

**M. Phil/Ph.D Syllabus**  
**Session : 2018-2019 and 2019-2020**  
**Department of Geography and Environment**  
**University of Dhaka**

- G 701 Fundamentals of Geography**
- G 702 Urban Systems**
- G 703 Urban Landuse and Land Policy**
- G 704 Urbanization and Urban Policy**
- G 705 Environmental Analysis and Management**
- G 709 Transport and Development**
- G 710 Migration and Development**
- G 711 Geographical Information Systems and Remote Sensing**
- G 712 Medical Geography**
- G 713 Rural Markets and Marketing Systems**
- G 714 Regional Development, Planning and Problems**
- G 715 Fluvial Processes**
- G 716 Geography of Women and Development**
- G 717 Advanced Waste Management**
- G 718 Management of Development Induced Displacement**
- G 719 Coastal Dynamics and Coastal Zone Management**
- G 720 Climate Change and Human Adaptation**

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The following courses are offered at the M.Phil/Ph.D. level. Each student has to take 2 (two) courses as per their supervisor's advice.

**G 701 Fundamentals of Geography**

**Section I**

**Geography: History and Concepts**

What is Geography?  
The Foundations of Geography  
Paradigms and Revolutions  
Positivisms and Its Critics  
Process in Space and Place

**Section II**

**Fundamentals of Physical Geography**

The Structure of the Earth (including Plate Tectonics)  
Earth Movements  
Agents of Earth Sculpture  
    Weathering; Erosion and Deposition by Rivers, Glaciers, Wind and waves.

Elements of Climate  
    Insolation; Pressure; Wind and Humidity.  
Climate Change  
Soils  
Biosphere and Ecosystems

**Section III**

**Fundamentals of Human Geography & Environment**

Primary Production – Agriculture, Fishing, Forestry and Mining.  
Secondary Production - Manufacturing  
Tertiary Production - Services  
Population  
Settlement  
Development and Environment

**Section IV**

**World Regional Geography**

## Regional Geography of Bangladesh

### **Section V Methods and Techniques in Geography & Environment**

Getting Started in Geographical Research

Data Collection in Human Geography

- Making use of secondary data
- Conducting questionnaire survey etc.
- Qualitative Research Methods
- Rapid Appraisal Techniques

Data Collection in Physical Geography & Environment

Data Analysis & Representation

#### **Reading List:**

**Holt-Jensen, A.** *Geography : History and Concepts, A Student's Guide*, Sage Publication, London Third Edition, 2000.

**Johnston, R.J.** *Geography and Geographers*

**Cook, I. et. al.** *Causeway Press*, Ormskirk, Lancs. UK.

**Clifford & Valentine (eds)**, *Key Methods in Geography*, Sage Publication, London, 2003

**Pulsipher, L.M.** *World Regional Geography*, W.H. Freeman and Company, New York, 2000.

**Park. C.** *The Environment: Principles and Applications*, Routledge 1997

#### **G 702 Urban Systems**

(Emphasis on comparative pattern in western & non-western situation)

1. Nature of urbanization, western and non-western
2. The System of cities (National/Regional), (Rank-Size Rule, Hierarchy of Settlement, Nearest-Neighbor Technique)
3. The City System: (Internal Urban Land Use models), Urban Ecology
4. Urban Economic Structure (Basic, Non-basic, Formal-Informal Sectors etc.)
5. The Commercial Structure of the City.
6. The Residential Structure of the city.
7. Urban Population Structure and Population Density Pattern.
8. Urban Research Trends (Issues & Techniques).

#### **Reading List:**

#### **G 703 Urban Landuse and Land Policy**

(General Principles and Evidences from Developing country situation)

1. Principles of Land Use
2. Classification of Urban Land Use
3. Models of Urban Land Use
4. Techniques of Land Use Survey & Mapping
5. Nature and Determinants of Urban Land Values
6. Issues in Urban Land Tenure

7. Urban Land ownership pattern
8. Urban Land Use Controls Regulations
9. Urban Land Policy
10. Urban Land Policy in Bangladesh

**Reading List:**

**G 704 Urbanization and Urban Policy**

The concept of urbanization and the nature of urbanization in Asian countries. The main issues include population growth and migration; the informal sector; urban poverty; Mega cities and their problems; urbanization and national development; concept and content of human settlements policy for Asian countries, and urban research in developing countries.

Course outline

- \* The structural, socio-demographic and geographic concepts of urbanization.
- \* Rapid growth of urban population and the role of migration in the process of urbanization in the developing countries.
- \* The nature of urban economic dualism and the role of the informal sector in Asian cities.
- \* Urban Poverty in Asian Cities: Magnitude Causes and consequences;
- \* Mega Cities: The prospects and problems, and the search for alternatives.
- \* The Role of Secondary cities.
- \* Urban Environment and Sustainability.
- \* Urban Management; Problems and Prospects.
- \* Urban Policy in Some Selected Asian Countries.
- \* Urban Policy in Bangladesh.
- \* Urban Research in Developing Countries: Recent Trends.

**Main References**

- R.P.Misra & B.S. Bhooshan: Human Settlements in Asia: Public Policies and Programmes (New Delhi: Heritage)
- T.G. Mc Gee, The Urbanization Process in the Third World, 1971.
- Y.M. Yeung & C.P. Lo (Editors), Changing South-east Asian Cities: Readings on Urbanization, 1976.
- UN. Global Review of Human Settlements: A Support Paper for Habitat, 1976.
- World Bank, National Urbanization Policies in Developing Countries, 1979.
- Ronald J. Fuchs, G.W. Jones & E.M. Pernia. Urbanization and Urban Policy in Pacific Asia. (West View Press, 1987).
- Government of Bangladesh: National Report on Habitat Human Settlements, in Vancouver Habitat Conf.
- Planning Commission: GOB: Task Force Report on Social Implications of Urbanization, Dhaka 1991.
- Urban Research in the Developing World: Papers for the Global Programme on Urban Research in the Developing Countries, Cairo, 1993.
- T.G.No. Gre and O.P. Mathur, Urbanization in Asia: Patterns and Trends, (Bangkok: UN-ESCAP. 1993)
- N.Islam. Rural-Urban Migration in Asia: Pattern, Impact and Consequences. (HSD, AIT Research Paper, 1985).

## **G 705 Environmental Analysis and Management**

1. Environment: An Overview
2. Ecosystem Components  
Terrestrial and Aquatic, and their Linkages
3. Concepts of Sustainability, Conservation, Risks and Management
4. Environmental Quality  
- Degradation, Pollution and Control Strategies
5. Environmental Impact Assessment
6. Environmental Policy and Legislation
7. Case Studies of Management Issues  
[with special reference to Bangladesh]  
Land, Water, Wetlands, Waste, Biodiversity, Global Warming and Sea Level Rise
8. Public Participation in Environmental Management
9. Gender Perspectives in Environment
10. Development and Environment Dichotomy or Complementary

### **Reading List:**

## **G 709 Transport and Development**

1. Definition and significance of transport The development of transport  
Impact of transport on society.
2. Transport and Spatial Organisation  
Interaction  
Diffusion  
Distance and diffusion  
Hierarchy and diffusion  
The analysis of networks
3. Transport technology and development  
Water  
Rail  
Road
4. Models on transport and development Taffee, Morn! and Gould model  
Rimmer model
5. Transport and regional development  
The unbalanced growth  
Linkage: Forward linkage/Backward linkage  
Leakage  
The core/periphery relationship

## 6. Transport Development in Bangladesh

### **Reading List:**

1. Barke, M. Transport & Trade Edinburgh: Oliver and Boyd.
2. Hoyle B.S. and Knowles, R.D. Modern Transport Geography, London: Beishanen Press.
3. Monyadas, L. The Geography of Movement, Boston: Houghton Mifflin Company.
4. Chapman, K. People, Pattern and Process. New York: John Wiley and Sons.
5. Hilling, D. Transport and Developing countries, London: routledge
6. Sampson, R.J. arid others. Domestic Transportation: Practice, Theory and Policy, Boston: Houghton Mifflin Company.

## **G 710 Migration and Development**

- A. Introduction: Migration studies Migration concepts and definition,  
Migration and circulation, classification, typologies.
- B. Data and Statistics Nature of migration data/statistics,  
Source of data, Migration estimates or measures and analysis of migration
- C. Theoretical aspects of migration and circulation Migration laws, Hypotheses, theories and models
- D. International Migration  
Types and causes of migration  
Selectivity of migrants  
Major Streams: Past and Recent  
Implications and Consequences  
Major policies  
Overseas Migrants from Bangladesh:  
Trends, Problems, Prospects & Policies
- E. Internal Migration of Bangladesh  
Types and causes of movement  
Selectivity of migrants  
Patterns of Popn.movement.  
Urbanization through R-U migration  
Implications & Consequences  
Policies
- F. Migration and Development  
Migration and the process of modernization  
Development, Urbanization amd migration  
Migration and Regional Development  
Population redistribution and development strategies in Developing countries
- G. Migration Policies:  
Aims and objectives

Historical Perspectives

Modern policies in Developed & Developing countries

**Reading List:**

**G 711 Geographical Information Systems and Remote Sensing**

- A. Introduction to GIS: What is GIS, History of GIS, Map & Map Analysis, Introduction to Computers. Introduction to various GIS software in the market.
- B. Data Management : The Database Approach. Three classes Data Model:. The Network data Model. Th Relational Data Model. Hierarchical Data Model. Data bases for GIS. Managing Spatial and Attribute Data Together.
- C. Data Capture: Sampling the World, Data input, socio-economic data, environmental and natural resource data.
- D. Spatial Databases: Nature of Spatial Data, Spatial Database Models. Relationships, Introduction to existing spatial databases.
- E. Evaluation of Data Quality and Error of GIS: Sources of Error. Errors in Existing Data. Errors and uncertainty in newly collected Data, Error in Data Entry. Errors in Data Processing. Errors in the output of Data. Errors in the use of Maps.
- F. GIS Application Areas: Natural Resources Management, Urban Planning & Management, Cadastral Records and GIS, Facilities Management.
- G. Systems Planning: Systems Planning Overview, Functional Requirements Analysis, System Evaluation, Pilot Project, Costs & Benefits, Database Creation, Decision-making.
- H. GIS in Bangladesh: Type of current Use and the Institutions, Training facilities. GIS in Information Management in Bangladesh.

**Reading List**

- 1. Barrough P.A., Principles of Geographical Information Systems for Land Resources Assessment, Oxford : Clarendon Press.
- 2. Feuquet D.J. & Duane F. Marble, (1990), Introductory Readings in Geographic Information Systems, London: Taylor & Francis.
- 3. Taylor D.R.F. (ed) (1991), Geographic Information Systems : The Microcomputer & Modern Cartography, Oxford : Pergamon Press.
- 4. Mather P.M. (1991), Computer Applications in Geography, Chicester : John Wiley & Sons.
- 5. McGuire D.J. (1989), Computers in Geography, New York : Longman Scientific & Technical.
- 6. McGuire D.J., Michael F.Goodchild & David W.Rhind (1991), Geographical Information Systems : Principles & Applications, New York : Longman Scientific & Technical.

**G 712 Medical Geography**

- A. Growth & Development of Medical Geography: Definition, Scope & Development, Sources of Medical Geographic data.
- B. Disease Ecology: Elements of Disease ecology: Disease classification & Measurement System; Terrain; altitude; Geochemical factors; Climate etc.  
  
Mapping: International perspectives; broad regional comparison; national & local level disease mapping.  
  
Diffusion: General geographic principles of spatial diffusion; geographic contributions to disease diffusion.

Associative Analyses: Environment & Culture: Urban ecological structure, other associations.

Case studies in Disease Ecology: Special emphasis on malaria, diarrhoea, cancer and AIDS and other selected diseases.

Hazards in Occupational Health: Health problems associated to particular occupations, special emphasis on industrial worker's health in Bangladesh.

C. Morbidity & Mortality: Definitions, Infant Mortality, Child Mortality and other related topics.

D. Health care Delivery: Different types of health care delivery system, utilization and financing mechanism.

System: Traditional (Ayurvedic, Unani, folk etc) and Modern (Allopathic, Homeopathic) systems; national health care delivery structure in Bangladesh and other topics.

Utilization: Extent, trend, factors inhibiting utilization, distance, cost etc.

Financing Health Care: Economic and financial aspects of health care delivery.

### **List of Books**

Pyle G.F. (1979), Applied Medical Geography New York: John Wiley & Sons.

McGlashan N.D. (ed) (1972), Medical Geography : Techniques and Field Studies London: Methuen & Co.

Hunter J.M. (ed) (1974). The Geography of Health & Disease Studies in Geography No. 6, University of North Carolina at Chapel Hill.

Holland W.W. (ed) (1970), Data Handling in Epidemiology London: Oxford University Press.

Shannon G.W. & G.,E. Alan Dever (1974), Health Care Delivery : Spatial Perspectives New York: McGraw-Hill Rook Company

### **G 713 Rural Markets and Marketing Systems**

1. Definition and Characteristics of markets and periodic markets
2. Locational characteristics and Types of Periodic Markets.
3. Distribution: Number and Pattern
4. Market Ring and System
5. Spatio-Temporal Association
6. Commodities and Price Formation
7. Periodic Markets Participants: Characteristics and Travelling Behaviour
8. Periodic Markets and Marketing system in Bangladesh.

### **Reading List:**

### **G 714 Regional Development Planning and Problems**

1. The Region Concept.
2. The Need for Planned Regional Growth
3. Regional Economic Framework Analysis.
4. Industry's Role in Regional Economy.



5. Role of Central Place Concept in Regional Planning and Development.
6. Identification of Problem Regions.
7. Strategies for Regional Development (Short-Term and Long-Term)

### **G 715 Fluvial Processes**

A. (1) Fluvial Geomorphology: Agents, process and products (2) Role of Fluvial Geomorphology in solving Geomorphological problems:

Bangladesh perspective

- B. Hydrological cycle and its role in fluvial process.
- C. Fluvial Erosion: process and products.
- D. Fluvial transportation: processes and Mechanism.
- E. Fluvial Deposition: process and products
- F. Channel patterns: Evolution and process
- G. Fluvial Morphometry : Analytical methods.
- H. Deltas: Structure and process of formation.
- I. Role of River inland Building activities in Bangladesh: Flood Plain Delta.
- J. Climatic Change: Causes and Effects
- K. Global Warming: Green House Effects.
- L. Global Warming and Bangladesh.

### **G 716 Geography of Women and Development**

1. Emergence of Women as a category in Development : The spatial Aspect.
2. Population dynamics : The gender aspect. Fertility, Female mortality, Female migration in Urban and rural areas.
3. Women and Environment : As element and factor.
4. Activities of women in the Developing World:  
An Evaluation of Household activities Agricultural activities Commercial activities  
Industrial activities
5. Activity space of Women : Rural and Urban
6. Women and Basic Needs : Health, Education, Employment, Housing in Urban and rural areas.
7. Women and Society: Status, Legal situation. Patriarchal Bargain. Urban and rural area.
8. Women in GOB Policy and Planning.
9. Women and Institutions.  
Urban and Rural  
Management and Interpersonal Skills
10. Gender Planning in the Third World. Meeting Practical Needs.

### **Reading List:**

## **G 717 : Advanced Waste Management**

- The present study will critically cover the sources, issues, planning and management of all types of waste. Also it will cover waste management issues in the light of Bangladesh.
- Solid Waste: Overview of solid waste management. Characterization and classification of solid wastes, solid waste collection, transfer station, composition, volume reduction and source reduction. Solid waste disposal methods: landfill disposal, landfill design, operation and management, landfill leachate and gas management. Waste treatment: bio-treatment, incineration, and energy recovery. Recycling of municipal and industrial solid waste.
- Solid waste and land use planning.
- Hazardous Waste – Characterization, transport, treatment, control and disposal of hazardous wastes. Hospital waste, Industrial waste.
- Waste Water: Analysis of water and waste water. Waste water collection system. Waste water treatment process: physical, chemical and biological. Sludge management. Wastewater reclamation and reuse.
- Waste Management Scenario in Bangladesh.

### **Text Books/References**

1. Keith, Frank, ed., Handbook of Solid Waste Management. – New York: McGraw-Hill, Inc., 1994.
2. Batstone, Roger, (et al.)(ed.). The Safe Disposal of Hazardous Wastes: The special needs and problems of developing countries: vols. I, II, III – Washington D.C.: The World Bank, 1989.
3. P. Aarne Vesillind, William A. Worrel, Debra R. Reinhart; Solid Waste Engineering; Thomson Brooks/Cole, USA, 2002.
4. Matcaf Eddy, Waste Water Engineering, McGraw Hill Pub., 1998.
5. A. Pruss, W. K. Towned, Management of Waste from Health-care Activities, WHO, Geneva, 1998.
6. Ahmed, Feroze M., and Rahman, Mujibar M., Water Supply and Sanitation, ITN-Bangladesh, Center for Water Supply and Waste Management, BUET, Dhaka, June 2000.
7. Kazi, N. M., Solid Waste Management, Bangladesh Center for Advanced Studies.
8. The Study on the Solid Waste Management in Dhaka City. DCC & JAICA, March 2004.

## **G-718 : Management of Development Induced Displacement**

Course covers key concepts, tools and techniques required to effectively acquire land and manage the resettlement and rehabilitation process of development induced displaced people

1. Development Induced Displacement, Equity and Development: Scope and Objective; Philosophy and Principles of Involuntary Resettlement
2. Eminent Domain and Land Acquisition in Bangladesh: Key Concepts in Eminent Domain: Persons Interested, Public Purpose, Compensation and Institutions Involved
3. Impacts of Development Induced Displacement: Impoverishment Risk and Reconstruction Model (IRR Model)
4. Donors' Policies on Social Safeguard/ Resettlement & Rehabilitation
5. Land Acquisition and Resettlement Policies and Practices in Bangladesh; Proposed National Resettlement Policy of Bangladesh
6. Different Types of Impact Assessment: Social Impact Assessment (SIA); Environmental Impact Assessment (EIA) and others

7. Conflict Management Strategy: Conflict Analysis; Consultation and Communication with Affected Communities and Stakeholders and Management
8. Preparation of Resettlement Plan (RP) and Livelihood Restoration Plan (LRP)
9. Data Management and Management Information Systems for Resettlement Programs
10. Implementation and Management of RP and LRP
11. Monitoring and Evaluation of RP and LRP

### **Main References/Reading List:**

- Asian Development Bank. 1998. *Handbook on Resettlement: A Guide to Good Practice*. Manila: ADB.
- Cernea, M. M. 1997. The Risks and Reconstruction Model for Resettling Displaced Populations. *World Development*, 25 (10), 1569-1587.
- Cernea, M. M. 2000. Risks, Safeguards and Reconstruction: A model for Population Displacement and Resettlement. *Economic and Political Weekly*, 35 (41), 3659-3678.
- Khatun, H. 2009. Displacement and Poverty: Measures for Restoring Meagre Livelihoods. In R. Modi (Ed.), *Beyond Relocation: The Imperative of Sustainable Resettlement* (pp. 331-353). New Delhi: SAGE.
- Khatun, H. 2005. Development Induced Displacement and Rehabilitation in Bangladesh: Challenges and Perspectives. *Oriental Geographer*, Vol 49, No. 2, July 2005.
- Khatun, H. 2004 Mitigation Measures in Restoring the Livelihood of Development Induced Displacees in Bangladesh. *Proceedings on International Seminar on Development and Displacement: Afro-Asian Perspective*; Hyderabad; Osmania University, India.
- Khatun, H. 2000. Resettlement Process in Jamuna Multipurpose Bridge Project: An Induced Displacement and its Mitigation; International Conference on Disaster: Issues and Gender Perspectives, Dhaka; Bangladesh Geographical Society.
- Modi, R. 2009. *Beyond Relocation, the Imperative Of Sustainable Resettlement*; SAGE Publications, New Delhi, India
- Robinson, W. C. (2003). *Risks and Rights: The Causes, Consequences, and Challenges of Development-Induced Displacement*. Washington DC: The Brooking Institution - SAIS Project on Internal Displacement.
- The World Bank. (2004). *Involuntary Resettlement Sourcebook: Planning and Implimentation in Development Projects*. Washington DC: The World Bank.
- The World Bank. (2001). *Operational Manual OP 4.12*. Washington DC: The World Bank.
- Zaman M, Minoru Shibuya, Kentaro Okuno and Masahide Horita. 2009. The Padma Bridge Feasibility Study: Social/Resettlement Impact Assessment, Japan.
- Zaman, M. Q. (1996). Deveolpment and Displacement in Bangladesh: Toward a Resettlement Policy. *Asian Survey*, 36 (7), 691-703.

### **G-719 : Coastal Dynamics and Coastal Zone Management**

1. **Coast:** Definition, Delineation, Coastal Classification and Characteristics.
2. **Coastal Processes:** Waves, Tides, Winds, Ocean current, Sediment transport.
3. **Coastal Landform:** Cliff, Sand dunes, Shores, beaches, Tidal flat, Mud flat, lagoons.
4. **Deltaic Coast:** Classification, Form and Structure, sediment budget.

5. **Estuaries:** Definition, types, processes and morphology.
6. **Coastal Resources:** Flora and Fauna, Coral Reef, Mineral Resources.
7. **Coastal hazard and disaster management:** Types, causes and management of coastal and marine hazards.
8. **Sea Level Changes:** Natural Causes, Greenhouse Effect Trends and Directions, Vulnerability
9. **Coastal and marine pollution:** Sources (industrial, sewage, runoff, marine), Process, Nature, Controls.
- 10 **Human Impact on the Coast:** Land use changes, Economic activities, Coastal Tourism, Industrial Activities, Development activities, environmental degradation.
11. **Coastal Environment of Bangladesh: Types, Characteristics**
12. **Coastal Zone Management:** Concept, Policies, ICZM, Land Reclamation, Coastal Zoning, Protection and Defense, Management techniques, Community Participation, Coastal Conservation

#### **Reading List:**

#### **G-720 : Climate Change and Human Adaptation**

1. Climate Change: Concept, Elements, Nature, Needs to study, Related Disciplines,
2. Climatic Variabilities, Extreme Events. and their inter-linking
3. Causes of Climate Changes: Natural causes, man-made causes, theories and hypothesis.
4. Global Warming: Definition, Concept, process, Extend, and human –interaction, global response.
5. Adaptation to Climatic Change: Types, Principles and vulnerability,
6. Adaptation Capacity: types, exposure, sensitivity
7. Impact Assessments: Methodologies, Vulnerability-Adaptation Linkage.
8. Adaptation Strategies: Key elements, types, Natural and human dimensions, spatial adaptation (local, regional, national and global), sectoral adaptation (agriculture, water resources, ecosystem and biodiversity)
9. Responses and Assessment: Global and regional partnership, community responses,
10. International Participations: Agenda-20, UNFCCC, IPCC, Kyoto Protocol, COP, CDM, Carbon Trade.
11. Climate Change and Bangladesh: Case studies, climatic effect, extreme events, challenges and national strategies.

#### **Selected References:**

- J.T. Houghton, G.J. Jenkins and J.J.Ephraums 1990 Climate Change, Cambridge University Press
- S. Huq, Z. Karim M. Asaduzzaman and F. Mahtab 1999 Vulnerability Adaptation to Climate Changes for Bangladesh, Kluwerr Academic Pub.
- S.B.Smith (eds.) 1996 Adapting to Climate Change: Assessment and Issues, Springer.