeditions to Nepal Himalaya*. Vol. II. 1952 - 1953. Kyoto University Press.
- McMichael, P., ed. (1994), *The Global Restructuring of Agro-Food Systems*. Ithaca: Cornell University Press.
- Sharma, S. (1997), *Agricultural Transformation Processes in the Mountains of Nepal: Empirical Evidence from Ilam District*. Kathmandu: ICIMOD.
- Turner, B.L. and Brush, S.B. (1987), *Comparative Farming System*. New York: The Guilford Press.
- Journal - *Agricultural and Rural Development* (1997)
- Web sites: International Food Policy Research Institute, FAO...

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1



Advanced Political Geography  
(Course to be developed)  
Geog 535-3; V; Full Marks: 100



## Advanced Population Geography

Geog: 535-4; Paper: V

Full Marks: 100

Teach. Hr. 150

### Objectives:

The aim of the course is to introduce the students to the important population issues from a geographical perspective. Students are expected to acquire an enhanced appreciation of the importance of population dynamics and how geography helps to illuminate them.

### Course Contents:

| Units                                                                                                                                                                                                                                                                                                                                                                                                                                      | Teach. Hrs. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| I Approaches to Population Geography<br>Development of Population Geography, Roots of Population Geography, Contemporary Approaches to Population Geography                                                                                                                                                                                                                                                                                | 10          |
| II Growth and Distribution of World Population<br>Growth, Trends and Patterns (Please include calculation of Rates and Ratios), Distribution: General and South Asia in particular, Measures, Factors and Implications of Population Growth and Distribution                                                                                                                                                                               | 15          |
| III Selected Demographic Theories<br>Demographic Transition Theory and Its Relevance in the Developing Countries, Theory of Demographic Change and Response                                                                                                                                                                                                                                                                                | 15          |
| IV Demographic Processes: Mortality<br>Measures of Mortality: CDR, ASDR, SDR, IMR, MMR, CMR, The Life Table, Geographic Patterns of Mortality: International Variations, Variations within the Countries, Mortality and Development                                                                                                                                                                                                        | 15          |
| V Demographic Processes: Fertility<br>Geography and Fertility, Concepts and Measurements, Period Measures: CBR, GFR, CWR, ASBR, SBR, Coale's Index of Fertility, Cohort Measures: TFR, GRR, NRR, Selected Theories of Fertility, Intermediate Fertility Variables, Theory of intergenerational Wealth Flow, Modern Fertility Transition (Europe and Outside), Explanations for High Fertility, Geography of Unmet Need for Family Planning | 15          |
| VI Demographic Processes: Territorial Mobility<br>Concepts, Definitions, and Measures, Typology of Population Movement, Migration Theories: Lee, Zelinsky, Todaro; Value, expectancy                                                                                                                                                                                                                                                       | 15          |
| VII Migration and Urbanization<br>Urbanization and Urban Population Growth, Problems of Urbanization in Developing Countries, Role of Migration in Urbanization, Urbanization and the Urban Poor                                                                                                                                                                                                                                           | 15          |
| VIII Migration, Education and Occupational Change<br>Links between Education and Migration, Internal Migration: Selectivity by Education, International Migration: The Brain Drain, Migration and Occupational Change                                                                                                                                                                                                                      | 15          |



|                                                                                                                                  |    |
|----------------------------------------------------------------------------------------------------------------------------------|----|
| IX Migration in Nepal                                                                                                            | 15 |
| Historical Aspect, Trends and Patterns (Internal and International), Causes and Consequences, Population Redistribution Policies |    |
| X Population Ageing                                                                                                              | 10 |
| Issue and Measures, Population Ageing in Nepal, Policy implications of Population Ageing in Nepal                                |    |
| XI Population and Environment                                                                                                    | 10 |
| Population Growth and Environmental Degradation, Population and Resource Regions                                                 |    |

#### References

1. Weeks, John R, *Population: An Introduction to Concept and Issues*, California: Wadsworth, 1992.
2. Heer, D M and Jill S., Greigsbry, *Society and Population*, New Delhi: Prentice Hall of India. 1994.
3. Shryock, H. S., J. S. Siegal and Associate, *The Method and Materials of Demography*, New York: Academic Press, 1976.
4. Pachauri, R.K. and Lubina F. Qureshy (eds), *Population Environment and Development*, New Delhi: Tata Energy Research Institute, 1997.
5. United Nations Manual IV, *Methods of Measuring Internal Migration*, New York: United Nations Population Fund.
6. Chandana, R.C., *A Geography of Population*, New Delhi; Kalyani Publishers, 1994.
7. Pamwell, Mike, *Population Movements and The Third World*, London: Routledge, 1993.



Rural Land Use Planning  
(Course to be developed)  
Geog 535-5; Paper: V (Full Marks: 100)

Faculty of Social Sciences  
University of Delhi  
Delhi



## Workshop on Geographic Problems of Nepal

Geog: 536; Paper: VI

Full Marks: 100

Teaching Hour 150

### Objectives

The main aim of this course is to familiarize students with the geographic problems of Nepal. This is an issue-based course and not a course on General Geography of Nepal. Particular emphasis in this course will be given on physical, environmental resources, economic, social, regional development planning and other contemporary issues of Nepal. Depending on the resources available, guest lectures on special topics or issues will be provided to the students.

### Evaluation

The evaluation of the course is divided into two parts: (i) written annual exam carries 50 marks and (ii) preparation, presentation and submission of the paper carries 50 marks.

### Course Units:

- I. Physical aspects - division, weather and climate, climate change and implications
- II. Environmental Resources - land, water, forestry, bio-diversity, mineral, pastures - conservation, degradation and implications
- III. Rural and Urban Settlements - growth, distribution, planning implications
- IV. Economic activities - agriculture, industries, trade and transport, tourism, trade pattern.
- V. Population - growth and distribution, composition, migration
- VI. Development Planning - landlocked, regional, urban and rural, and social
- VII. Preparation and Presentation of Paper

This is a workshop course. It is divided into two parts. The first part includes lectures by resource persons on various issues or topics related to the geographic problems and development of Nepal. The second part covers preparation of paper based on the available data and presentation by the students on the selected specific geographic issues of Nepal. The teaching hours will carry 75 hours and the rest 75 hours for preparation and presentation of student papers.

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## Regional Development Planning and Techniques

Geog: 537-1; Paper VII

Full Mark: 100

Teaching Hours: 150

### A. Regional Development Planning

#### Course Objectives

This course deals with concepts and theories related, as well as the measures for planning and development of regions in developing countries with particular reference to Nepal.

| Course Units                                                                                                                                                                                                                                                                                                                                                                                                    | Hours |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I. Planning Concepts                                                                                                                                                                                                                                                                                                                                                                                            | 20    |
| 1.1 Planning concepts and elements and changing thoughts of development planning                                                                                                                                                                                                                                                                                                                                |       |
| 1.2 Types: physical, sectoral, economic, social, regional and integrated                                                                                                                                                                                                                                                                                                                                        |       |
| 1.3 Planning approaches/process: centralized versus decentralized, capitalist versus socialist, capital-social blending, participatory/inclusive and log-frame based                                                                                                                                                                                                                                            |       |
| 1.4 Planning levels: local, district, regional and national                                                                                                                                                                                                                                                                                                                                                     |       |
| 1.5 Planning terms: Long term, medium term and annual planning                                                                                                                                                                                                                                                                                                                                                  |       |
| 1.6 Planning/project planning cycle: identification, objective, methods, analysis, implementation model, monitoring and evaluation                                                                                                                                                                                                                                                                              |       |
| II. Region                                                                                                                                                                                                                                                                                                                                                                                                      | 15    |
| 2.1 Concepts and types: <i>formal region, functional region</i>                                                                                                                                                                                                                                                                                                                                                 |       |
| 2.2 Evolution                                                                                                                                                                                                                                                                                                                                                                                                   |       |
| 2.3 Regional economics: concepts, components, features and roles                                                                                                                                                                                                                                                                                                                                                |       |
| III. Issues in Regional Planning                                                                                                                                                                                                                                                                                                                                                                                |       |
| 3.1 Growth versus equity                                                                                                                                                                                                                                                                                                                                                                                        |       |
| 3.2 Resources access and distribution                                                                                                                                                                                                                                                                                                                                                                           |       |
| 3.3 Features and constraints                                                                                                                                                                                                                                                                                                                                                                                    |       |
| 3.4 Stakeholders                                                                                                                                                                                                                                                                                                                                                                                                |       |
| 3.5 Development yardstick measures (GNP, GDP, HDI)                                                                                                                                                                                                                                                                                                                                                              |       |
| 3.6 Conflicts in different levels of planning                                                                                                                                                                                                                                                                                                                                                                   |       |
| IV. Regional Growth and Development Models                                                                                                                                                                                                                                                                                                                                                                      | 30    |
| 4.1 Growth models: F. Perroux, H. Friedmann and G. Myrdal, John Friedmann                                                                                                                                                                                                                                                                                                                                       |       |
| 4.2 Spatial development models: <i>secondary cities or urban functions in rural development</i> (Johnson and Rondinelli and Ruddle), market centre approach, <i>Centre-Periphery; Location theories</i> - central place theories, location models of economic activities; <i>Agropolitan approach</i> - J. Friedmann & M. Douglas; <i>Gateway model</i> ; <i>Macro Spatial Urban-Rural Transformation Model</i> |       |



|                                                                                                                                                                                                                                                |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 4.3 Spatio-economic development models: surplus models (agricultural versus industrial sectors), dualisms, dependency theory, import substitution model, basic need approach, Rohovot approach, livelihood strategies, and Industrial location |   |
| V. Regional Development Strategies and Assessment in Nepal                                                                                                                                                                                     | 6 |
| 5.1 Regional Development Policies and Programmes                                                                                                                                                                                               |   |
| 5.2 Rural Development Strategies                                                                                                                                                                                                               |   |
| 5.3 Urban Development Strategies                                                                                                                                                                                                               |   |
| 5.4 Backward or Remote Area Development Strategies                                                                                                                                                                                             |   |
| 5.5 Multilateral Agencies' Efforts In Regional Development Activities                                                                                                                                                                          |   |
| VI. Implications of Regional Planning                                                                                                                                                                                                          | 4 |
| 6.1 District as spatial planning unit                                                                                                                                                                                                          |   |
| 6.2 Region as unit of federal state                                                                                                                                                                                                            |   |

### B. Regional Planning Techniques

| Course Units                                                                                                                                                                                                                                                           | Hours |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I. Region and Regionalisation                                                                                                                                                                                                                                          | 4     |
| 1.1 Concepts                                                                                                                                                                                                                                                           |       |
| 1.2 Issues in regionalisation                                                                                                                                                                                                                                          |       |
| 1.3 Problems and prospects of regionalisation                                                                                                                                                                                                                          |       |
| II. Regional resources analysis (natural, human resources, and tourism)                                                                                                                                                                                                | 10    |
| 2.1 Nurture of region's growth potential                                                                                                                                                                                                                               |       |
| 2.2 Resources potential and economic activities                                                                                                                                                                                                                        |       |
| 2.3 Population and resources relationship: density measures, carrying capacity                                                                                                                                                                                         |       |
| 2.4 Projection of demand (population) and supply (products)                                                                                                                                                                                                            |       |
| 2.5 Constraints, issues and challenges                                                                                                                                                                                                                                 |       |
| III. Methods of Regionalisation                                                                                                                                                                                                                                        | 6     |
| 3.1 Subjective and objective                                                                                                                                                                                                                                           |       |
| 3.2 Ranking (ascending/descending order) weighted                                                                                                                                                                                                                      |       |
| 3.3 Principal component analysis and objective classification method                                                                                                                                                                                                   |       |
| 3.4 Mapping analysis                                                                                                                                                                                                                                                   |       |
| IV. Regional/Location Planning Analysis Techniques                                                                                                                                                                                                                     | 50    |
| 4.1 Economic base analysis - basic and non-basic, base multiplier and economic base (employment and occupation) study                                                                                                                                                  |       |
| 4.2 Economic composition analysis - mix- and share, location quotient                                                                                                                                                                                                  |       |
| 4.3 Input-output analysis and linear measurement                                                                                                                                                                                                                       |       |
| 4.4 Competitive and comparative advantage analyses - variables and indices, identification of priority sectors/commodities with greater potential for triggering economic growth in the region, and identification of infrastructure needs for those potential sectors |       |
| 4.5 Project analysis - benefit-cost analysis, feasibility                                                                                                                                                                                                              |       |
| 4.6 Growth centre - identification & selection of growth centres, centrality indices, ranking, Scalogram, weighted, facility accessibility measures, m (p)-median measure & Sociogram                                                                                  |       |
| 4.7 Growth region or space - definition and delineation by natural,                                                                                                                                                                                                    |       |

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graphic and actual methods

- 4.8 Regional linkages (centre and region) - flows, frictional analysis, interaction model (actual and expected), market network, backward-forward linkages (market chain and price chain), growth corridor and route network

- 4.9 Problems and potential measures

- V. Field Survey and Testing Methods - students spend about 3 days in the field on their own cost; acquire data and information on regional problems, prospects, and share the results in the class room 5

#### Required References

Bendavid-Val, A. (1991), *Regional and Local Economic Analysis for Practitioners* (4<sup>th</sup> Edition). Praeger.

ESCAP (1979), *Guidelines for Rural Centre Planning*. New York: United Nations.

Glassen, J. (1975), *Introduction to Regional Planning*. London: Hutchinson & Co.

Pradhan, P.K. (2003), *Manual for Urban Rural Linkage and Rural Development Analysis*. Kathmandu: New Hira Publications

Rondinelli, D. (1985), *Applied Methods of Regional Analysis: the Spatial Dimensions of Development Policy*. Westview Press.

#### Reading References

Baker, J., ed. (1990), *Small Town Africa: Studies in Rural-Urban Interaction*. The Scandinavian Institute of African studies, Uppsala.

Gurung, H. (1969), *Regional Development Planning for Nepal* (in Nepali). Kathmandu: National Planning Commission.

Mishra, R.P. and Sundaram, K.V. (1980), *Multilevel Planning and Integrated Development in India*. New Delhi: Heritage Publishers.

Potter, R.B and Unwin, T. (1990), *The Geography of Urban-Rural Interaction in Developing Countries*. Routledge.

Pradhan, P.K. (2004), *Rural-Urban Relations: with Particular Reference to Nepal*. Kathmandu: RUPP/UNDP/MLD.

Pradhan, P. K. and Routray, J. K. (1992), *Market Centre and Rural Development in Chitwan District, Nepal*. Bangkok: Asian Institute of Technology.

Rondinelli, D. and Ruddle, K. (1976), *Urban Functions in Rural Development*, USAID, Washington D.C.

Lecturer notes prepared by tutor(s), Government's periodic planning documents and acts, and journals and web sites

Pradhan P.K. (2004)  
Rural-Urban Relations: with Particular Reference to Nepal  
Kathmandu: RUPP/UNDP/MLD



# Geography of Tourism

Geog: 537-2; Paper VII

Teaching Hours: 150

Full Marks: 100

## Objectives:

| Course Units                                                                                                     | Hours |
|------------------------------------------------------------------------------------------------------------------|-------|
| I. Introduction:                                                                                                 |       |
| 1.1 Concepts, nature, scope and approaches                                                                       | 20    |
| 1.2 Components of tourism                                                                                        |       |
| 1.3 Typology of tourism and tourists                                                                             |       |
| 1.4 Tourism's relationships with recreation and geography                                                        |       |
| 1.5 Issues of scale: empiricism, paradigms and transformations                                                   |       |
| II. Motivations and Demand for Tourism                                                                           | 15    |
| 2.1 Motivational factors: social, cultural, personal, prestige & status                                          |       |
| 2.2 Determinants and characteristics of tourism demand                                                           |       |
| 2.3 Socioeconomic characteristics of tourists                                                                    |       |
| 2.4 Methods and problems of measuring recreational demand                                                        |       |
| 2.5 Measuring the attractiveness of tourist destination places                                                   |       |
| III. Supply of Tourism and Recreation:                                                                           | 15    |
| 3.1 Tourism product and its characteristics                                                                      |       |
| 3.2 Tourist destination and products                                                                             |       |
| 3.3 Factors influencing supply                                                                                   |       |
| 3.4 Geographic analysis of recreational supply                                                                   | 15    |
| IV. Concepts and Theories                                                                                        |       |
| 4.1 Concepts - eco-tourism, sustainable tourism, pilgrimage tourism, adventure tourism, and carrying capacity    |       |
| 4.2 Theories - system theory, Butler's concept of evolution of tourist destination, and Maslow's hierarchy model |       |
| V. Impacts of Tourism and Recreation                                                                             | 20    |
| 5.1 Economic                                                                                                     |       |
| 5.2 Social                                                                                                       |       |
| 5.3 Cultural                                                                                                     |       |
| 5.4 Physical                                                                                                     | 15    |
| VI. Urban and Rural Tourisms                                                                                     |       |
| 6.1 Urban tourism - development, experience, typology, behavioral issues, service quality, management technique  |       |
| 6.2 Rural tourism - concept, debate, historical perspective, impacts                                             |       |
| VII. Tourisms in the Wilderness and National Parks                                                               | 10    |
| 7.1 Changing meaning of wilderness and value of wilderness                                                       |       |
| 7.2 Tourist demand for national parks and natural areas                                                          |       |
| VIII. Techniques in Tourism                                                                                      | 20    |
| 8.1 Methods selecting tourism sites and analysis techniques and impacts of tourism analysis                      |       |
| 8.2 Delphi - technique for forecasting of tourism development                                                    |       |



### 8.3 GIS tool

## IX. Planning and Policies

- 9.1 Tourism planning in terms of space and place
- 9.2 Approaches to tourism planning
- 9.3 Elements in tourism policy making
- 9.4 International tourism policies

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### Required References

Baud-Bovy, M. Lawson, F. (1977), *Tourism and Recreation Development*. London: The Architectural Press Ltd.

Collier, A. (1998), *Principles of Tourism*. New Zealand: Pitman Publishing.

Hall, C.M. and Page, S.J. (2002), *The Geography of Tourism and Recreation: Environment, Place and Space*. Routledge

Leiper, N. (1995), *Tourism Management*. Victoria: Tafe Publications.

Mathieson, A. and Wall, G. (1982), *Tourism: Economic, Social, and Physical Impacts*. Longman.

Smith, S.J.L. (1998), *Tourism Analysis: A Handbook*. New York: John Wiley & Sons, Inc.

### Reading References

*Annals of Tourism Research*. A Social Science Journal. Boulder, USA.

Murphy, P.E. (1985), *Tourism: A Community Approach*. Routledge.

*The Himalayan Review* (Tourism Special Issue). 1998. Nepal Geographical Society.  
*Tourism and Recreation Research*. Lucknow, India.

Towner, J. and France, L. (1992), Rapid rural appraisal techniques: their applications in geographical studies of tourism. *Tourism Recreation Research*. 17(1): 48-53.

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# Rural Development Planning I

Geog: 537-3; Paper: VII

Full Marks: 100

Teach. Hr. 150

## Objectives:

The objective of this course is to provide detailed knowledge on the theoretical aspects of rural development planning and to enable students to evaluate and analyze rural development projects.

## Course Contents:

| Units                                                                                                                                                                                                                                | Teach. Hrs. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| I Needs of Rural Development Planning                                                                                                                                                                                                | 15          |
| Overview, Accelerating change, Polarization : overclass and underclass, The evolving consensus, The power and will to act                                                                                                            |             |
| II Concept and Changing Nature of Rural Development                                                                                                                                                                                  | 15          |
| Meaning and concept, Changing nature of Rural Development                                                                                                                                                                            |             |
| III Methods and Techniques of Rural Development                                                                                                                                                                                      | 20          |
| The Challenges, Stream of Change, PRA: confluence and spread, PRA and RRA compared, Practical application, Participatory alternatives to questionnaire survey, Insights for policy                                                   |             |
| IV Rural Development Interventions                                                                                                                                                                                                   | 10          |
| Content, Changing emphasis                                                                                                                                                                                                           |             |
| V Approach to Rural Development                                                                                                                                                                                                      | 15          |
| Area Development Approach, Target Group Approach, Employment Approach, Welfare Approach, Integrated Development Approach, Participatory Approach, Review of Participatory literature from South Asia                                 |             |
| VI Rural Poverty                                                                                                                                                                                                                     | 15          |
| Introduction, Concept of income level and poverty line, Measurement of rural poverty with special reference to the Human Development Index, Causes of rural poverty, Poor people's realities, Reversals for complexity and diversity |             |
| VII Decentralization, Diversity and Dynamics                                                                                                                                                                                         | 15          |
| Paradigm and development, The new High Ground, Parallel evolution, Permanently provisional: the evolving paradigm                                                                                                                    |             |
| VIII Socio economic Dynamics and Changing Rural Livelihood                                                                                                                                                                           | 15          |
| Rural livelihood and social policy: introduction, Population problems and local resources, Water, public health and rural environmental condition, Education and rural change: strategies and program                                |             |
| IX Introduction to Project Planning and Project Analysis                                                                                                                                                                             | 30          |
| Introduction, The Project cycle: (Project identification, Project preparation/feasibility, Project Appraisal, Project implementation, Evaluation, Project Analysis)                                                                  |             |



Note: Students are recommended to take any one completed or on going project for detail analysis and overview. |

#### References

1. Chambers R., *Whose Reality Counts: Putting the first last*, London: IT Publications, 1996.
2. Chambers R., *Rural Development. Putting the Last first*, London: Longman, 1983.
3. Booth, D. (ed.), *Rethinking Social Development: Theory, Research and Practices*, Harlow: Longman Scientific and Technical, 1994.
4. Apthorpe, R. and D. Gasper (eds.), *Arguing Development Policy: Frames and Discourse*, London: Frank Cass, 1996.
5. Johnston, B.F. AND W.C. Clark, *Redesigning Rural Development: A Strategic Perspectives*, Baltimore, Johns Hopkins University Press, 1982.
6. Belshaw, D.G.R., *Rural Development Strategies in the 1990's: Poverty Alleviation, Productivity Gains and Decentralization*, Paper Presented to the annual Conference of the Agricultural Economics Society, Cambridge, 1995.
7. Shepherd, A., *Sustainable Rural Development*, 1997.
8. Crush, J.(ed.), *Power of Development. London: Routledge Introduction: Imaging development*, pp. 1,26, 1995.
9. Jazairy, I., M. Alamgir and T. Panuccio, *The State of World Rural Poverty: An Inquiry into Its Causes and Consequences*, London; IT Publications, 1992.
10. Beck, Tony, *The Experience of Poverty: Fighting for Respect and Resources in Village India*, London: IT Publications, 1994.
11. UNDP, *Human Development Report*.
12. Jordan , B., *A Theory of Poverty and Social Exclusion*, Cambridge: Polity Press, 1996.
13. Grindle, M. S. and J. W. Thomas, *Public Choice and Policy Change: The Political Economy of Reform in Developing Countries*, 1991.
14. Staudt, K., *Managing Development: State, Society, and International Context*. London: Sage, 1991.
15. Colman, G., The monitoring and evaluation of rural development projects: lessons and learning , *Journal of International Development*, Vol. 4, (5), pp 149-161, 1992.
16. Wright, S. and S. Nelson. (eds), *Power and Participatory Development: Theory and Practice*,. London: IT Publications, 1994.
17. Berman , J., *Footloose Labour*, Cambridge: Cambridge University Press, 1997.
18. Das Gupta, P., *An Inquiry into Well-Being and Destitution*, Oxford: Clarendon Press, 1930.
19. Graham -Brown, S., *Education in Developing World. Conflict and Crisis*, London , Longman, 1991.
20. Griffin, K. and McKinley T., *Implementing a Human Development Strategy*, London: Macmillan, 1994.
21. McNicoll, G. and Cain, M., *Rural Development and Population: Institution and Policy*, Oxford: Oxford University Press, 1990.
22. Keisling, K. and Landberg, H.(eds), *Population, Economic Development*



and the Environment: *The Making of Our Common Future*, Oxford: Oxford University Press.

23. WHO, *Health and Environment in Sustainable Development, Five years after the Earth Summit*, WHO, Geneva, 1997.
24. Bernstein, H., B., Crow and H. Johnston, *Rural Livelihoods Crisis and Responses*, Oxford: Oxford University Press, 1992.
25. Bromley, D., (ed), *Making the Common Work: Theory, Practice and Policy*, San Francisco, CA: Institute for Contemporary Studies, 1992.
26. Midgley, J., Hall, A., Hardiman, M. and Narine, D., *Community Participation, Social Development and the State*, London: Methuen, 1986.
27. Barraclough, S. L. and Ghimire, K.B., *Forests and Livelihoods: The Social dynamics of Deforestation in developing Countries*, UNRISD Macmillan Press, 1995.
28. Berkes, F. (ed), *Common Poverty Resources : Ecology and community based Sustainable Development*, London: Belhaven, 1989.
29. Bromley, D.W. and Cernea, M.M., *The management of common Property Natural Resources : Some Conceptual and Operational Fallacies*, World Bank Discussion Paper No 57, 1989.
30. Colchester, M., 'Sustaining the Forests: The Community based Approach in South and South-East Asia' *Development and Change*, Vol. 25, p 69 - 100, 1994.
31. Hobley, M., *Participatory Forestry: The Process of Change in India and Nepal Rural Development Forestry Guide 3*, London : ODI, 1996.
32. Kortan, D. (ed), *Community Management: Asian Experiences and perspectives*, Connecticut; Kumarian Press, 1986.



Geography of Transportation  
(Course to be developed)  
Geog 537-4; Paper: VII (Full Marks: 100)



Public Policy and Local Governance  
(Course to be developed)  
Geog 537-5; Paper: VII (Full Marks: 100)



Remote Sensing  
Geog: 538-1; Paper VIII

Full Marks: 100  
Teaching Hours: 150

**Objectives:**

The course aims to provide basic understanding of principle and concepts of remote sensing. Emphasis will be given to develop skills on interpretation and information extraction from remote sensing products and its application in specific purposes.

**Course Units**

|                                                                                                                           | Hours |
|---------------------------------------------------------------------------------------------------------------------------|-------|
| I. Remote Sensing                                                                                                         | 5     |
| 1.1 Definition, types, history and recent development trend                                                               |       |
| 1.2 Applications                                                                                                          |       |
| II. Electromagnetic Energy and Remote Sensing                                                                             | 5     |
| 2.1 Electromagnetic energy: waves, sources of EM energy & EM spectrum                                                     |       |
| 2.2 Energy interaction in the atmosphere: absorption, transmission and atmospheric scattering                             |       |
| 2.3 Energy interactions with the Earth's surface                                                                          |       |
| 2.4 Spectral reflectance curves                                                                                           |       |
| III. Remote Sensing Sensors and Platforms                                                                                 | 5     |
| 3.1 Sensors: Passive and active sensors                                                                                   |       |
| 3.2 Platforms: airborne and space-borne remote sensing                                                                    |       |
| 3.3 Image data characteristics                                                                                            |       |
| IV. Image Data Characteristics                                                                                            | 15    |
| 4.1 Aerial camera, film, filter, photographs and scale                                                                    |       |
| 4.2 Geometry of vertical photograph, relief displacement & image parallax                                                 |       |
| 4.3 Orthophoto                                                                                                            |       |
| V. Characteristics of Satellite Remote Sensing                                                                            | 10    |
| 5.1 Scanners: Whiskbroom and push broom                                                                                   |       |
| 5.2 Some operational multispectral scanners: Landsat-7 & 8, SPOT-4, IRS-1C & 1D, ASTER, IKONOS Quick bird and ALOS        |       |
| 5.3 RADAR: Principles, distortions, interpretation of radar images, characteristics and application of ENVISAT radar data |       |
| 5.4 Geostationary satellites                                                                                              |       |
| 5.5 LIDAR Remote sensing                                                                                                  |       |
| VI. Visualization and Image Enhancement                                                                                   | 5     |
| 6.1 Visualization of image data: Histogram and single band image display                                                  |       |
| 6.2 Image enhancement: Contrast enhancement and spatial enhancement                                                       |       |
| 6.3 Perception of color                                                                                                   |       |
| 6.4 Visualizing multi-band data: color composites                                                                         |       |
| VII. Geometric and Radiometric Correction                                                                                 | 15    |
| 7.1 Geometric distortions and type                                                                                        |       |
| 7.2 Ground Control Points, Geo-reference and ortho-rectification                                                          |       |
| 7.3 DEM and Rational Polynomial Model                                                                                     |       |

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|                                                                                                                                                                                                                                                     |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 7.4 Radiometric distortion types and correction methods                                                                                                                                                                                             |    |
| VIII. Multi Band Operations                                                                                                                                                                                                                         | 10 |
| 8.1 Image ratios, Vegetation Index and Multi band statistics                                                                                                                                                                                        |    |
| 8.2 Principal component analysis and image fusion or resolution merge                                                                                                                                                                               |    |
| 8.3 Image classification: density slicing, supervised, unsupervised, hybrid and fuzzy                                                                                                                                                               |    |
| 8.4 Classification accuracy assessment                                                                                                                                                                                                              |    |
| IX. Visual Image Interpretation and Information Extraction                                                                                                                                                                                          | 10 |
| 9.1 Image analysis and interpretation: human vision, stereoscopic vision, elements of image interpretation                                                                                                                                          |    |
| 9.2 Information extraction based on visual interpretation of aerial photographs and satellite image                                                                                                                                                 |    |
| X. Computer based Stereo model of imagery and aerial photos                                                                                                                                                                                         | 15 |
| 10.1 Generation of Epipolar stereo pair and Analygyph stereo image and interpretation in 3D model (ILWIS)                                                                                                                                           |    |
| 10.2 DEM generation from stereo model (ERDAS)                                                                                                                                                                                                       |    |
| XI. Global Positioning System (GPS)                                                                                                                                                                                                                 | 5  |
| 11.1 GPS: Concepts and principles                                                                                                                                                                                                                   |    |
| 11.2 Application of GPS in remote sensing and integration in GIS                                                                                                                                                                                    |    |
| XII. RS Applications:                                                                                                                                                                                                                               | 50 |
| 12.1 Planning and analysis of land-uses, terrain, geomorphic, urban studies, agriculture, bio-diversity, & various environmental studies                                                                                                            |    |
| 12.2 Each student prepares a project work on any specific theme and the students spend at least 8 days in the near by field on their own cost and use GPS for verification, ground truthing, and updating of aerial photographs and satellite image |    |

**Note:** The total 100 mark is divided into two evaluations:

|                            |    |
|----------------------------|----|
| Field and Lab Based Works= | 50 |
| Final Written Exam =       | 50 |

\*Some guest lectures in relevant issues are recommended.

#### Required References

ITC (2000), *Principles of Remote Sensing*. The Netherlands: International Institute for Aerospace Survey and Earth Sciences.

Lillisand T. M. and Keifer, R.W. (1994), *Remote Sensing and Image Interpretation*. New York: Willey.

Nag, P. and Kudrat, M. (1998), *Digital Remote Sensing*. New Delhi: Concept.

Jensen, J. R. (1986), *Introductory Digital Image Processing*. New Jersey: Prentice-Hall.

#### Reading Materials

ITC (2001), *ILWIS 3.0 User's Guide*. The Netherlands: International Institute for Aerospace Survey and Earth Sciences.

JARS (1996), *Remote Sensing Note*. Tokyo: Japan Association on Remote Sensing.

Sabins, F.F. (1996), *Remote Sensing: Principles and Interpretation*. New York: Freeman.

Web sites: <http://eopi.esa.int/> (for access to ENVISAT radar data)

GPS (Add references)



# Mountain Climate and Hydrology

Geog: 538-2; Paper VIII

## A. Mountain Weather and Climate

Full Marks: 50

Teaching Hours: 75

| Course Units:                                                                                                                                                                         | Hours |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I Introduction: mountains and their climatological studies                                                                                                                            | 10    |
| II Geographical controls of mountain meteorological elements- latitude, altitude and topography                                                                                       | 10    |
| III Circulation system related to orography - planetary, synoptic and local gravitational                                                                                             | 10    |
| IV Climatic characteristics of mountains - energy budget, temperatures, cloudiness, precipitation, evaporation, other hydrometeors                                                    | 15    |
| V Mountain bio-climates, hazard and pollution - bioclimate, weather hazards, air pollution                                                                                            | 10    |
| VI Meteorological hazards and risk assessment: extreme event analysis, hazard mapping, vulnerability and risk mapping and assessment                                                  | 10    |
| VII Change in mountain climates: global climate change in historical periods, recent climate change: trends, causes, consequences, vulnerability and risks; mitigation and adaptation | 10    |

## B. Hydrology

Full Marks: 50

Teaching Hours: 75

| Course Units:                                                                                                                                                    | Hours |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I Introduction: definition, hydrological cycle, hydrologic budget                                                                                                | 10    |
| II Hydrologic inputs: drainage basin, weather, precipitation                                                                                                     | 10    |
| III Subsurface flow: infiltration, soil moisture, ground water and base flow                                                                                     | 10    |
| IV Above surface flow: precipitation, evaporation, interception, storage, runoff                                                                                 | 10    |
| V Stream flow measurement and analysis: measurement, hydrograph analysis, flow duration curve, frequency analysis                                                | 10    |
| VI Precipitation - runoff relation: estimation of surface runoff volume, peak discharge, snow and snowmelt runoff                                                | 10    |
| VII Watershed simulation: stream flow, erosion and sediment yield                                                                                                | 5     |
| VIII Water quality: parameters, quality measurement; proxy measures, modeling, water quality control measures                                                    | 5     |
| IX Hydrology in a changing world: water resource management, climate change, land use and land cover change, salination, ground water depletion, urban hydrology | 5     |

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# Biogeography

Geog: 538-3; Paper VIII

Full Marks: 100  
Teaching Hours: 150

## Objective:

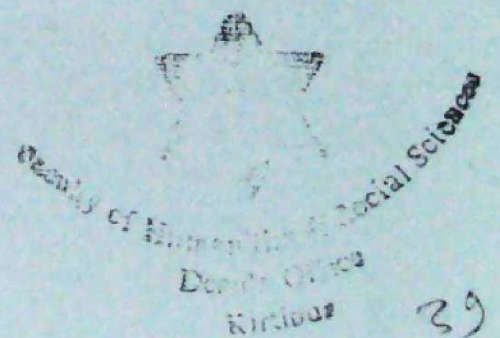
| Course Units:                                                                                                                       | Hours |
|-------------------------------------------------------------------------------------------------------------------------------------|-------|
| I Concepts and approaches                                                                                                           | 20    |
| II Life and the environment: topography and soil, climate habitat, landscape, ecological tolerance, niches and life forms           | 20    |
| III Distribution of organism: patterns of distribution, dispersal and range change, variance and range change, humans and dispersal | 20    |
| IV Populations: demography of single population, survival strategies                                                                | 20    |
| V Interacting populations: cooperation, competition, coexistence                                                                    | 15    |
| VI Communities: communities and ecosystems, community role, food chains and food webs, biodiversity                                 | 20    |
| VII Community change: equilibrium communities, disequilibrium communities, habitat fragmentation                                    | 20    |
| VIII Life, humans and mortality: bio-rights, attitude towards nature, conservation practices                                        | 15    |



Glacial & Periglacial Environment  
(Course to be developed)  
Geog 538-4; Paper: VIII (Full Marks: 100)



Landscape Ecology  
(Course to be developed)  
Geog 538-5; Paper: VIII (Full Marks: 100)





# Natural Resources and Environmental Management

Geog: 539-1; Paper IX

## A. Natural Resources Management

Full Mark: 50

Teaching Hours: 75

### Course Objectives

This course aims to enable students to understand different dimensions of environmental resources management, as well as to impart knowledge to students on natural resources and their management, planning, issues, and policies with special reference to Nepal.

| Course Units                                                                                                                      | Hours |
|-----------------------------------------------------------------------------------------------------------------------------------|-------|
| I. Natural Resources                                                                                                              | 6     |
| 1.1 Meaning: resources, environment and ecology                                                                                   |       |
| 1.2 Types: natural and man-made                                                                                                   |       |
| II. Man and Environment relationships:                                                                                            | 10    |
| 2.1 Approaches & thoughts: determinism/environmentalism, possibilism/developmentalist and interactionalism                        |       |
| 2.2 Influences of environment (bio-physical factors) on man:                                                                      |       |
| 2.3 Influences of man on environment: functional landscapes, ecumene and aesthetic value                                          |       |
| III. Natural Resources Use Systems                                                                                                | 8     |
| 3.1 Concepts: use and misuse of natural resources                                                                                 |       |
| 3.2 Classification of resources and their importance: land/soil, water, forest, pasture, minerals and natural gas                 |       |
| 3.3 Production practices: shifting, transhumance, subsistence, intensive, commercialised, and specialized systems                 |       |
| 3.4 Natural resources based livelihoods                                                                                           |       |
| IV. Environmental Degradation and Consequences                                                                                    | 14    |
| 4.1 Causes and consequences of natural resource hazards: landslides, soil erosion, flood, siltation, deforestation and pollutions |       |
| 4.2 Desertification - process and management                                                                                      |       |
| 4.3 Impacts of degradation on local/regional/trans-boundary environments, human health and development                            |       |
| 4.4 Natural resources conflicts: concept, types and causes                                                                        |       |
| V. Natural Resources Analysis Measures                                                                                            | 16    |
| 5.1 Identification of key environmental issues and priority order                                                                 |       |
| 5.2 PSIR (Pressure-State-Impact-Response) analytical framework                                                                    |       |
| 5.3 Accessibility: spatial, social and economic dimensions                                                                        |       |
| 5.4 People and resource relationship: density, carrying capacity                                                                  |       |
| 5.5 Environmental resources mapping and interpretation                                                                            |       |
| 5.6 Decision support system for natural resources management                                                                      |       |
| VI. Planning, Management and Strategies of Natural Resources                                                                      | 20    |
| 6.1 Land use and land cover zonation planning                                                                                     |       |
| 6.2 Natural resources management practices - national parks,                                                                      |       |



- wetlands & watershed management, buffer zone concept, people-managed, community managed and state managed
- 6.3 Indigenous techniques - terrace farming, integrated farming
  - 6.4 Role of civil society & local organisations (traditional organizations, users' organization, CBOs, and NGOs)
  - 6.5 Government policies, conservation strategies, and acts

### Required References

Pachauri, R.K. and Lubina, F.Q., eds. (1997), *Population, Environment and Development*, New Delhi: Tata Energy Research Institute

Pradhan, P.K. and Pradhan, B. (2006), *Environment and Natural Resources: Concepts, Methods, Planning and Management*, Kathmandu: Quest Publication.

UNEP (2001), *Nepal: State of the Environment 2001*, Bangkok: United Nations Environment Programme

### Reading References

Bishop, B.C. (1991), *Karnali under Stress: Livelihood Strategies and Seasonal Rhythms in a Changing Nepal Himalaya*. Chicago: The University of Chicago Press

HMG/Environmental Protection Council (1993), *Nepal Environmental Policy and Action Plan: Integrated Environment and Development*, Kathmandu: National Planning Commission

Pradhan, P.K. (2001), *Population Growth, Migration and Urbanisation, and Environmental Change in Kathmandu Valley, Nepal*, Wengen-2001 International Conference on Environmental Change: Implications for Population Migrations, September 19-22, 2001, Switzerland

UNEP (1997), *Global Environmental Outlook*, United Nations Environmental Programme

UNFPA (1991), *Population, Resources and the Environment*, New York: United Nations



## B. Environmental Impact Assessment (EIA)

Full Mark: 50  
Teaching Hours: 75

### Course Objectives

The course intends to impart knowledge and understanding of environment and analysis methods of the environmental impacts to the students. The course provides field based experiences on the environmental impacts to the students.

| Course Units                                                                                                                                                                       | Hours |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I. Environmental Impact Analysis: concept and importance                                                                                                                           | 2     |
| II. Bio-physical Aspects of Environment                                                                                                                                            | 8     |
| 2.1 Biosphere, function, and ecological niche                                                                                                                                      |       |
| 2.2 Biotic factors and community structure                                                                                                                                         |       |
| 2.3 Earth as a system: bio-geo chemical cycle, geo-physical factors                                                                                                                |       |
| 2.4 Law of conservation of matter, tropic structure & ecological pyramids                                                                                                          |       |
| 2.5 Transfer of energy between tropic levels, ecosystem energetic                                                                                                                  |       |
| III. Nature of Environmental Planning                                                                                                                                              | 6     |
| 3.1 Environmental planning as different from other planning: economic and social                                                                                                   |       |
| 3.2 International conventions, obligations and local agenda 21                                                                                                                     |       |
| 3.3 Policy and legal status: policies & guidelines of donor agencies                                                                                                               |       |
| IV. Environment Assessment and Management                                                                                                                                          | 15    |
| 4.1 Introduction to EIA: concept, definition and relevancy                                                                                                                         |       |
| 4.2 EIA and project cycle: concept, development & integration                                                                                                                      |       |
| 4.3 Life cycle assessment                                                                                                                                                          |       |
| 4.4 Environmental quality: ISO-14000 series                                                                                                                                        |       |
| V. EIA principles and procedures                                                                                                                                                   | 30    |
| 5.1 Screening/Scoping, and TOR preparation                                                                                                                                         |       |
| 5.2 EIA process in Nepal EPR-1997 & amended 2006                                                                                                                                   |       |
| 5.3 Environmental sets-data collection and interpretation in various stages of project management                                                                                  |       |
| 5.4 Impact identification, prediction and analysis of significance of air, water, soil, noise, habitat                                                                             |       |
| 5.5 Mitigation measures                                                                                                                                                            |       |
| 5.6 Environmental monitoring and auditing (principles, types & institutions)                                                                                                       |       |
| 5.7 Environmental Management plan and EIA report review process - alternatives, collective measures, compensatory measures, preventive measures, and implementation in EIA process |       |
| 5.8 Geographic tools: cartographic, GIS, RS, GPS applications                                                                                                                      |       |
| VI. Social Impact Assessment (SIA)                                                                                                                                                 | 10    |
| 6.1 Social policies, social construction, environmental economics, government, local institutions                                                                                  |       |

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|                                                                                           |   |
|-------------------------------------------------------------------------------------------|---|
| 6.2 Social carrying capacity                                                              |   |
| 6.3 Social capital: education, service, traffic, transportation system, human health etc. |   |
| VII. Public Participation                                                                 | 2 |
| 7.1 Role of environmental agencies in EIA processes                                       |   |
| 7.2 Need and stages for stakeholders involvement                                          |   |
| VIII. Strategic Environmental Assessment and Field Observation*                           | 2 |
| 8.1 IEE/EIA: introduction and limitations                                                 |   |
| 8.2 Field study of point & band projects: hydropower, road, or industry                   |   |

*\*Students spend 3 days in the nearby field on their own cost, acquire data and information on any of the above projects & discuss the experiences in the class.*

### Required References

Larry, Canter (1996), *Environmental Impact Assessment*. McGraw Hill Publication.

Khadka, R.B. et al (1995), *EIA: Training Manual for Professionals and Managers*. IUCN -the World Conservation Union.

Pradhan, P.K. Pradhan, B. (2006), *Environment and Natural Resources: Concepts, Methods, Planning and Management*. Kathmandu: Quest Publication.

Upreti, B.K. (2003), *Environmental Impact Assessment: Process and Practice*. Kathmandu: Mrs. Uttara Upreti.

### Reading References

ADB (1993), *Environmental Impact Assessment for Developing Countries*, Volume I.

Botkin, D.B. and Keller, E.A. (2000). *Environmental Science: Earth a Living Planet*.

Chiras, D.D. (1997), *Environmental Science: Creating a Sustainable Future*. Jones and Bartlett Publishers.



# Urban Planning and Management

Geog: 539-2; Paper IX

FM: 100

Teaching Hours: 150

## Objectives:

This course includes two major parts such as public private partnership, and micro enterprises and livelihood for urban planning and management. The first part intends to impart knowledge on public and private sectors partnership as an approach to provide infrastructure to develop urban areas and the second part deals with micro enterprises (economic and social) and livelihood patterns based on resources available in the urban areas, with particular reference to Nepal. Spatial analysis is given special attention.

## A. Public Private Partnership in Urban Planning and Management

| Course Units                                                                                                                                                                                                                       | Hours |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I. Urban planning and management:                                                                                                                                                                                                  | 8     |
| 1.1 Urban concepts, factors and process                                                                                                                                                                                            |       |
| 1.2 Urbanization: manifestations and needs                                                                                                                                                                                         |       |
| 1.3 Approaches including public and private partnership (PPP)                                                                                                                                                                      |       |
| II. Public and Private Sectors:                                                                                                                                                                                                    | 5     |
| 2.1 Origins, concepts, types, features and roles                                                                                                                                                                                   |       |
| 2.2 Benefits and risks/challenges                                                                                                                                                                                                  |       |
| III. PPP Projects - feasibility and process for establishment                                                                                                                                                                      | 25    |
| 3.1 Pre-feasibility planning and geographic analysis                                                                                                                                                                               |       |
| 3.2 Feasibility study requirements: location, economic, financial, social, legal/regulatory, and technical criteria                                                                                                                |       |
| 3.3 Creating a standardized process (checklist) for PPP project screening                                                                                                                                                          |       |
| 3.4 Feasibility areas: water, energy, solid waste, sanitation, transportation, housing, bus park, parking area, health services, market places, public park and recreation areas, bridges, road, expressway, urban sewerage system |       |
| IV. Risk Identification, Mitigation and Allocation Programs                                                                                                                                                                        | 22    |
| 4.1 Techniques to identify PPP project risks                                                                                                                                                                                       |       |
| 4.2 Understanding demand, financial, technical, economic, and political risks and implications for project feasibility                                                                                                             |       |
| 4.3 Analysis of risks and strategies to the most suitable party                                                                                                                                                                    |       |
| 4.4 Security packages (legal agreements) to mitigate project risks                                                                                                                                                                 |       |
| 4.5 Financial models to determine cost recovery and level of tariff                                                                                                                                                                |       |
| 4.6 Role of insurance and options for risk mitigation                                                                                                                                                                              |       |
| V. PPP Project Cycle                                                                                                                                                                                                               | 5     |
| 5.1 Project preparation (inception, feasibility study and procurement)                                                                                                                                                             |       |
| 5.2 Project term: <i>development</i> - measure outputs, monitor and                                                                                                                                                                | 44    |



regulate performance, liaise effectively, settle disputes;  
*development delivery* - report progress and exit - scrutiny by  
 audit

- |                                                                                                                                                                                |   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| VI. Efforts, Acts, and Policy Measures for PPP                                                                                                                                 | 5 |
| 6.1 Rationale of PPP projects identification (sustainable development)                                                                                                         |   |
| 6.2 Structuring considerations for relevant PPP options -service/ management contracts, joint ventures, divestiture, licensing, leases, and concessions                        |   |
| VII. Study/Site visits to PPP Programs/Projects (students bear the cost by themselves during the site visits - 3 days - discussions and sharing of the results in the classes) | 5 |

#### Required References:

Harper, M. (1984), *Small Business in the Third World: Guidelines for Practical Assistance*, London: Intermediate Technology Publications.

Pradhan, P.K. (2002), *Cities and Rural communities Partnership in the Fields of Training of Economic Entrepreneurs and Enterprises Undertaking in Nepal*, OECD/Victoria Conference: Learning Cities and Regions, 14-15 October, Australia. (<http://www.wcdem2003.com/oecdpapers/pushkar.doc>).

Sethuraman, S.V. (1976), The urban informal sector: concept, measurement and policy. *International Labour Review*, Vol. 114, No. 1: 69-81.

Short, J.R. (1987), *An Introduction to Urban Geography*. New York: Routledge.

### B. Micro Enterprises and Livelihood in Urban Planning and Management

| Course Units                                                        | Hours |
|---------------------------------------------------------------------|-------|
| I. Urban Economic Activities and Enterprise Development             | 10    |
| 1.1 Urban poverty - nature, trend and features                      |       |
| 1.2 Urban Micro Economic Enterprises - definition, types & features |       |
| 1.3 Emergence of micro informal enterprises                         |       |
| 1.4 Criteria for identifying micro enterprises                      |       |
| 1.5 Components of micro enterprises                                 |       |
| II. Planning concepts in urban context                              | 8     |
| 2.1 Basic needs concept                                             |       |
| 2.2 Dualism & Dependency                                            |       |
| 2.3 Labour surplus                                                  |       |
| 2.4 Urban livelihood framework                                      |       |
| III. Roles and Policy issues                                        | 8     |
| 3.1 Urban environment                                               |       |
| 3.2 Employment generation, labour market and livelihood means       |       |
| 3.3 Local resource use and meeting basic needs                      |       |
| 3.4 Sources of growth                                               |       |
| 3.5 Safety valve to the multitude of jobless & underemployment      |       |
| 3.6 Nuisance & crowd - orderly growth of urban area                 |       |
| IV. Key Measures                                                    | 14    |

45



|      |                                                                       |    |
|------|-----------------------------------------------------------------------|----|
| 4.1  | Capital Intensity                                                     |    |
| 4.2  | Capital Output Ratio (Capital Coefficient)                            |    |
| 4.3  | Labour Productivity                                                   |    |
| 4.4  | Rate of Surplus per Unit of Capital                                   |    |
| 4.5  | Marketing system, market chain and price chain                        |    |
| 4.6  | Linkages - vertical, horizontal and lateral                           |    |
| V.   | Micro Enterprises Initiatives/Potential Areas                         | 12 |
| 5.1  | Urban agriculture - high value crops, cut flower, food processing     |    |
| 5.2  | Manufacturing - crafts, curio, weaving                                |    |
| 5.3  | Construction                                                          |    |
| 5.4  | Transports - cart pusher, rickshaw puller, porters, vehicle           |    |
| 5.5  | Market and marketing - street vendors                                 |    |
| 5.6  | Services - repairing                                                  |    |
| VI.  | Strategies and Measures: urban poverty                                | 20 |
| 6.1  | Selection of micro economic activities for priority attention         |    |
| 6.2  | Improving living environment of urban poor                            |    |
| 6.3  | Access to technology, skill training and credit                       |    |
| 6.4  | Delivery of basic goods and services                                  |    |
| 6.5  | Planning and management - institutional development                   |    |
| 6.6  | Linkages of urban rural products and labour                           |    |
| VII. | Field visit in places having micro enterprising activities/programmes | 5  |

\*Students spend 3 days on their own cost and share their experiences in the class.

#### Required References

ADB (2004), *City Development Strategies to Reducing Poverty*. Manila: Asian Development Bank (ADB).

Harper, M. (1984), *Small Business in the Third World: Guidelines for Practical Assistance*, London: Intermediate Technology Publications.

Pradhan, P.K. ed., (2009), *Micro Enterprises, Livelihood and Local Development*. Kathmandu: Micro Enterprise Development Programme (MEDEP)/Ministry of Industry, Commerce and Supply (MOICS).

Sethuraman, S.V. (1976), The urban informal sector: concept, measurement and policy. *International Labour Review*, Vol. 114, No. 1: 69-81.

Short, J.R. (1987), *An Introduction to Urban Geography*. New York: Routledge.

#### Reading References

CBS (2006), *Resilience amidst Conflict: An Assessment of Poverty in Nepal, 1995-96 and 2003-04*. Kathmandu: Central Bureau of Statistics (CBS).

Dawadi, G.S. (2008), *Efficiency Measures in Informal Street Vendors of Urban Core Area of Kathmandu Metropolitan City*. MSc Thesis. Kathmandu: Institute of Engineering, Tribhuvan University.

ILO (2003), *Policy Formulation in Micro and Small Enterprises*. Kathmandu: International Labour Organisation (ILO) and United Nations Development Programme (UNDP).

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MEDEP, *Annual Reports*. Kathmandu: Micro Enterprise Development Programme (MEDEP)/ Ministry of Industry, Commerce and Supplies (MOICS) and United Nations Development Programme (UNDP).

Pradhan, P.K. (2004), *Rural Urban Relations: with Particular Reference to Nepal*. Kathmandu: Rural Urban Partnership Programme/Ministry of Local Development/United Nations Development Programme.

Pradhan, P.K. (2002), *Cities and Rural Communities Partnerships in the Fields of Economic Entrepreneurs and Enterprises*. Proceedings of the OECD Victoria Conference on Learning Cities and Region, Melbourne (14-15 October).

Raut, U.B. (2008), *Urban Agriculture for Sustainable Urban Development in Kathmandu*. MSc Thesis. Kathmandu: Institute of Engineering, Tribhuvan University.

Singh, L.R. (2003), *Role of Informal Building Construction Enterprises in Urban Development: a case study of Kathmandu Metropolitan City*. MSc Thesis, Department of Architecture and Urban Planning, Institute of Engineering

Sthapit, D. (1999), *Urban Information Sector in Kathmandu City: a case study of commercial vendors*. MSc Thesis, Kathmandu: Department of Architecture and Urban Planning, Institute of Engineering.



# Climate Change and Human Adaptation

Geog: 539-3

Teaching Hours: 150  
Full Marks: 100

## Objectives:

### Course Units:

|                                                               | Hours |
|---------------------------------------------------------------|-------|
| I Climate change - Evidence and theories                      | 20    |
| II Recent global warming - trends and causes                  | 20    |
| III Atmospheric composition                                   | 10    |
| IV Energy balance                                             | 10    |
| V Air-Sea interaction                                         | 10    |
| VI Green house effects and global carbon cycle                | 10    |
| VII Climate change mitigation                                 | 10    |
| VIII Global and regional climate modeling                     | 10    |
| IX Impacts of climate change - sectoral and geographical area | 15    |
| X Vulnerability and risk assessment and risk communication    | 15    |
| XI Human adaptation                                           | 10    |
| XII Global, national and local initiatives                    | 10    |

## References:

McMichael, A.J., Haines, A., Slooff, R. and Kovats, S., editors, (1996), *Climate Change and Human Health*. Geneva: World Health Organization.

Moench, M. and Dixit, Ayaya, editors (2004), *Adaptive Capacity and Livelihood Resilience: Adaptive Strategies for Responding to Floods and Droughts in South Asia*. Kathmandu/Boulder: Institute for Social and Environmental Transition and Institute for Social and Environmental Transition, International.

Carpenter, C. (2008), *The Bali Action Plan: Key Issues in the Climate Negotiations: Summary for Policy Makers*. UNDP.



## Rural Development Planning II

Geog: 539-4; Paper: IX

Full Marks: 100

Teach. Hr. 150

### Objectives:

The objective of the course is to give the students in-depth knowledge on rural development planning in Nepal and its changing nature.

### Course Contents:

| Units                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Teach. Hrs. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| I Rural Development Planning in Nepal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 15          |
| Level of planning, Development thoughts and issues, Strategies of rural development, Administrative and organizational structure for planning in Nepal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |             |
| II Approaches to Rural Development Planning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 15          |
| Past approaches to rural development program, Recent approaches to rural development program                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |
| III Problems and Issues of IRDP in Nepal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 15          |
| Policy Intervention in the program, Project type phase and process type phase of IRDP, Institutional and administrative contradiction and constraints, Multiplicity of programs, Diversity in IRDPS, Investment Approach                                                                                                                                                                                                                                                                                                                                                                                                                               |             |
| IV Rural Livelihood, Social Policy and Rural Change                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 20          |
| Population : situation and problems, Education and rural development, Educational strategies and programs, Public health: policy, efforts and constraints, Agriculture and development, Agricultural situation, Farming system: landholding, farm size and distribution, agricultural services delivery system, irrigation system and management, agricultural production and productivity, agriculture policy and planning, Water resource development, Water resource development priorities and strategies, Cooperation with neighboring countries, Agencies in water resource development, Conflicts and constraints of water resource development |             |
| V Decentralization, Peoples' Participation and Rural Development in Nepal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 20          |
| Decentralization, Definition and objectives of decentralization, Forms, types and scope of decentralization, Dimension and component of decentralization, Variables determining the success of decentralization, Peoples' Participation, Mechanism and strategy of participatory activities                                                                                                                                                                                                                                                                                                                                                            |             |
| VI INGOs, NGOs and CBOs in Rural Development                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 15          |
| Role of INGOs in rural development planning, Role of NGOs in rural development planning, Role of CBOs/ User Groups in rural development planning.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |
| VII Rural Poverty and Efforts of Poverty Alleviation in Nepal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 15          |
| Rural poverty, Concept and measurement of the poverty line, Dynamics of poverty, Dimensions of poverty with special reference to regional variation, Poverty alleviation: strategies and efforts                                                                                                                                                                                                                                                                                                                                                                                                                                                       |             |
| VIII Employment and Rural Development                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 15          |



Concept of employment, unemployment and underemployment. Employment situation,

Sectors of employment, Rural, urban dimension of employment, Employment policy and strategies

**IX Achievements and Constraints of Rural Development in Nepal 20**

Achievements, Institutional building, peoples' participation in development, Constrains, Donor based program, Conflict in the decentralization scheme

**References**

1. Pradhan, Bharat Bahadur, *Rural Development In Nepal: Problems and Prospects*, Maharajgung, 1982.
2. Pradhanang, Aishwarya Lal, *A study of Rural Development Projects in Nepal*, a research report submitted to the Institute of Humanities and Social Science, T.U. , 1985.
3. Weber, Karl E., D. Dies et al., *Rural Development Planning In Nepal. Course Handbook and Survey Report*, Division of Human Settlement Development, AIT, 1985
4. Maskey, Biswa Keshar (ed), *Social Development in Nepal, United Nation Associates of Nepal*, Published with 50th anniversary of United Nations.
5. Shrestha, Tulasi Narayan, *The concept of Local Government and Decentralization*, Rama Pustak Bhandar, Kathmandu, 1996.
6. Sharma, Sharad, *Decentralization and Local Participation for Development. Policies and Realities in Nepal*, Sobha Sharma, Maharjgung, 1998.
7. Bhatta, Bhim Dev, *Decentralization in Nepal*, Reliance Publication House, New Delhi, 1990.
8. Amatya, Soorya Lal, *Rural Development Through Decentralized Planning: A Case Study of Nepal*, East-West Association, Honolulu, Hawaii, 1988.
9. HMG/ Ministry of Water, *Water the Key to Nepal's Development*, Ministry of Water Resource, 1991.
10. *Human Development Report*, Nepal
11. *Agricultural Perspective Plan*.



# Population, Environment and Development

Geog: 539-5; Paper: IX

Full Marks: 100

Teach. Hr. 150

## Objectives:

This course aims to broaden student's understanding of relationships between population, environment and development. It specifically focuses on the complex issue of environmental and implications of population change primarily in the developing countries.

## Course Contents:

| Units                                                                                                                                                                                                                                                              | Teach. Hrs. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| <b>The Population Problem</b>                                                                                                                                                                                                                                      | <b>15</b>   |
| Nature of Exponential growth, Growth of world population, World economic growth, Population growth and Urbanization in developing countries                                                                                                                        |             |
| <b>II The Human Carrying Capacity</b>                                                                                                                                                                                                                              | <b>15</b>   |
| Concepts and related issues, Natural constraints and human choices, Utility of carrying capacity concept                                                                                                                                                           |             |
| <b>III Population and Human Resources</b>                                                                                                                                                                                                                          | <b>15</b>   |
| Links with environment and development, The perspective (population), Health and education, Managing distribution and redistribution                                                                                                                               |             |
| <b>IV Population Growth and Environmental Degradation</b>                                                                                                                                                                                                          | <b>15</b>   |
| Land degradation and over grazing, Deforestation, Crowding and poverty, Climatic change, Population-resource regions                                                                                                                                               |             |
| <b>V Sustainable Development</b>                                                                                                                                                                                                                                   | <b>15</b>   |
| Concept of sustainable development, Equity and common interest, Policy imperatives                                                                                                                                                                                 |             |
| <b>VI Environmental Sustainability</b>                                                                                                                                                                                                                             | <b>15</b>   |
| Socio-cultural expression, The food issue, The global food crisis, Sustainable food habit, The issue of grain-based diet, Non-food agriculture                                                                                                                     |             |
| <b>VII Population Environment and Food Security</b>                                                                                                                                                                                                                | <b>15</b>   |
| Population pressure and food supply system: the framework, supply factor, population density and food supply system, Perspectives on population growth and food supply: Food consumption level and demand, The Pessimist's Perspective, The optimist's Perspective |             |
| <b>VIII World Environment Policies</b>                                                                                                                                                                                                                             | <b>15</b>   |
| Before Stockholm, The UN Conference on Human Environment, Stockholm to Rio - the In-between ears, UN Conference on environment and Development (Rio Declaration), Beyond the Rio Conference, The UN Framework of convention on climatic change                     |             |
| <b>IX Population and Environment: Nepal's Case</b>                                                                                                                                                                                                                 | <b>15</b>   |
| Environmental issues and policies, Critique of population and environmental policies, Assessment of population-environment situation in Nepal, Problems of policy implementation, Poverty, environment and government                                              |             |



# X Environment, Women and Indigenous People

Women and environment: burden and articulation of women's concern, empowerment, recognition of vital role, Indigenous people and environment: the concern, Participation or appropriation, activism among indigenous people.

## References

1. Bongaarts, John, *Population Pressure and Food Supply System in the Developing World*, Population Council Working Paper No. 86. New York: Population Council, 1996.
2. ----- *Population Growth and Food Supply: Conflicting Perspectives*, Population Council Working Paper No. 86. New York: Population Council, 1993.
3. Desai, Udaya (ed.), *Ecological Policy and Politics in Developing Countries*, New York: State University of New York Press, 1998.
4. Elliott, Lorraine, *The Global Politics of the Environment*, New York: New York University Press, 1998.
5. Engelman, Robert and Pamela LeRoy, *Conserving Land. Population and Sustainable Food Production*. Washington DC: Population Action International, 1995.
6. Goodland R., "Environmental Sustainability: Eat Better and Kill Less," In R.K. Pachauri and Lubina F. Qureshy (eds.), *Population, Environment and Development*, New Delhi: Tata Energy Research Institute, 315-348, 1997.
7. His Majesty's Government/Environment Protection Council. 1993. *Nepal Environmental Policy and Action Plan: Integrating Environment and Development*, Kathmandu: National Planning Commission.
8. Mazur, Laurie Ann (ed.), *Beyond the Numbers: A Reader on Population, Consumption and the Environment*, Washington DC: Island Press, 1994.
9. Meadows, Donella H. Dennis L. Meadows, Jorgen Randers and William W. Behrens III. *The Limits to Growth*, Washington DC: Potomac Associates Book, 1972.
10. Pachauri, R.K. and Lubina F. Qureshy (eds.), *Population, Environment and Development*, New Delhi: Tata Energy Research Institute, 1997.
11. Peters, Gary L. and Robert P. Larkin, 1989 Iowa: Kendall/Hunt Publishing.
12. Ramphal, Shridath and Steven W. Sinding (eds.), *Population Growth and Environmental Issues*, Westport CT: Prager, 1996.
13. Smil, Vaclav, "How Many People Can the Earth Feed," *Population and Development Review*, 20 (2): 255-292, 1994.
14. Subedi, 13him P., "Population Environment interrelationships: The case of Nepal," In R.K. Pachauri and Lubina F. Qureshy (eds.), *Population, Environment and Development*, New Delhi: Tata Energy Research Institute, pp. 191-214, 1997,
15. United Nations Population Fund, *Readings in Population Research Methodology vol. 8: Environment and Economy*, New York: United Nations, 1993,
16. United Nations Population Fund, *Population, Resources and the Environment*, New York: United Nations, 1991,
17. World Commission on Environment and Development, *Our Common Future*, . Oxford: Oxford University Press, 1987,



## Gender and Development

Geog: 540-2; Paper: X

Full Marks: 100

Teach. Hr, 150

### General Objectives

This course has been designed to provide insight into major issues in the theory and practice of development policies and strategies in view of gender concerns for a new vision of development with more equality. The key feature of this course is provide explicit attention to previously neglected areas of rural development with special emphasis on gender concerns in rural economics, environment and rural change.

### Specific Objectives:

The subject aims to provide conceptual underpinnings for a better understanding of Gender Issues in Development, to allow for critical analysis of development policies and strategies from the gender perspective, to highlight the gender roles in environment management, to give a clear understanding on impact of rural change and gender relations and to widen vision on gender analysis for sustainable development project formulation. Emphasis is placed also on the documentation and analysis of women's situation and critical evaluation of current development strategies for equitable development along with a search for alternative methods, policies and strategies based on experiences of other countries.

### Course Contents:

#### Units

Teach. Hrs.

- |     |                                                                                                                                                                                                                                    |    |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| I   | <b>Gender and Development: Theoretical Conceptualization</b>                                                                                                                                                                       | 25 |
|     | Gender and Development: An Overview of Issues, Women, Gender and Development: WID, GAD, WAD as evolving perspectives and practices, Gender Relations and Gender-based Inequality, Social and Cultural Dynamics of Gender Relations |    |
| II  | <b>Gender Matters in Economic Development Strategies</b>                                                                                                                                                                           | 25 |
|     | Gender and Entitlement Systems, Gender and Household Economics, Gender and Cooperative Conflicts, Gender Division Labor, Beyond the Poverty Line: Feminization of Poverty, Overview of Economic Adjustments on Gender Relations    |    |
| III | <b>Gender Roles in Environment Management</b>                                                                                                                                                                                      | 25 |
|     | Women and Environment, Integration of Gender Considerations in Rural Environment, The Urban Environment and Gender Concerns, Interest Representation from the Grassroots, Gender Roles in Natural Resource Management              |    |
| IV  | <b>Gender Concerns and Rural Change</b>                                                                                                                                                                                            | 25 |
|     | Women's Participation in Rural Development, Technological Advancement for Rural Development, Effects of Technological Advancement on Rural Women                                                                                   |    |
| V   | <b>Gender and Development: Policies and Planning</b>                                                                                                                                                                               | 25 |



### EVALUATION PROCESS (ASSESSMENT)

The students are expected to have conceptual clarity, which will be evaluated through written assignments on given topics at individual level. Group works will be assessed based on the participation and presentation in the class. The students are expected to submit a project paper using the skills developed during the theoretical classes. Finally, the students will be assessed through written examination.

### References

1. Acharya, M., *The Statistical Profile on Nepalese Women: An Update in the Policy Context*, I IDS, 1994.
2. Agarwal, B. (ed.), 'Structures of Patriarchy: State, Community and Household in Modernising Asia', *Women and the Household in Asia*, Vol.2, 1988.
3. Agarwal, B. Cold Hearths and Barren Slopes, *The Woodfuel Crisis in the Third World*, Allied Publishers, New Delhi, 1986.
4. Ahmed, I. (ed.), *Technology and Rural Women*, ILO, London: George Allen & Unwin, 1985.
5. Baneria, L. (ed.), *Women and Development: the Sexual Division of Labour in Rural Societies*, New York: Praeger, 1982.
6. Boserup, E., *Women's Role in Economic Development*, New York: St. Martin's Press. 1970
7. Dankleman, I. and J. Davidson, *Women and Environment in the Third World - Alliance for the Future*, Earthscan, 1988.
8. Daber, R. and M.L. Cam, *Women and Technological Change in Developing Countries*, Westview Press, Inc. Boulder, USA, 1981.
9. Elson, D., *Male Bias in the Development Process*, Manchester: Manchester University Press, 1991.
10. Gray, J.N. and D.J. Mearns (eds.), *Society from the Inside Out: Anthropological Perspectives on the South Asian Households*, SAGE Publications, New Delhi, 1989.
11. Hess, Beth. B. and Myra Marx-Ferree (eds.), *Analysing Gender. A Handbook of 'Social Science' Research*, Sage Publication, Inc., 1987.
12. Kabeer, N., *Gender Planning in Development Agencies*, Edited by M. Macdonald, Oxfam, Oxford, 1994.
13. Kabeer, N., *Reversed Realities: Gender Hierarchies in Development Thought*, London: Verso, 1994.
14. Mies, M., *Patriarchy and Accumulation on a World Scale: Women in the International Division of labour*, Zed Books, 1980.
15. Moser, C.O., *Gender Planning and Development: Theory, Practice and Training*, London: Routledge, 1993.
16. Overholt, C. , M.B. Anderson K. Cloud, and J.E. Austin (eds.), *Gender Roles in Development Project: A Case Book*, Hartford: Kumarian Press, 1985.



17. Rogers, B., *The Domestication of Women: Discrimination in Developing Societies*, London: Kogan Page, 1980.
18. Rodda, A., *Women and Environment*, London: ZED, 1991.
19. Sen, G. and C. Grown, *Development, Crises and Alternative Visions: Third World Women's Perspectives*, London: Earthscan Publications Ltd., 1988.
20. Shiva, V., *Staying Alive: Women, Ecology and Survival in India*, London: ZED, 1989.
21. Shiva, V., *The Violence of the Green Revolution*, London: ZED, 1988.
22. Shrestha, S.L., *Gender Sensitive Planning: What, Why and How in Nepal*, WACN, 1994.
23. Subedi, P., *Nepali Women Rising*, Women Awareness Centre, 1993.
24. Tinker, I. (ed.), *Persistent Inequalities*, Oxford: Oxford University Press, 1990.
25. Wallace, T. and C. March (eds.), *Changing Perceptions: Writings on Gender and Development*, Oxford: Oxfam, 1991.
26. Waring, M., *If Women Counted - A New Feminist Economics*, London: Macmillan, 1989.
27. Young, K. (ed.), *Of Marriage and the Market*, London: CSE Books, 1981.
28. Young, K., *Planning Development with Women: Making A World of Difference*, Macmillan, 1993.