

CURRICULUM and SYLLABUS

For

BACHELOR OF DISASTER MANAGEMENT (HONOURS) FOUR YEARS (8 SEMESTERS)

Session: 2021-2022 to 2024-2025



**INSTITUTE OF DISASTER MANAGEMENT AND VULNERABILITY STUDIES
UNIVERSITY OF DHAKA
DHAKA-1000, BANGLADESH**

BACHELOR OF DISASTER MANAGEMENT (BDM)

Courses leading to the Degree of Bachelor of Disaster Management (Honors) will extend over four academic years and will be divided into 8 semesters conforming to the University Rules and Regulations. The course of study shall be an integrated of carrying a total of **138 Credits (Marks-3450)**. All the courses are compulsory for each student.

The Bachelor of Disaster Management (BDM) shall be four years duration and divided into 8 (eight) semesters. Each semester shall be 19 weeks, of which

- 15 (fifteen) weeks for class teaching
- 1 (one) week break for preparation, and
- 3 (three) weeks for holding the semester final examinations

1. Evaluation and Grading

Evaluation and grading will be determined on the basis of an overall evaluation of students’ performance in mid-semester examination, semester final examination, term paper(s)/home assignment(s), class attendance and active participation in the discussion class/tutorial class/group presentation/class test.

- Marks of each theoretical course will be divided as follows:

The distribution of marks for evaluation will be as under:

Class attendance	5%
Active participation in the discussion class/tutorial class/group presentation/class test	10%
Mid-semester examination (duration of 75 minutes)	20%
Term paper(s)/home assignment(s) and presentation	15%
Semester final examination (duration of 3 hours)	50%
Total	100%

- Number of each theoretical course related to practical will be divided as follows:

Sessional (25%)	
Class attendance	5%
Active participation in the discussion class/tutorial class/group presentation/class test	10%
Mid-semester examination (duration of 50 minutes)	10%
Practical (25%)	
Class attendance	5%
Practical work/Field Work	20%
Semester final examination (duration of 3 hours)	50%
Total	100%

2. Marking of Class Attendance shall be computed in the following manners

Attendance range (in percent)	Marks
90% and above	5.0
85% to less than 90%	4.5
80% to less than 85%	4.0
75% to less than 80%	3.5
70% to less than 75%	3.0
65% to less than 70%	2.5
60% to less than 65%	2.0
55% to less than 60%	1.5
50% to less than 55%	1.0
45% to less than 50%	0.5
Less than 45%	0.0

3. Grading Structure in a 4 – point Grading Scale:

For each course, the average marks awarded by the semester final examiners, and the marks awarded by the course teacher for the mid-term examination, term paper(s)/home assignment(s), class attendance, practical work or field work and active participation in the discussion class/tutorial class group presentation/class test will be totaled and converted into letter-grades following a 4 – point grading scale presented below:

Mark Range (in percent)	Letter Grade	Explanation	Grade Point
80% and above	A+	Excellent	4.00
75% to less than 80%	A		3.75
70% to less than 75%	A-		3.50
65% to less than 70%	B+	Very Good	3.25
60 to less than 65%	B		3.00
55% to less than 60%	B-		2.75
50% to less than 55%	C+	Good	2.50

45% to less than 50%	C		2.25
40% to less than 45%	D	Passing	2.00
Less than 40%	F	Failing	00
-----	I		Incomplete
-----	W		Withdrawn

4. Interpretation of the Grades:

- ‘A+’, ‘A’ and ‘A-’ grades are indicative of ‘excellent’ performance overall by a student, earning grade points of 4.0, 3.75, and 3.50, respectively.
- ‘B+’, ‘B’ and ‘B-’ grades are indicative of ‘very good’ performance overall by a student, earning grade points of 3.25, 3.00 and 2.75, respectively.
- ‘C+’ and ‘C’ grades are indicative of ‘satisfactory’ performance overall by a student, earning grade points of 2.50, and 2.75, respectively.
- D’ grade is indicative of minimally acceptable ‘passing’ performance overall by a student, earning a grade point of 2.00.
- ‘F’ grade is indicative of an unacceptable ‘failing’ performance overall by a student, i.e., fail to earn any credit point.
- ‘I’ grade is indicative of a situation where a student, for non-academic reasons beyond his control, is unable to complete the full requirements of the course for not being able to sit for the semester final examination. With the submission of valid and authenticated evidence of such reason(s), and the recommendation of the course teacher (to be reported to the Chairperson of the Examination Committee), that particular student will be allowed to complete the semester final examination with the next batch. Meanwhile, the student concerned will be promoted to the next semester. If an ‘Incomplete’ grade is not cleared with the next batch, the ‘I’ grade will automatically be changed to an ‘F’ grade. A maximum of two ‘I’ grades will be allowed to a student in one semester.
- ‘W’ grade will be awarded when a student is permitted to withdraw/drop a course/semester without penalty. Withdraws without penalties are not permitted after the mid-semester examination. A student may take readmission in the semester concerned with the next batch by paying the fees for the whole year.

5. Class Attendance

- 5.1 A student shall be eligible for sitting in the examination as a regular student if she/he has a class attendance of 75 percent and above.
- 5.2 A student shall be considered Non-Collegiate if she/he has a class attendance between 60 percent and 74 percent. However, she/he shall be allowed to sit for the examination with a financial penalty decided by the concerned authority.
- 5.3 A student shall be considered Dis-collegiate if she/he has a class attendance below

60 percent and shall not be allowed to sit for the examination. She/he may seek re-admission into the program.

6. Promotion

- 6.1 For promotion from first to second year, a student shall require to earn a minimum CGPA of 2.00
- 6.2 For promotion from second to the third year, a student shall require to earn a minimum CGPA of 2.25
- 6.3 For promotion from third to the fourth year, a student shall require to earn a minimum CGPA of 2.50
- 6.4 To obtain a BDM (Hons) degree, a student shall require to earn a minimum CGPA of 2.25, taking into consideration all the grade points earned in total number of courses, including improved grade, if any.
- 6.5 A carry over system shall be in place, i.e., if a student fails to earn the required CGPA for promotion, she/he shall be allowed to continue in the next semester, but she/he shall clear her/his deficit by seating for separate examination within 45 days of the publication of the result with the permission of the Academic Committee of the Institute.
- 6.6 A Student failing to clear up the annual university or institute dues of the year of the study shall not be promoted to the next semester.

7. Improvement.

- 7.1 A student earning 'F' grade in any course shall be allowed to improve the grade twice/two times only with the following batches. If the student gets F in the improvement examination, he/she will be automatically dropped from the semester student will have to take readmission with the next batch, provided the student concerned is eligible for readmission.
- 7.2 For improvement of grade in a course the student shall apply to the Director of the Institute at least 4 (four) weeks before the start of the Semester Final Examination.
- 7.3 If a student obtains grades 'B' or less in a course, she/he shall be allowed to improve grades, either through a Supplementary Examination within 45 days under the same Examination Committee, or with following batch. Students failed to obtain required grade point will also be allowed to appear at the Supplementary Examination. If they fail to obtain required marks/grade points in the Supplementary Examination, must seek readmission with the following batch.
- 7.4 A student shall be allowed to improve the grade of a course only once and in such case the student's previous grade shall be automatically cancelled.
- 7.5 A student earning F in more than two courses will be automatically dropped from the program.

7.6 No improvement shall be allowed for the Mid-Semester Examination, term paper/home assignment and active participation in the discussion class/tutorial/group presentation/class test marks and the grades earned in written and oral comprehensive examinations, as well as in course (s) in which a student did not attend classes or appear in the Semester Final Examination.

8. Readmission:

8.1 A student failing to get the requisite grade points for promotion (clause 6) from one semester to the next may seek readmission with the following batch. And with the 1st, 3rd, 5th or 7th semester respectively.

8.2 For, readmission, a student will have to apply within 15 days after the announcement of result of the concerned semester.

8.3 On readmission, grades earned earlier by a student in the class or readmission will cease to exist and the student will have to retake all the course works and examinations.

8.4 A student will not be allowed readmission in more than two semesters during the entire Bachelor (Honors) degree program.

9. Drop Out:

9.1 A student failing to earn the GPA for promotion from one semester to the next after taking readmission in any semester will be dropped out of the program.

9.2 A student earning 'F' grade in any course after taking improvement examinations or readmission in any semester class will be dropped out of the program.

10. Adopting of Unfair Means:

If any student adopts unfair means in any examination or home assignment, the teacher/invigilator will report in writing to the Chairman of the Examination Committee/Chief Invigilator for onward transmission to the Disciplinary Board of the University for action as per University Rules.

11. Computation of Grade Point Average

11.1 A course in which a student has obtained 'D' or a higher grade shall be counted as credits earned by him/her.

11.2 Any course in which a student has obtained 'F' or below grade shall not be counted towards his/her earned credits.

11.3 'F' grade will not be counted for GPA calculation, but will stay permanently on Grade Sheet and Transcript.

11.4 The Grade Point Average for semester (SGPA) shall be computed in the following manner:

$$SGPA = \frac{\sum (CH \times EGP)}{TCAS}$$

Where, SGPA= Semester Grade Point Average

CH= Credit Hours

EGP = Earned Grade Point

TCAS = Total Number of Credits Assigned to a semester

CURRICULUM PLAN

Semester wise courses and distribution of Marks and Credits are as follows:

FIRST SEMESTER (FIRST YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 101	Introduction to Disaster Management	100	4
DMC 102	Fundamentals of Sociology	100	4
DMC 103	Introduction to Geography and Environment	100	4
DMC 104	Hazards and Disasters: National and Global	100	4
	Total	400	16

SECOND SEMSTER (FIRST YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 105	Bangladesh Studies	100	4
DMC 106	Fundamentals of Economics	100	4
DMC 107	Disaster Management System in Bangladesh	100	4
DMC 108	Principles of Management	50	2
	Viva	50	2
	Total	400	16

THIRD SEMSTER (SECOND YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 201	Theoretical Approaches to Disaster Management	100	4
DMC 202	Disaster Mitigation and Preparedness	100	4
DMC 203	Risk Assessment and Vulnerability Reduction	100	4
DMC 204	Disaster Informatics (Theory)	50	2
DMC 205	Disaster Informatics (Lab)	50	2
	Total	400	16

FOURTH SEMESTER (SECOND YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 206	Disaster and Risk Communication	100	4
DMC 207	Early Warning System and Forecasting	100	4
DMC 208	Disaster Response and Recovery	100	4
DMC 209	Qualitative Research Methodology (Theoretical)	50	2
DMC 210	Qualitative Research Methodology (Practical)	50	2
	Viva	50	2
	Total	450	18

FIFTH SEMESTER (THIRD YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 301	Geographic Information System and Remote Sensing	100	4
DMC 302	Disaster Governance and Global Protocols	100	4
DMC 303	Disaster Risk Reduction and Resilience	100	4
DMC 304	Gender, Intersectionality and Disasters	100	4
DMC 305	Geographic Information System (Lab)	50	2
	Total	450	18

SIXTH SEMESTER (THIRD YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 306	Introduction to Statistics	100	4
DMC 307	Disaster, Emergency and Public Health	100	4
DMC 308	Humanitarian Actions and Project Management	100	4
DMC 309	Quantitative Research Methodology (Theory)	50	2
DMC 310	Quantitative Research Methodology (Practical)	50	2
	Viva	50	2
	Total	450	18

SEVENTH SEMESTER (FOURTH YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 401	Child Protection in Emergency and Disaster	100	4
DMC 402	Global Climate Change: Science, Impact and Adaptation	100	4
DMC 403	Disaster Risk Financing and Insurance	100	4
DMC 404	Disability, Disaster, and Autism (Theory)	50	2
DMC 405	Disability, Disaster and Autism (Practical)	50	2
	Total	400	16

EIGHTH SEMESTER (FOURTH YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 406	Urban Disaster Risk Management	100	4
DMC 407	Community Based Disaster Risk Management	100	4
DMC 408	Internship and Report Writing	100	4

Optional Courses (Any One)			
DMC 409	Water Resource Management	100	4
DMC 410	Development and Disaster	100	4
DMC 411	Environmental Management and Resource Conservation		
DMC 412	Occupational Health And Safety	100	4
DMC 413	Public-Private-Partnership in Disaster Risk Management	100	4
DMC 414	Disasters in Arts and Literature	100	4
Comprehensive and Viva Voce (Mandatory for All)			
Comprehensive	Comprehensive	50	2
Viva Voce	Viva Voce	50	2
	Total	500	20

DETAILS OUTLINE OF THE SYLLABUS

FIRST SEMESTER (FIRST YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 101	Introduction to Disaster Management	100	4
DMC 102	Fundamentals of Sociology	100	4
DMC 103	Introduction to Geography and Environment	100	4
DMC 104	Hazards and Disasters: National and Global	100	4
	Total	400	16

DMC- 101: Introduction to Disaster Management

Course Objectives

The principal objective of this course is to orient the students primarily with an overarching synopsis of basic concepts of disaster and emergency management. It aims at introducing the advanced science, ideas, issues, and concepts i.e. the basics of disaster, hazard, risk, vulnerability, resilience, and others as well as an overview of disaster management, and standards. Conceptualization of varied knowledge from different aspects, viewpoints, perspectives, dimensions will also be explored critically with compelling organizations for a wider spectacle to make it scientifically viable as a discipline which is deemed to propel the learners to spread the lessons in a precarious world being frequently ravaged by unprecedented disasters.

Course Contents

1. **Hazards:** Basic concepts on hazards, Classification of hazards, Nature, causes, and effects of different types of hazards and their potential impacts. Some common hazards in Bangladesh.
2. **Vulnerability:** Vulnerability, Progression of vulnerability, Classification of vulnerability. Nature, causes, and effects of different types of vulnerability and their potential impacts. Vulnerable index; Different vulnerable groups in Bangladesh from intersectionality perspective.
3. **Risk:** Concepts of risk; Risk identification; Risk perception; Risk prioritization; Disaster risk assessment; Risk treatment; Risk transfer, Risk analysis; Disaster Risk Reduction (DRR); Risk planning; Risk preparedness; Risk management.
4. **Disaster:** Disaster, Classification of disasters-Hydrological, Meteorological, Technical, Biological. Nature, causes, and effects of different types of disasters

and their potential impacts (earthquake, floods, cyclone, landslide, river erosion and others). Case study of some disasters (Bangladesh context).

5. **Disaster management:** Disaster Management; Disaster Information Management: Community Alert, Warning; Preparedness; Mitigation; Response and Emergency Response Management; Recovery: Restoration, Rehabilitation, and Reconstruction
6. **Adaptation:** Concepts of Adaptation; Climate change adaptation and disaster risk reduction; Nexus between disaster risk reduction and adaptation strategy
7. **Resilience:** Concepts; Etymology; Historical background of the concept; Resilience in the humanitarian field; Theoretical use of the concept
8. **Disaster Management Standards:** International Law, Refugee Law, International Humanitarian Law, International Human Rights law, Professional Status, Disaster Management Ethics.

Suggested Readings

Bryant, E., (2005). *Natural hazards*. New York, NY: Cambridge University Press.

McDonald, R. (2003). *Introduction to natural and man-made disasters and their effects on buildings*. Burlington, MA: Architectural Press.

Gupta, H. K. (2004). *Disaster management*. Hyderabad, India: Orient Blackswan.

Roy, P. K. (2006). *Disaster preparedness against accidents*. New Delhi, India: New Age International Publishers.

Hall, G., & Snedden, R. (1996). *Natural disasters*. Fact Finders. Bristol, United Kingdom: Parragon Press.

Iyengar, R. N. (1997). *Natural hazards in the urban habitat*. New Delhi, India: Tata McGraw-Hill.

Nasreen, M. and Dorris Schopper, (2019). 'Resilience', in the *Humanitarian Encyclopaedia*, Geneva: Centre for Humanitarian Studies <https://humanitarianencyclopedia.org/>

Nasreen, M., Azad, A. K., & Hossain, M. K. (2021). *Concepts and issues in disaster management*. Dhaka, Bangladesh: Institute of Disaster Management and Vulnerability Studies, University of Dhaka.

Rahman, A.A. et al (eds), (1994). *Environment and development in Bangladesh*, Vol. 1. Dhaka: University Press Limited.

Sahini, P. (2003). *Disaster risk reduction in South Asia*. New Delhi, India: Prentice-Hall.

Sieglein (2002). *Security planning and disaster recovery*. New Delhi, India: Tata McGraw-Hill.

Srivastava, H. N, Bhattacharya, S. N., & Gupta, G. D. (2007). *Earthquakes: Geography and management*. New Delhi, India: New Age International Publishers.

Withers, J. (1988). *Major industrial hazards: The appraisal and control*. Aldershot, United Kingdom: Gower Technical Press.

DMC 102: Fundamentals of Sociology

Course Objective

To make concern with the study of individual and social behavior and the influence of society upon this behavior-how to think, feel, perceive, and act within a group or society as a whole, where people interact and work together. Disaster management need to deal with social networks within various institutions, culture, communities and organizations for its success and we believe sociological thinking, theories, approaches, empirical investigation and critical analysis can play a great role in this regard. Moreover, vulnerability concept is very much related with social inequality and discrimination. Elementary sociological viewpoints such as functionalism, Marxism, feminism, social action and postmodernism also helps to bring paradigm shift in the field of disaster management as it creates knowledge about social order and social change.

Course Contents

1. Introducing to Sociology: Definition and Subject matter of Sociology, importance of Sociology and its relationship with other disciplines. Origin and development of Sociology.
2. The Sociological Perspectives
 - a. Development of Sociological Thinking: August Comte (1798-1857), Karl Marx (1818-1883), Max Weber (1864)
 - b. The sociological perspective: Functionalism, Conflict Perspective, Symbolic Interactionism, Feminist Perspective.
3. Certain primary concept-Society, Community, Association, Institution and Group. Factors of social life-Geography, Heredity cultural factor, Culture: Definition, Civilization and Culture, Cultural Diffusion, Cultural lag.
4. Social structure and stratification: Elements of social structure, Social class, Social stratification: Historical forms of social stratification.
5. Major Institutions: Family and marriage: Forms & Functions, Economic Institutions: Property and inheritance, Property under capitalism and socialism. Political Institutions: State as a social institution, Power, Authority, Types of authority.
6. Social change: Changes Evaluation and Progress, Theories of social changes

7. Crime and social control: Definition and nature of crime and social control Agencies of social control-Religion, Art, Mythology, Public opinion Taboo, Law-sate-Government Education.

Suggested Readings

- Giddens, A. (2009). *Sociology* (6th ed.) London, United Kingdom: Polity Press.
- Hannigan, J. (2014). *Environmental sociology* (3rd ed.). New York, NY: Routledge.
- Nasreen, M., Hossain, M.K., & Kundu, D. (2007). *Poribesh Samajbiggan* (Sociology of Environment). Dhaka, Bangladesh: Tapan Prakashan.
- Schaefer, R. T. (2017). *Sociology: A brief introduction* (12th ed.). New York, NY: McGraw-Hill.
- Worsley, P. (Ed.). (1987). *The new introducing sociology*. London, United Kingdom: Penguin Books.

DMC 103: Introduction to Geography and Environment

Course Objectives

This course is designed to equip students with basic knowledge on geography and environment with the aims: to introduce Geography as a discipline, and its core concepts and thoughts; to explain the relationship of Geography with man and environment; to discuss the importance of studying Geography in managing disasters, and to discuss the status of Geography in Bangladesh.

Course Contents

1. Geography:
 - a. Definition and its changing nature
 - b. Development of Geography
 - c. Nature of Geography: Geography as a dynamic academic discipline
 - d. Geography as an applied science.
2. Concepts in Geography:
 - a. Location, Distribution and Agglomeration
 - b. Process, Pattern and interaction
 - c. Place, space, time
 - d. Shape, size distance
 - e. Region and Regionalization
3. Scope and methodological development/Subject matters; Relation of geography with other disciplines
4. Major approaches to the study of geography
 - a. Landscape Approach
 - b. Ecology and Ecological Approach
 - c. Region and Regional Approach

- d. Behaviourial Approach
- 5. Geographical data: Classification, Properties and levels of measurement
- 6. Tools in Geography: Maps, Models, and Scales, GIS
- 7. Introduction to World: Physical, political, Cultural and Social context
- 8. Environment:
 - a. Meaning, types and components
 - b. Geography as an environmental science
 - c. Environment and society
- 9. Man-Environmental Relationship
 - a. Approach to study
 - b. Environment and man
 - c. Man's interaction with environment
- 10. Status of Geography in Bangladesh

Suggested Readings

Adhikari, S. (1999). *Fundamentals of geographical thought*. Allahabad, India: C. B. House.

Dikshit, R. D. (2001). *Geographical thought*. New Delhi, India: Prentice Hall.

Singh, S. (2001). *Environmental geography*. Allahabad, India.

Marsh, W. M., & Gross, J. (1996) *Environmental geography*. New York, NY: Wiley & Sons.

Park, C. C. (1997). *The environment: Principles and applications*. Abingdon, United Kingdom: Routledge.

Holt-Jensen, A. (2009). *Geography: History and concepts: A student's guide*, London, United Kingdom: Sage Publication.

Pears, N. (1985). *Basic geography*. London, United Kingdom: Longman Scientific & Technical.

Rashid, H. E. (2019). *Geography of Bangladesh*. <https://doi.org/10.4324/9780429048098>

Strahler, A., & Strahler, A. (2007). *Physical geography*. John Wiley & Sons, USA.

Dorrell, D., Henderson, J. P., Connor, G., & Lindley, T. (2018). *Introduction to Human Geography*. University of North Georgia Press, USA.

Islam, S. T., & Paul, A. (Eds.). (2019). *Geography in Bangladesh: Concepts, Methods and Applications*. Routledge India.

Course Objectives

This course aims at providing an essential overview of the known disaster scenarios. The students will be introduced to all major natural as well as human-induced hazards, disasters, catastrophes, and debacles in minute details. A scientific synopsis of the major hazards and disasters frequently occurring across the globe, their causes, consequences, and variegated implications are studied to analyze the situations from diverse perspectives. This will also help to understand the role of Climate Change, Carbon emission and carbon compound as major control knobs of greenhouse effects, Global warming and anthropogenic climate change (ACC) to increase the intensity of frequency of disaster events on earth. The learners are expected to have a spectrum of insights of the frequently devastating hazards and disasters in Bangladesh and across the globe and their associated loss and damage. Besides, the physical scientific, economic, political, and sociocultural aspects of the disasters will be reviewed to make a fuller understanding. Moreover, the conceptual and theoretical understanding works as a primer for grasping the deeper functional dynamics of disasters of devastating potentials.

Course Contents

- 1. Flood and Riverbank Erosion:** The hydrology and development process, classification, causes, history, associated vulnerability, case analysis.
- 2. Cyclone, Tornado and Salinity:** Understanding tropical cyclone and process of salinity intrusion, historical view, formation process, and contributing factors, classification, impacts.
- 3. Drought, Desertification, Heat wave and Cold wave:** Aridification and desertification process, cause, impacts, nature, types, measurement and monitoring, major desert areas of the world. Extreme high and fall of temperature, worldwide cases.
- 4. Earthquake, Tsunami and Volcanic Eruption:** Earth system dynamics, geologic causes of origin, parameters, categories, intensity, and magnitude, seismograph, earthquake zone, magma generation; secondary impacts and monitoring technologies, case analysis.
- 5. Landslide and Wildfire:** Classification systems, parameters, major causes and conditions, spreading mechanism, regions facing wildfire; health and economic impacts, safety measures,
- 6. Thunderstorm, Lightning and Arsenic Contamination:** Ingredients and formation process, types and hazards from thunderstorm; Lightning, hailstorm, maelstrom, blizzards, downburst, and flash flood; Recent thunderstorm worldwide: vulnerabilities, impacts, history of arsenic contamination, its causes, health and other socioeconomic impacts; and Bangladesh policy.

7. Human-Induced Disasters: Famine/Monga; Epidemic and contagious diseases like Covid-19, Ebola, Zika, Bird flu, Chikungunya, structural collapse, oil spillage, accident, fire; Technological disasters: nuclear catastrophes such as Chernobyl, Fukushima, Three Mile Island, Kyshtym, Windscale etc.; Industrial/chemical disasters like Bhopal, Rana Plaza, Halifax, Benxi, Oppau etc.; Genocides and war: great wars of the world, British colonization, and Bangladesh's Independence War; Terrorism and manufactured war.

Suggested Readings

Abbott, P. L. (2008). Natural disasters. New York, NY: McGraw-Hill.

Ahmed, Imtiaz. (1999). *Living with Floods in Bangladesh*, Dhaka: University Press Limited

Bryant, E. (2005). Natural hazard. New York, NY: Cambridge University Press.

Choudhury, A. M. (2009). Protecting Bangladesh from natural disasters. Dhaka, Bangladesh: Academic Press and Publishers Library.

Griffey, H. (2011). Earthquakes and other natural disasters. London, UK: DK Publishing.

Hyndman, D., & Hyndman, D. (2016). Natural hazards and disasters. Belmont, CA: Cengage Learning.

Islam, R. (2008). Sidr. Dhaka, Bangladesh: Baroshik Press.

Keller, E. A., & DeVecchio, D. E. (2012). Natural hazards: Earth's processes as hazards, disasters and catastrophes (3rd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Pender, J. S. (2008). What is climate change?: And how it will affect Bangladesh. Dhaka, Bangladesh: Church of Bangladesh Social Development Programme.

Rahaman, A., Alam, M., Mainuddin, K., Ali, L., Alauddin, S. M., Rabbani, M. G.,...Amin, S. M. A. (2009). The probable impacts of climate change on poverty and economic growth and the options of coping with adverse effect of climate change in Bangladesh, support to monitoring PRS and MDGs in Bangladesh. Retrieved from http://www.climatechange.gov.bd/sites/default/files/GED_policy_report.pdf Accessed: October 26, 2017.

Rahman, A. A., Huq, S., & Conway, G. R. (Eds.). (1990). Environmental aspects of surface water systems of Bangladesh. Dhaka, Bangladesh: The University Press Limited (UPL).

Ramkumar, M. (Ed.). (2009). Geological hazards: Causes, consequences & methods of containment. New Delhi, India: New India Publishing.

Simpson, R., Anthes, R., & Garstan, M. (Eds.). (2003). Hurricane! Coping with disaster: Progress and challenges since Galveston, 1900. Washington, DC: American Geophysical Union.

Singh, V. P. (Ed.). (1987). Flood hydrology: Proceeding of the international symposium on flood frequency and risk analyses, 14-17 May 1986, Louisiana State University, Baton Rouge, USA. Dordrecht, the Netherlands: Springer.

Smith, K. (2013). Environmental hazards: Assessing risk and reducing disaster. London, UK: Routledge.

SECOND SEMSTER (FIRST YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
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DMC 105	Bangladesh Studies	100	4
DMC 106	Fundamentals of Economics	100	4
DMC 107	Disaster Management System in Bangladesh	100	4
DMC 108	Principles of Management	50	2
	Viva	50	2
	Total	400	16

DMC- 105: Bangladesh Studies

Course Objectives

This course traces the historical roots of Bangladesh as an independent state. It takes a critical look at the developments which took place over long period of time of our history from the ancient Bengal, the colonial experience, partisan of India, war and genocide as part of Pakistan to ultimately independent, modern, democratic, progressive and non-communal Bangladesh. Bangladesh Studies also addresses the development of the ideas of Bangladeshi nationalism with its own model of deeply rooted political, economic, cultural, social and ideological identity. Students will be able to develop a rational and academic understanding that will allow them to appreciate the significance of the birth of Bangladesh. Students will thus become more aware about the history of their country and become enlightened and patriotic individuals.

After completion of the course, students will be able to

- learn more about the country and its struggle for freedom
- develop a rational and academic understanding that will allow them to appreciate the significance of the birth of Bangladesh
- know geographical, environmental, economic, cultural, social, institutional, organizational aspects of Bangladesh
- know changing pattern of socio-cultural and economic identity and process

Course Contents

Chapter I: Historical Perspectives

Brief geo-political and socio-economic history of Ancient Bengal. The nature of origin and development of Bengal Civilization

Chapter II: Emergence of Bangladesh

Father of the Nation Bangabandhu Sheikh Mujibur Rahman and the Memoirs;

The socio-political and economic context of Liberation War of Bangladesh and the background of the emergence of Bangladesh as an Independent Country.

Chapter III: Economic Context of Bangladesh

- **Agricultural Development** and the contribution of agricultural sector to the national economy and society of Bangladesh; An overview of agricultural policies of Bangladesh
- **The Process of Industrialization in Bangladesh:** The evolution of industrial growth in Bangladesh; sector wise development of industries; the role of private and public sectors in industrial development; An overview of industrial policies of Bangladesh
- **Private Sector Development in Bangladesh:** The contribution of Private Sector in the economy of Bangladesh; An overview of private sector development policy in Bangladesh; The opportunities and Challenges of private sector development; The role of Foreign Investors and Development Partners in Private Sector Development

Chapter IV: Health and Demography

The Health and Demographic Features of Bangladesh: An overview of Fertility, Mortality, Marriage, Migration, Primary Health Care Services, Family Planning, Reproductive Health, Youth and Development etc.

Chapter V: Culture, Society and Bangladesh

Culture, Tradition and Heritage of Bangladesh: An overview of the development of Art, Literature, Folk Culture, Music, Traditional Food Habit, Dresses, Architecture, Monument, Objects of Civilization, Song, Paintings, Classic, Traditional and Modern Songs and integration of Western Culture

Chapter VI: Non-government Organizations and Rural Development

The notion and evolution of Rural development; BARD as a Model of Rural Development; Challenges and Constraints of Rural Development; The Role of NGOs, Go and Development Partners in Rural Development

Chapter VII: Politics and Government

The Political and Governmental system in Bangladesh: The forms of Government; Bureaucracy as a system of Administration; The role of Political parties in sustaining modern democracy

Suggested Readings

Ahmad, Q. K. & Shafi Ahmed (eds). (2016). *Bangladesh's development: Some issues and perspectives*, Dhaka, Bangladesh: Palok Publishers.

Ahmed, M. (2000). *Bangladesh in the new millennium*. Dhaka, Bangladesh: Community Development Library.

Choudhury, A. M., & Alam, F. (Eds.). (2002). *Bangladesh on the threshold of the Twenty First Century*. Dhaka, Bangladesh: Asiatic Society of Bangladesh.

Shawkat Ali, A. N. M. (2004). *Bangladesh civil service: A political-administrative perspective*. Dhaka Bangladesh: UPL.

Quamrul A., Rahman, A., & Ul Islam, S. R. (Eds.) (2020). *The economic development in Bangladesh in the Asian century: Prospects and perspectives*. London, United Kingdom: Routledge.

Hossain, M. (2004). *Poverty alleviation through agriculture and rural development in Bangladesh (CPD occasional paper 40)*. Dhaka, Bangladesh: Centre for Policy Dialogue.

Andaleed, S. S. (2007). *Political culture in Bangladesh: Perspectives and analysis*. Dhaka, Bangladesh: University Press Limited.

Ahmed, A. F. S., & Chowdhury, B. Mobin., (2004). *Bangladesh, national culture and heritage: An introductory reader*. Dhaka, Bangladesh: Independent University Bangladesh.

Jahan, R. (1980). *Bangladesh politics: Problems and issues*, Dhaka, Bangladesh: University Press Limited.

Khan, A. A. (1996). *The discovery of Bangladesh*. Dhaka, Bangladesh: University Press Limited.

Mascarenhas, A. (1986). *Bangladesh: A legacy of blood*. London, United Kingdom: Hodder & Stoughton.

Rahman, S. M. (2018). *The unfinished memoirs* (Trans. Fakrul Alam) (4th ed.). Dhaka, Bangladesh: University Press Limited.

Rahman, S. M. (2020). *Amar dekha noya China*, Dhaka, Bangladesh: Bangla Academy.

Riaz, A. (2016). *Bangladesh: A political history since independence*. London, United Kingdom: Tauris & Co.

Rahman, S. M. (2017). *Karagarer rojnamcha* (Prisoner's Diary). Dhaka, Bangladesh: Bangla Academy.

Schendel, V. (2009). *A history of Bangladesh*. New York, NY: Cambridge University Press.

Sen, R. (2011). *Middle class elites, civil society and other essays: Volume I*. Dhaka, Bangladesh: New Age Publication.

Sen, R., (2011). *Middle class elites civil society and other essays: Volume II*. Dhaka, Bangladesh: New Age Publication.

The Constitution of the People's Republic of Bangladesh as amended till date.

DMC- 107: Fundamentals of Economics
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Course Objectives:

This course introduces students to fundamental economic concepts and theory, including demand, supply, and the formation of equilibrium prices in product and resource markets. In addition, the course offers an introduction to applied fields such as industrial organization (market structure), labor economics, unionism, international trade, public economics, and the basic concepts of Macroeconomics. The core learning objectives for the course are: (1) Demonstrate understanding of the fundamental economic concepts; (2) Critically analyze and interpret economic data; (3) Apply economic reasoning to analysis of current events and case readings.

Course Contents

1. Fundamental Concepts of Economics

- a. Economics and Disaster Management
- b. Definition, Nature & Scope of Economics
- c. Fundamental Problems of Economics and Solution to these Problems under different Economic Systems
- d. Opportunity Cost, Production Possibility Curve/Frontiers (PPF), Shift and Movement of PPF, significance of PPF, Opportunity Cost using PPF, Resource allocation, and Concept of Efficiency.

2. Supply, Demand and Market Equilibrium:

- a. Demand (DD) and Quantity Demand, Demand Schedule, Demand Curve, and the Law of Demand.
- b. Supply (SS) and Quantity Supplied, Supply Schedule, Supply Curve, the Law of Supply.
- c. Interaction of Demand and Supply, Effect of a Shift in Demand or Supply or both, Effect of a Tax or a Subsidy, Price Controls, and the effect of Natural Disasters or Shocks.
- d. Elasticity, Price Elasticity of SS & DD, different types of Elasticity, Cross Price Elasticity of DD, Income Elasticity of DD, and determinants of elasticity of DD, and Substitutes/Complement Goods.

3. Consumer Behavior:

- a. Choice and Utility, Marginal Utility, Law of Diminishing Marginal Utility Equal-marginal Principle, Indifference Curves and their Properties, Marginal Rate of Substitution (MRS), Budget Sets, and Consumer Choice. .
- b. Income Effect/Substitution Effect, Indifference Curve to Individual Demand Curve, and Consumer Surplus.

4. Production and cost:

- a. Production function, Total, Average and Marginal Physical Product.
- b. Law of Diminishing Marginal Returns and Returns to Scale.
- c. Fixed Cost, Variable Cost, Short Run and Long Run Cost Curve, Shape of Average and Total Cost Curve, relation between Average Cost and Marginal Cost, Isoquants, Isocost, Least Cost rule, choice of Input Proportion

5. Market Structure

- a. Individual Demand to Market Demand
- b. Behavior of a Competitive Firm, Short Run Equilibrium of a Competitive Firm, Profit of Competitive Market, Shut Down Condition and Break Even analysis, Industry Equilibrium in the short run.
- c. Pattern of Imperfect Competition, Monopoly, Marginal Revenue and Monopoly, Profit of Monopoly, Inefficiency and Monopoly, Dead Weight Loss, comparison of Perfect Competition and Monopoly.
- d. Monopolistic Competition, Oligopoly (Game Theory)

6. Macroeconomic Variables and Concepts

- a. The Circular Flow, National Income, Employment, Interest and Inflation.
- b. GDP, GDP growth, GNP, Real vs. Nominal GDP, Price Deflators.

- c. Budget and Government Expenditure
- d. Money, Functions of Money, and Monetary Policy.

Suggested Readings

Pindyck, R. S. and Rubinfeld, D. L. (2012). *Microeconomics*, 8th Edition, Pearson Education.

Samuelson, P. A. and Nordhaus, W. D., (2004). *Economics*, 18th Edition, McGraw-Hill/Irwin.

Mankiw, G. N. (2012). *Macroeconomics*, 8th Edition, Worth Publishers, Inc.

Henderson, J.M. and Quandt, R.E., 1971. *Microeconomic theory: A mathematical approach*.

Dewett, K.K. and Chand, A., (1997). *Modern Economic Theory*.

Ahuja, H.L., (2007). *Advanced Economic Theory: Microeconomic Analysis*.

DMC 107: Disaster Management System in Bangladesh
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Course Objective

The course aims to make understand of Disaster Management Scenario in Bangladesh through the knowledge on evolution of Disaster Management in Bangladesh, to understand the institutional and legal framework for Bangladesh, Policy and Programmers for Disaster in Bangladesh, Roles and Responsibilities of Local and national bodies in Disaster Management

Course Outline

1. Disaster Management Programme in Bangladesh: Comprehensive Disaster Management Programme (CDMP), Comprehensive Disaster Management Model
2. Disaster Management Framework of Bangladesh: Regulatory and institutional framework for disaster management, Standing orders on Disaster Management (SOD), Disaster management institutions and committees, Role of different institutions, committees and groups in disaster management under Standing Orders on Disaster (SOD)
3. National Plan for Disaster Management, Disaster Management in the Five-Year Plans of Bangladesh
4. Disaster Management Act: Bangladesh, India, Srilanka.
5. National Policy on Disaster Management
6. Disaster Preparedness and Implementation, Government and Development Partner Collaboration in Disaster Management. Role of Government (local, state

and national), Non-Government and Inter Governmental Agencies, CSR in DRR activities

7. Public-Private Partnership in Disaster Management
8. Planning for Hazard and Disaster Reduction: Disaster Management Cycle (DMC), The Pressure and release Model (PARM), The Earth Systems Model (ESM), The Disaster Crunch Model (DCM).
9. Community based disaster management: Community, empowerment, community resilience and preparedness for disaster, community-based organizations (CBO) and non-profit organizations (NPO) role in Disaster Management.

Suggested Readings

Asian Disaster Preparedness Center (ADPC). (2000). "Community Based Disaster Management (CBDM): Trainer's Guide, Module 4: Disaster Management". Bangkok, Thailand.

ADPC. (2006). Critical Guidelines: Community Based Disaster Risk Management. Asian Disaster Preparedness Centre, Bangkok.

Action against Hunger UK (2001) NGO Initiative in Risk Reduction Case Study No. 14: Preparation for Flood-Related Disasters. London, Red Cross.

Banu N. (2015) Disaster Management in the Five-Year Plans of Bangladesh: An Assessment. In: Ha H., Fernando R., Mahmood A. (eds) Strategic Disaster Risk Management in Asia. Springer, New Delhi. https://doi.org/10.1007/978-81-322-2373-3_2

Bangladesh Disaster Management Reference Handbook. (2020). Center for Excellence in Disaster Management & Humanitarian Assistance (CFE-DM). https://reliefweb.int/sites/reliefweb.int/files/resources/disaster-mgmt-ref-hdbk-bangladesh_1.pdf

Comprehensive Disaster Management Programme, Bangladesh. Phase I & II

Government of Bangladesh, United Nations Development Programme (UNDP), UN Women and United Nations Office for Project Services (UNOPS). (2017). National Resilience Programme.

Ministry of Disaster Management and Relief (MoDMR), Government of the People's Republic of Bangladesh (GOB), (2013). Disaster Management Act (DMA) (2012). Dhaka: MoDMR , <https://reliefweb.int/sites/reliefweb.int/files/resources/disaster-mgt-act-2012-english.pdf>

Ministry of Disaster Management and Relief (MoDMR), Government of the People's Republic of Bangladesh (GOB), (2019). *Standing Orders On Disaster* (first published in 1997)

Ministry of Disaster Management and Relief (MoDMR), Government of the People's Republic of Bangladesh (GOB), (2017). National Plan for Disaster Management (2021-

2025). 2020. Action for Disaster Risk Management Towards Resilient Nation. Government of the People's Republic of Bangladesh, Ministry of Disaster Management and Relief.

https://modmr.portal.gov.bd/sites/default/files/files/modmr.portal.gov.bd/page/a7c2b9e1_6c9d_4ecf_bb53_ec74653e6d05/NPDM2021-25%20DraftVer5_23032020.pdf

Ministry of Disaster Management and Relief (MoDMR), Government of the People's Republic of Bangladesh (GOB), (2015). Disaster Management Policy.

Ministry of Disaster Management and Relief (MoDMR), Government of the People's Republic of Bangladesh (GOB), (2011). Cyclone Centre Maintenance & Management Policy.

Inter Works. (1998). Model for National Disaster Management Structure, Preparedness Plan and Supporting Legislation. Madison, InterWorks.

Matin, N. and Taher, M. (2001) 'The Changing Emphasis of Disasters in Bangladesh NGOs'. Disasters, Vol. 25, No. 3.

Pandey, M. (2014). Disaster Management, Wiley India Pvt. Ltd.

Standing orders on Disaster Management (SOD). Dhaka, DMB.

Ministry of Planning, GoB. Seventh Five Year Plan (FY2016–FY2020) and Eighth Five Year Plan (FY2021–FY2025) and beyond

DMC 108: Principles of Management

Course Objectives

The course is designed to give you a basic understanding of the role and functions of a manager and to explain the principles, concepts, and techniques used by managers in carrying out their work. The course is intended for persons who presently hold, or desire in the future to hold, management responsibilities in an organization or enterprise. The objective of this course is to expose students to the theories of management, organizational theory, and the practice of management in contemporary organizations from a conceptual, analytical, and pragmatic perspective. The course is a study of how to be better managers and aims at developing skills and knowledge needed to successfully manage an organization.

Course Contents

1. **Foundations of Management and Organization:** Definition of management, Universality of management, Rewards and challenges of being a manager, Management functions, Managerial roles and contemporary model of managing, Skills of managers, Managerial skills and organizational hierarchy, Types of managers, Managerial functions at different organizational levels, Efficiency and effectiveness in management, Changes facing managers.

2. **The History of Management Module:** Major approaches to management: Classical approach (Scientific management and general administrative theory), Behavioral approach, Quantitative approach, Systems approach to management, Contingency approach to management, Contemporary management challenges.
3. **Organization and Environment:** Internal and external environment of organizations, Components of internal and external environment, Impact of external environment on organizational development strategy, SWOT analysis, PESTEL analysis.
4. **Corporate Social Responsibility and Green Management:** Definition of social responsibility, Arguments for and against social responsibility, CSR activities of different organizations in Bangladesh, Green management and sustainability, How organizations go green, Green management in Bangladesh.
5. **Planning and Decision Making:** Definition of planning, Goals and plans, Difference between vision, mission, goals and objectives, Types of goals, Types of plans, Process of planning, Traditional goal setting, Management by Objectives (MBO), Process of MBO, Benefits and weaknesses of MBO, Contemporary issues in planning, Definition of decision making, Decision making process, Definition of strategic management, Strategic management process.
6. **Organizing and Contemporary Organizational Design:** Definition of organizing, Elements of organizational design, Mechanistic and organic structure, Contemporary organizational design, Organizational design challenges in 21st century.
7. **Motivation:** Definition of motivation, Early and contemporary theories of motivation, Current issues in motivation, Designing appropriate reward system, Different job design approach to motivation.
8. **Leadership:** Definition of leadership, Difference between leaders and managers, Leadership styles, Contemporary views of leadership, Charismatic leadership, Sources of leader power.
9. **Controlling:** Definition of controlling, Nature and importance of control, Control process, Levels of control, Feedforward, concurrent and feedback controls, Budgetary control, Balanced Scorecard, Contemporary issues in control.

Suggested Readings

Stephen P. Robbins and Mary Coulter, **Management**, Pearson Education Limited.

Ricky W. Griffin, Griffin **Management**, Houghton Mifflin Company.

Harold Koontz and Heinz Weihrich, **Management**, McGraw-Hill Book Company, New York, USA.

James A.F. and Stoner; R.E. Freeman, **Management**, Prentice Hall of India Private Limited, New Delhi, India.

THIRD SEMSTER (SECOND YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 201	Theoretical Approaches to Disaster Management	100	4
DMC 202	Disaster Mitigation and Preparedness	100	4
DMC 203	Risk Assessment and Vulnerability Reduction	100	4
DMC 204	Disaster Informatics (Theory)	50	2
DMC 205	Disaster Informatics (Lab)	50	2
	Total	400	16

DMC-201: Theoretical Approaches to Disaster Management

Course Objectives

The course is expected to orient the students with theoretical and historical perspectives of disaster and vulnerability studies. It has been structurally designed based primarily on the following objectives: (i) to provide a historical background of shifting the paradigms from Human Exceptionalism to the new Environmental issues; (ii) to introduce the development of logical inventory of theoretical perspective in disaster management as well as the shift of paradigms (iii) to introduce major theoretical ideas in relation to disasters as well as relationship of disaster with Poverty and Vulnerability (iv) to provide the arguments on development and production of Risk Society; (v) to orient students with the approaches to Disaster studies; (vi) to shed light on the Anthropocene as the beginning of a geologic era where frequent technological/anthropogenic disasters are common place.

Course Outline

- 1. Toward a Theory of Disaster; Shift of Paradigms in Environment and Disaster studies:** convergence and divergence; Pre-Modern to Modernity and Post-Modern Stage. Historical Perspectives of Disaster Management; Pioneers of History; contributions of early thinkers (Karl Marx; Max Weber and others).
- 2. Approaches to Disaster Management:** Sociological, Anthropological, Geographical, Technical and Development Studies Approaches, Behavioral and Ecological Approaches
- 3. Change of Perceptions:** Act of God; Act of Nature; Disaster as Intersection of Society and Nature; Societal Injustice Theory.
- 4. Economic Theory and Decision-Making:** Economic Theory; Decision-making

Theory; Systems Theory; Chaos Theory; Management Theory

5. **Social Constructionist Views:** Organizational Behavior; Development Perspectives; Sustainability Perspectives
6. **Ulrich Beck:** Risk Society, Second Modernity, Methodological Nationalism, Classical versus Cosmopolitan Theory, Individualization, Globalism versus Globalization
7. **Theory of Resilience:** Concept & Etymology; Resilience in the Humanitarian Field of Study; Theoretical use of Resilience
8. **Poverty and Disaster:** Sen's Exchange Entitlement; Feminization of Poverty.
9. **Anthropocene:** Paul Crutzen's Concept of Anthropogenic Disasters.

Suggested Readings

Abel, N., Cumming, D. H., & Anderies, J. M. (2006). Collapse and reorganization in social-ecological systems: questions, some ideas, and policy implications. *Ecology and Society*, 11(1). Retrieved from <http://www.ecologyandsociety.org/vol11/iss1/art17/>

Asian Disaster Preparedness Center. (2016). *Risk Reduction and Resilience in Asia: Unpacking the Post 2015 Agenda*. Bangkok, Thailand: ADPC

Ahmed, A. U., Quisumbing, A. R., Nasreen, M., Hoddinott, J. F., & Bryan, E. (2009). Comparing food and cash transfers to the ultra-poor in Bangladesh. <https://doi.org/10.2499/9780896291737RR163>

Alexander, D. (2002). Nature's impartiality, man's inhumanity: Reflections on terrorism and world crisis in a context of historical disaster. *Disasters*, 26(1), 1-9. <https://doi.org/10.1111/1467-7717.00187>

Beck, U. (1992) *Risk society: towards a new modernity*. London, UK: Sage.

Beck, U., Giddens, A., & Lash, S. (1994). *Reflexive modernization: Politics, tradition and aesthetics in the modern social order*. Stanford, CA: Stanford University Press.

Brown, D., & Kulig, J. C. (1996). The concepts of resiliency: Theoretical lessons from community research. *Health and Canadian Society*, 4(1), 29-52. Retrieved from <https://opus.uleth.ca/handle/10133/1275>

Buckle, P. (2006). Assessing social resilience. In D. Paton and D. Johnson (Eds.) *Disaster Resilience: An integrated approach*. Retrieved from <https://www.worldcat.org/title/disaster-resilience-an-integrated-approach/oclc/608593936>

- Carr, L. J. (1932). Disaster and the sequence-pattern concept of social change. *American journal of sociology*, 38(2), 207-218. Retrieved from <https://www.journals.uchicago.edu/doi/abs/10.1086/216030>
- Catton, W. R., & Dunlap, R. E. (1978). Paradigms, theories, and the primacy of the HEP-NEP distinction. *The American Sociologist*, 13(4), 256-259. Retrieved from <https://www.jstor.org/stable/27702343?seq=1>
- Chant, S. (2006). Re-thinking the “feminization of poverty” in relation to aggregate gender indices. *Journal of human development*, 7(2), 201-220. <https://doi.org/10.1080/14649880600768538>
- Drabek, T. E. (2012). *Human system responses to disaster: An inventory of sociological findings*. Retrieved from <https://www.springer.com/gp/book/9781461293767>
- Drabek, T. E. (2016). *The human side of disaster*. Retrieved from <https://www.tandfonline.com/doi/abs/10.1080/13669871003765624?journalCode=rjrr20>
- Etkin, D. (2014). *Disaster theory: an interdisciplinary approach to concepts and causes*. Butterworth-Heinemann. Retrieved from <https://www.elsevier.com/books/disaster-theory/etkin/978-0-12-800227-8>
- Kuhn, T. S. (1962). *The structure of scientific revolutions* (2nd Ed.). Chicago, IL: The University of Chicago Press. Retrieved from <https://www.lri.fr/~mbl/Stanford/CS477/papers/Kuhn-SSR-2ndEd.pdf>
- Lewis, J. (1999). *Development in disaster-prone places: Studies of vulnerability*. London, UK: Practical Action Publishing Ltd
- McEntire, D. A., Fuller, C., Johnston, C. W., & Weber, R. (2002). A comparison of disaster paradigms: The search for a holistic policy guide. *Public administration review*, 62(3), 267-281. <https://doi.org/10.1111/1540-6210.00178>
- Moore, H. E. (1956). Toward a theory of disaster. *American Sociological Review*, 21(6), 733-737. Retrieved from <https://www.jstor.org/stable/2089714?seq=1>
- Nasreen, M., Hossain, K. M., & Kundu, D. (2007). *Poribesh samajbiggan (sociology of environment)*. Dhaka: Tapan Prokashan.
- Nasreen, M. (2009). Disasters and Disaster Research: A Case Study of Floods in Bangladesh. *Understanding the Global Environment*, 265-287. Retrieved from <https://www.bangladeshsociology.net/1.2/3BEJS%201.2-4.pdf>.
- Nasreen, M. & Schopper, D. (2019). ‘Resilience’, in the humanitarian encyclopedia. Geneva, Switzerland: Centre for Humanitarian Studies.
- Nasreen, M. (2019). *Women and girls: vulnerable or resilient?* (2nd edition). Dhaka: Institute of Disaster Management and Vulnerability Studies, University of Dhaka.

Sen, A. (1982). *Poverty and famines: an essay on entitlement and deprivation*. Oxford, United Kingdom: Oxford University Press.

Smith, K. (1996). *Environmental hazards: assessing risk and reducing disaster*. London and NY: Routledge.

Stallings, R. A. (2002). Weberian political sociology and sociological disaster studies. In *Sociological Forum*, 17(2), 281-305. Retrieved from <https://www.jstor.org/stable/3070327>

Steffen, W., Crutzen, P. J., & McNeill, J. R. (2007). The Anthropocene: are humans now overwhelming the great forces of nature. *AMBIO: A Journal of the Human Environment*, 36(8), 614-621. Retrieved from <https://www.jstor.org/stable/pdf/25547826.pdf>

Wisner, B., Blaikie, P., Blaikie, P. M., Cannon, T., & Davis, I. (2004). *At risk: natural hazards, people's vulnerability and disasters*. London and NY: Routledge.

DMC 202: Disaster Mitigation and Preparedness

Course Objective

This course consists of two important phases of disaster management cycle; mitigation and preparedness.

The first part deals with the structural aspects involving architectural and engineering considerations for a resilient structural aegis to protect habitats and vulnerable zones from damage and destructions due to disasters. The contents and contexts aim at providing extensive knowledge on methods of constructing safer buildings in disaster-prone areas, erecting disaster shelters, and provision of post disaster emergency housing. The major objective is to offer a comprehensive academic understanding for developing physical structures that address the vulnerability issues accrued from disasters and creating awareness about the key aspects of building design and construction that can contribute to the broader mitigation mechanism with hazard-resistant habitats before, during and after disasters. This course will also help students to think of the negative impacts of development projects and use of environment friendly mitigation measures, to know about best practices of mitigation strategies of the world.

Another part, preparedness, will give an overview of the range of strategies for preparedness in the pre-impact stage in disaster-prone areas and correspondingly reducing vulnerability of communities. The purpose is to instill awareness of the importance of disaster preparedness for damage prevention and vulnerability reduction, and associated risk reduction strategies such as insurance.

Course Outline

1. **Overview of Disaster Mitigation and Preparedness:** Concept; aims, goals, objectives, significance, scope and relationship with other parts of the disaster continuum, types, major components and elements of preparedness. Mitigation through natural resource protection and sustainability-centric development and structures.
2. **Major Theories, Approaches and Models of Disaster Mitigation and Preparedness:** Social cognitive theory, Education and preparedness knowledge theory, Social marketing perspective on disaster preparedness, Demographic preparedness theory, Preparedness and motivation theory (Psychological perspective), Stakeholder approach, Community preparedness theory on conservation resource approach, Marketing and public policy perspective, Lockdown Theory etc. Preparedness and mitigation Models and Guidelines
3. **Assessment and Planning for disaster preparedness:** Hazard, vulnerability and risk assessment in preparedness stage, prerequisites for preparedness planning, types of planning, General planning process for national and community level, major steps of mitigation plan, organizational or institutional plan, sectoral plan for different hazards, contingency plan for emergency response, developing an action plan frameworks and challenges
4. **Preparedness and Mitigation against Slow onset and Sudden onset disasters:** Structural engineering protection of hydro-climatic and coastal hazard mitigation measures: embankment, dam, reservoir etc., flood insurance and community capacity enhancement projects, flood warning system safer building shelters for the frequently affected peoples especially in the coastal belts. land use planning system, cyclone and tsunami storm water management through sea wall, sheltering, non-traditional storm water management and others, relocation, acquisition, wet flood proofing, landslide hazard and riverbank erosion mitigation measures, drought and desertification mitigation strategies
5. **Urban Building Protection and Livelihood Security:** Hazard resistance building and strengthening building with various measures, soil test, piling, building codes, retrofitting, nonstructural reinforcement of existing building, fire hazard mitigation, thunderstorm mitigation, future proofing development city housing cases from developed cities. green architecture and design, sustainable structures and new age engineering, technology for sustainable and green buildings
6. **Institutional Preparedness and Mitigation measures:** School disaster preparedness, Hospital disaster preparedness, Airport disaster preparedness, Industry and business preparedness measures.
7. **Preparedness and Mitigation Concern for Vulnerable Group and Disadvantaged Community:** Home/family preparedness, community preparedness, disabled, women, children, trans gendered, bede community, dalit Community, elderly people, refugees, IDPs and ethnic minorities focused preparedness and mitigation mechanisms.
8. **Mitigation and Preparedness Issues Discussed in International and National**

Drivers

Suggested Readings

Agarwal, P., & Shrikhande, M. (2006). *Earthquake resistant design of structures*. New Delhi, India: Prentice-Hall of India.

Allenby, B., & Fink, J. (2005). Toward inherently secure and resilient societies. *Science*, 309(5737), 1034-1036. <https://doi.org/10.1126/science.1111534>

Alessanadra, Jerolleman and Keifer (eds). (2013). *Natural Hazard Mitigation*, CRC press.

Aysan, Y., Clayton, A., Cory, A., Davis, I., & Sanderson, D. (1995). *Developing building for safety programmes: Guidelines for organizing safe building improvement programmes in disaster-prone areas*. London, UK: Intermediate Technology Publications.

Bauer, M., Möhle, P., & Schwarz, M. (2010). *Green building: Guidebook for sustainable architecture*. Berlin, Germany: Springer-Verlag. <https://doi.org/10.1007/978-3-642-00635-7>

Cuny, F. (1988) Disaster Preparedness Recommendations for Bangladesh. Dhaka, UNDP. Grover and Islam (eds). (2021), *Case studies in Disaster Mitigation and Preservation*. ELSEVIER

David. R. Good Shalk et al, (1999). *Natural Hazard Mitigation: Recasting Disaster Policy and Planning*. Washington: ISLAND Press,

Davis, I. (1978). *Shelter after disaster*. Oxford, UK: Oxford Polytechnic.

Duggal, S. K. (2013). *Earthquake-resistant design of structures* (2nded.). Oxford, UK: Oxford University Press.

Godschalk, D. R. (2003). Urban hazard mitigation: Creating resilient cities. *Natural Hazards Review*, 4(3), 136-143. [https://doi.org/10.1061/\(ASCE\)1527-6988\(2003\)4:3\(136\)](https://doi.org/10.1061/(ASCE)1527-6988(2003)4:3(136))

Hamada, Masonori. (2013). *Engineering for Earthquake Disaster Mitigation* Springer
Haque. C. Emdad (2005). . *Mitigation of Natural Hazards and Disasters*. Springer

Housing and Building Research Institute/Bangladesh Standard and Testing Institution (2006). *Bangladesh national building code*. Retrieved from http://pwd.gov.bd/document/library/BNBC_Part01.pdf. Accessed: November 10, 2017.

Medina, J.C. (1992) “Community Awareness and Participation Programme in Disaster Preparedness and Rural Development” in *Integrated Approach to Rural Development and Disaster Management in Bangladesh*, Vol. II. Nagoya, UNCRD.

Nakabayashi, I. (1993) “Urban Planning Based on Disaster Risk Assessment” in *Disaster Management in Metropolitan Areas for the 21st Century*. Nagoya, UNCRD. Pardeep, Dharmeja and Medury (eds) (2010). *Disaster Mitigation Experiences and Reflection..* PHI Learning LTD. New Delhi.

Kreimer, A., Arnold, M., & Carlin, A. (Eds.). (2003). *Building safer cities: The future of disaster risk*. Washington, DC: World Bank. Mileti, D. S. (1999). *Disasters by design: A reassessment of natural hazards in the United States*. Washington, DC: Joseph Henry Press. <https://doi.org/10.17226/5782>

Newman, P., Beatley, T., & Boyer, H. (2009). *Resilient cities responding to peak oil and climate change*. Washington, DC: Island Press. Pidgeon, N. F. (1991). Safety culture and risk management in organizations. *Journal of Cross-Cultural Psychology*, 22(1), 129-140. <https://doi.org/10.1177/0022022191221009>

Seraj, S. M., & Ahmed, K. I. (2015). *Building safer houses in rural Bangladesh*. Dhaka, Bangladesh: Bangladesh University of Engineering and Technology & University of Exeter. Retrieved from <https://arc456.files.wordpress.com/2015/02/building-safer-houses-in-rural-bangladesh.pdf>. Accessed: November 14, 2017.

Schwab, Sandler and Brower (eds) (2017). *Hazard Mitigation and Preparedness*. CRC press.

Taranath, B. S. (2005). *Wind and earthquake resistant buildings: Structural analysis and design*. New York, NY: Marcel Dekker.

Tomažević, M. (1999). *Earthquake-resistant design of masonry buildings*. London, UK: Imperial College Press.

Vale, L. J., & Campanella, T. J. (Eds.). (2005). *The resilient city: How modern cities recover from disaster*. New York, NY: Oxford University Press.

DMC-203: Risk Assessment and Vulnerability Reduction

Course Objectives

The salient features of this course are meant to offer a comprehensive scientific understanding to the students about the key concepts of vulnerability and vulnerability reduction. The outlines of the course consist of three key objectives: (i) to provide a clear and holistic framework of scientific learning on vulnerability and nature of vulnerability along with its adverse effects on society; (ii) to train and to develop skills of students on vulnerability assessment through providing theoretical and practical knowledge; (iii) to empower the students as a potential emergency manager by honing knowledge on

vulnerability reduction mechanisms. The course will also help the graduates to open up a multidisciplinary spectrum from a critical viewpoint.

Course Outline

1. **Concepts:** Vulnerability, Risk, Resilience, Vulnerability and Disaster, Internal and External Processes of Vulnerability
2. **Types, Causes and Impacts of Vulnerability:** Powerlessness and Vulnerability, Types and Profiles of Vulnerability: Physical, Social, Economic, Environmental, Organizational,, Political; Causes, and detrimental effects and potential impacts of vulnerability
3. **Theories and Models of Vulnerability:** Synthesizing vulnerability theories, Theorizing Vulnerability in a Globalized World; **Models:** Watts and Bohle Model of Vulnerability, Capacity and Vulnerability Assessment (CVA); Pressure and Release Model of Vulnerability (PAR Model) - Progression of Vulnerability; Hazards of Place Model of Vulnerability, Access Model;
4. **Vulnerability Indices:** Defining Index; Construction of vulnerability index; Livelihood Vulnerability Index (LVI); Disaster and Social Exclusion Index (DSoEI), Social Vulnerability Index (SoVI); Climate Vulnerability Index (CVI); Resilience Capacity Index (RCI); Community Disaster Resilience Index (CDRI)
5. **Disaster Preparedness and Vulnerability Reduction:** Public Preparedness-Public Education and behavior, Social Marketing, Media as public educator; Household Level Preparedness; Obstacles to effective public education and preparedness
6. **Disaster Response and Vulnerability Reduction:** Response and phases; Recognition-Predisaster Actions; Recognition-Postdisaster Actions- Search and Rescue, First Aid Treatment, Evacuation, Postdisaster Needs Assessment, Provision of Water, Food and Shelter; Health and Sanitation, Safety and security; Critical Infrastructure Resumption; Donation Management; Coordination and Incident Command System (ICS); Forecast, Information and Warning Systems, community based early warning system, EW message dissemination; Humanitarian Appeals for Disaster Response: Flash Appeal, Consolidate appeal to national and international bodies.
7. **Vulnerability Reduction and Recovery:** Public assistance, housing, economic recovery, family and social or community recovery, cultural recovery, psychological recovery, education; Special considerations in recovery; Rehabilitation and

Reconstruction: Holistic recovery, Seven Enablers for Holistic Disaster Recovery, Planning for Holistic Recovery; Restoration of critical services, Nine Obstacles to Holistic Disaster Recovery

8. **Relief Management and Vulnerability Reduction:** Disaster and Development relief, emergency relief, selection of relief items and relief standards, selection of relief beneficiaries, duplication control, coordination, accountability and governance in relief management system
9. **Vulnerability Reduction and Empowerment:** Vulnerability to resilience; Monitoring of risk reduction interventions and evaluation; Development and implementation of sectoral and individual action plans.
10. **Hazard and Risk Assessment:** Hazard identification, Hazard analysis, Vulnerability analysis, Threat and Hazard Identification and Risk Assessment (THIRA), Emergency risk management

Suggested Readings

Azad, A. K., Hossain, K. M., & Nasreen, M. (2013). Flood-induced vulnerabilities and problems encountered by women in northern Bangladesh. *International Journal of Disaster Risk Science*, 4(4), 190-199. <https://doi.org/10.1007/s13753-013-0020-z>

Balica, S. F., Douben, N., & Wright, N. G. (2009). Flood vulnerability indices at varying spatial scales. *Water Science and Technology*, 60(10), 2571-2580. <https://doi.org/10.2166/wst.2009.183>

Bank off, G., Frerks, G., & Hilhorst, D. (Eds.). (2004). *Mapping vulnerability: Disasters, development, and people*. London, UK: Earthscan.

Birkmann, Jorn, Kienberger, Stefan, Alexander, David. E “Assessment of vulnerability to natural hazards: a European perspective”. (2014) Elsevier. ISBN 978-0-12-410528-7

Blaikie, P., Cannon, T., Davis, I., & Wisner, B. (2014). *At risk: Natural hazards, people's vulnerability and disasters*. New York, NY: Routledge.

Carter, W. N. (1991). *Disaster management: A disaster manager's handbook*. Manila, Philippines: Asian Development Bank.

Charlotte Benson, John Twigg, and Tiziana Rossetto “Tools for Mainstreaming Disaster Risk Reduction: Guidance Notes for Development Organisations”, 2007, Provention Consortium Secretariat.

Coppola, D. P. (2007). *Introduction to international disaster management*. Burlington, MA: Butterworth-Heinemann.

Hagihara, K., & Asahi, C. (Eds.). (2016). *Coping with regional vulnerability: Preventing and mitigating damages from environmental disasters*. Tokyo, Japan: Springer.

Islam, Tanveer and Ryan, Jeffrey “Hazard Mitigation in Emergency Management” (2016) Elsevier, ISBN: 978-0-12-420134-7

Iyengar, R.N. (1997). Natural hazards in the urban habitat: Proceedings of the golden jubilee year conference, Central building research institute, Roorkee, New Delhi, November 10-11, 1997. New Delhi, India: Tata McGraw-Hill.

Jie Cao, Li Zhu, He Han, Xiaodong Zhu, “Modern Emergency Management” 2018, Springer, ISBN 978-981-10-5720-5

John C. Pine “Natural Hazards Analysis”, , 2009, Taylor & Francis Group, LLC, ISBN 978-1-4200-7038-5

Jonathan Rougier, Steve Sparks, Lisa J. Hill “Risk And Uncertainty Assessment For Natural Hazards”, (2013) Cambridge University Press, ISBN 978-1-107-00619-5

Maiwald, E., & Sieglein, W. (2012). Security planning & disaster recovery. New York, NY: McGraw-Hill.

Merriman, P. A., & Browitt, C. W. A. (Eds.). (1993). Natural disasters: Protecting vulnerable communities: Proceedings of the conference held in London, 13-15 October 1993. London, UK: Thomas Telford.

Nasreen, M. (2019). Women and Girls-Vulnerable or Resilient? Dhaka, Bangladesh: Institute of Disaster Management and Vulnerability Studies, University of Dhaka, 2nd Edition.

Pelling, M. (2003). The vulnerability of cities: Natural disasters and social resilience. London, UK: Earthscan

Perry, R. W., & Lindell, M. K. (2007). Emergency planning. London, UK: Wiley.

U.S. National Research Council (2012). Disaster resilience: A national imperative. Washington, DC: The National Academies Press. <https://doi.org/10.17226/13457>

The European Commission-The World Bank-The United Nations Development Programme (2013). Post-disaster needs assessments: Volume A, Guidelines. Retrieved from

http://www.undp.org/content/dam/undp/library/Environment%20and%20Energy/Climate%20Strategies/PDNA%20Volume%20A%20FINAL%2012th%20Review_March%202015.pdf. Accessed: November 12, 2017.

Thomas, D. S. K., Phillips, B. D., Lovekamp, W. E., & Fothergill, A. (2013). Social vulnerability to disasters (2nded.). Boca Raton, FL: CRC Press.

Turnbull, M. Sterrett, C. L., & Hilleboe, A. (2013). Toward resilience: A guide to disaster risk reduction and climate change adaptation. Warwickshire, UK: Practical Action Publishing.

Course Objectives

The purpose of the course is to orient students with the application of informatics in disaster management. This course focuses on the problems and solutions related to information management including information needs, nature of information, seeking of information, information systems, emergency mapping and information dissemination in the context of management of disasters.

Course Outline

1. Introduction

(a) Basics of informatics, (b) Definition and significance of disaster informatics, (c) Use of informatics in disaster, crisis, and emergency management, (d) Advancement of information technology, (e) History of disaster informatics, (f) Theoretical foundations of disaster informatics, (g) Approaches and model

2. Data Communication and Technology

Concepts of data communication, (b) Modes of data communication, (c) Computer networking, (d) Informatics environment, (e) Cloud computing, (f) Telecommunication, (g) Satellite communication, (h) Radar Technology, (i) Machine learning, (j) Spatial technology, (k) Website development, (l) Artificial intelligence

3. Programming Language

(a) Elements of programming, (b) Program organization and development, (c) Languages i.e., machine and assembly, algorithmic, business-oriented, education-oriented, object-oriented, declarative, scripting, document formatting, World Wide Web display, (d) Program design model

4. Disaster Management Information System

(a) Concept of database management, (b) Elements of database management, (c) Database Model, (d) Database Management System, (e) Database creation and organization, (f) Data collection, processing, and presentation, (g) Opportunities and Challenges, (h) Case Studies: Coronavirus Diseases 2019 (COVID-19), Cyclone Sidr, Floods in Bangladesh, etc.

5. Data Protection and Recovery Planning

(a) Principles of data protection, (b) Data protection policy, (c) Data protection strategies, (d) Confidentiality, data integrity and availability, (e) Risk assessment, (f) Data backup, (g) Recovery drills

Suggested Readings

Ahmed, A. (Ed.). (2018). *Programming Languages and Systems*.
<https://doi.org/10.1007/978-3-319-89884-1>

Aithal, P. S. (2020). Environmental Informatics: The Foundation, Allied & Related Branches — Analytical Study. *SSRN Electronic Journal*.
<https://doi.org/10.2139/ssrn.3579917>

- Asimakopoulou, E., & Bessis, N. (Eds.). (2010). *Advanced ICTs for disaster management and threat detection: Collaborative and distributed frameworks*. <https://doi.org/10.4018/978-1-61520-987-3>
- Bungartz, H.-J., Kranzlmüller, D., Weinberg, V., Weismüller, J., & Wohlgemuth, V. (Eds.). (2018). *Advances and New Trends in Environmental Informatics*. <https://doi.org/10.1007/978-3-319-99654-7>
- Forouzan, B. A. (2009). *Data Communications and Networking* (4th Ed.). McGraw-Hill Higher Education.
- Ibe, O. C. (2017). *Fundamentals of Data Communication Networks*. John Wiley & Sons.
- Mayr, H. C., Kop, C., Liddle, S., & Ginige, A. (Eds.). (2013). *Information Systems: Methods, Models, and Applications*. <https://doi.org/10.1007/978-3-642-38370-0>
- Ogie, R. I., & Verstaevel, N. (2020). Disaster informatics: An overview. *Progress in Disaster Science*. <https://doi.org/10.1016/j.pdisas.2020.100111>
- Pipek, V., Liu, S. B., & Kerne, A. (2014). Crisis Informatics and Collaboration: A Brief Introduction. *Computer Supported Cooperative Work (CSCW)*, 23, 339–345. <https://doi.org/10.1007/s10606-014-9211-4>
- Shankar, K. (2008). Wind, water, and Wi-Fi: New trends in community informatics and disaster management. *Information Society*, 24(2), 116–120. <https://doi.org/10.1080/01972240701883963>
- Teich, J. M., Wagner, M. M., Mackenzie, C. F., & Schafer, K. O. (2002). The informatics response in disaster, terrorism, and war. *Journal of the American Medical Informatics Association*, 9(2), 97–104. <https://doi.org/10.1197/jamia.M1055>
- Tomasi, W. (2007). *Introduction to Data communication and Networking*. Pearson Education.
- Walle, B. Van De, Turoff, M., & Hiltz, S. R. (Eds.). (2014). *Information Systems for Emergency Management*. Routledge.
- Wellisch, H. (1972). From Information Science to Informatics: a terminological investigation. *Journal of Librarianship*, 4(3), 157–187. <https://doi.org/10.1177/096100067200400302>

DMC 205: Disaster Informatics (Lab)
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Course Objectives

The intention of the course is to engage students in the laboratory work for practical learning and understanding of applying informatics in disaster management. This course will enable students to deal with the application of information and communication technologies to facilitate management of data in solving problems within different contexts.

Course Outline

1. Programming languages

Object-oriented programming languages i.e., JavaScript, Python, C++

2. Disaster Management Information Systems

Database development process, database software, disaster-wise database development, data analysis, and presentation of information

3. Disaster/Emergency Mapping

Crowdsourcing, programming, pattern recognition, hazard detection, damage estimation, needs determination, prediction, and forecasting

Suggested Readings:

- Castillo, C. (2016). *Big Crisis Data: Social Media in Disasters and Time-Critical Situations*. <https://doi.org/10.1017/cbo9781316476840>
- Kamel Boulos, M. N., Resch, B., Crowley, D. N., Breslin, J. G., Sohn, G., Burtner, R., ... Chuang, K. Y. S. (2011, December 21). Crowdsourcing, citizen sensing and sensor web technologies for public and environmental health surveillance and crisis management: Trends, OGC standards and application examples. *International Journal of Health Geographics*, Vol. 10. <https://doi.org/10.1186/1476-072X-10-67>
- Lin, W. Y., Wu, T. H., Tsai, M. H., Hsu, W. C., Chou, Y. Te, & Kang, S. C. (2018). Filtering disaster responses using crowdsourcing. *Automation in Construction*, 91, 182–192. <https://doi.org/10.1016/j.autcon.2018.03.016>
- Qadir, J., Ali, A., Rasool, R., Zwitter, A., Sathiaselan, A., & Crowcroft, J. (2016). Crisis analytics: big data-driven crisis response. *Journal of International Humanitarian Action*. <https://doi.org/10.1186/s41018-016-0013-9>
- Ragini, J. R., Anand, P. M. R., & Bhaskar, V. (2018). Big data analytics for disaster response and recovery through sentiment analysis. *International Journal of Information Management*, 42, 13–24. <https://doi.org/10.1016/j.ijinfomgt.2018.05.004>
- Robertson, B. W., Johnson, M., Murthy, D., Smith, W. R., & Stephens, K. K. (2019). Using a combination of human insights and ‘deep learning’ for real-time disaster communication. *Progress in Disaster Science*, 2, 100030. <https://doi.org/10.1016/j.pdisas.2019.100030>
- Yun, H. C., Kim, J. B., Jung, K. Y., & Kim, M. G. (2012). Application of disaster information system for disaster management. *Communications in Computer and Information Science*, 401–408. https://doi.org/10.1007/978-3-642-35267-6_53

FOURTH SEMESTER (SECOND YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 206	Disaster and Risk Communication	100	4
DMC 207	Early Warning System and Forecasting	100	4
DMC 208	Disaster Response and Recovery	100	4
DMC 209	Qualitative Research Methodology (Theoretical)	50	2
DMC 210	Qualitative Research Methodology (Practical)	50	2
	Viva	50	2
	Total	450	18

DMC 206: Disaster and Risk Communication**Course Objectives**

The principal objective of this course is to introduce concepts and ideas dealing with appropriate communication strategies to address unprecedented immediacy, for communication plays vitally in the whole gamut of emergency management. Early warning dissemination mechanism, proper communication for situational actions, and other communication practices will be detailed here to orient the students to communication dynamics of disasters and emergencies. From science communication to emergency management, this tailor-made course will offer scientific notions of risk, crisis, emergency, and disaster communication aspects viz. emergency handling, extempore actions, probability of exposure to disasters, further communication strategies and planning, communication tools and techniques in disasters, disaster reporting, new communication mechanism, disaster information management, and public awareness program. Students are expected to acquire specialized knowledge through theoretical and practical means by assimilating the mainstays of the communications.

Course Outline**1. Understanding Disaster Communications**

Definition and Types of Communication, Nature of Communication, Communication Context, Communication Skills, Communication Apprehension, Perception, Audience,

Development Communication, Definition of Disaster Communications, Communication Science in Disaster Management.

2. Theoretical Approaches and Model

Agenda Setting theory, Cultivation Theory, Social Cognitive Theory, Social Learning Theory, Representation Theory, Co-cultural Communication Theory, Diffusion of Innovation, Convergence Theory, Communication Model, CERC Model.

3. Tools and Techniques for Disaster Communications

Use of Communication Tools in Disaster Management, Information Dissemination Techniques, Telecommunication, Satellite Communication, Submarine Communication, Internet, Mobile Technology, New Communication Mechanism, Alternative Communication Solutions, Communication Challenges and Best Practices.

4. Disaster Information Management

Nature of Information in Disaster Situations, Information Management Planning, Data Sources, Data Collection and Organization, and Disaster Management Information Systems.

5. Communication Strategy and Plan

Principles of Disaster Communication Strategy, Prerequisite for Communication Planning, Stages of Communication Planning, Selection of Media and Media Plan, Communication Plan and Disaster Risk Reduction, Disaster phases and Communication, Disaster Communication Ethics.

6. Early Warning and Communication

Early Warning of Disasters, Prediction and Forecasting, History of Early Warning Systems [EWS], Recent Development of EWS, Elements of Early Warning, Community Based EWS, Early Warning and Communication Team, Developing Early Warning Systems, Application of Warning Operations, Interactive Voice Response.

7. Disaster, Internet, and Social Media

Use of Internet in Emergencies, Resilient Disaster Network, Wireless Network Technology, Internet and Social Networking, Social Media Use in Disaster Situations, Future of Social Media Use During Emergencies, Techniques of Social Media Use in Emergencies, Citizen Journalism and the Social Web.

8. Working with Media

Media in Modern Society, Functions of Media, Role of Media in Disaster Management, Disaster Reporting and Editing, Disaster Coverage, News Source, Interview Techniques, Collaboration and Coordination, Media Handling Techniques.

9. Developing Messages and Materials

Messages and Disaster phases, Techniques of Developing Effective Message, Message Content, Language, Message format, Managing Myths and Rumors, Production of Communication and Information Materials, Risk and Crisis Mapping.

10. Communication Campaign and Programs

Purpose and Goals of Communication Campaign and Programs, Planning for Disaster Communication Programs; Developing a Campaign Strategy, Training Program, Implementing and Evaluating the Program, Counseling for Disaster Prone People, Raising Public awareness, Disaster Education Program.

Suggested Readings

Barrantes, S. A., Rodríguez, M., & Pérez, R. (2009). Information management and communication in emergencies and disasters: Manual for disaster response teams. Washington, DC: Pan American Health Organization.

Center for Disaster Control and Prevention (2014). Crisis emergency risk communication. Retrieved from https://emergency.cdc.gov/cerc/resources/pdf/cerc_2014edition.pdf. Accessed: October 31, 2017.

Coppola, D. P., & Maloney, E. K. (2009). Communicating emergency preparedness: Strategies for creating a disaster resilient public. Boca Raton, FL: CRC Press.

Walaski, P. (2011). Risk and crisis communications: Methods and messages. Hoboken, NJ: John Wiley and Sons.

DeVito, J. A. (2016). Essentials of human communication (9thed.). Essex, England: Pearson.

Harrison, S. (Ed.). (1999). Disasters and the media: Managing crisis communications. Hampshire, UK: Palgrave Macmillan.

Haddow, G. D., & Haddow, K. S. (2009). Disaster communications in a changing media world. Burlington, MA: Butterworth-Heinemann.

Kapur, G. B., Bezek, S., & Dyal, J. (2016). Effective communication during disasters: Making use of technology, media, and human resources. Oakville, Canada: Apple Academic Press.

Littlejohn, S. W., Foss, K. A., & Oetzel, J. G. (2016). Theories of human communication (11th ed.). Long Grove, IL: Waveland Press.

Potts, L. (2014). Social media in disaster response: How experience architects can build for participation. New York, NY: Routledge.

DMC-207: Early Warning and Forecasting

Course Objective

Early Warning System (EWS), Forecasting, Monitoring System and DSS for disaster management play vital roles for risk detection for emergency response and recovery. The EWS is a DSS can reduce the sufferings and losses from disasters. At present day, state-of-the art technology for forecasting and monitoring of disaster, substantially risks have been reduced. Objective of this course is to enhance the knowledge of EWS; forecasting, state-of-the art technology for monitoring disaster, and decision support system (DSS) for information management for disaster risk reduction; and a review of existing approaches of EWS at national to community levels.

Course Outline

1. Early Warning System for disaster management, effective EWS operational aspects of early warning system, challenges and issues.
2. Development of Early Warning System, Cost benefit analysis of early warning system, Future perspective of EWS.
3. Different types of disasters, Forecasting, Prediction of different disaster, forecast lead time, detection of disaster, formatting of the forecast warning messages.
4. State-of-the Art for monitoring the different types of disasters, flood and cyclone forecasting and warning system in Bangladesh
5. Dissemination and Communication of EWS, Community Early Warning System, Features and Challenges of Community Early Warning System.
6. Flood Disaster, Types of Floods, Flood Damages and Flood Management, Structural and Non-Structural measures, Flood Vulnerabilities Analysis, Flood Risk Management Cycle
7. Decision Support system (DSS), Concept and Application in Disaster Management, WebGIS based DSS.

Suggested Readings

Zschau, J., Andreas N. Koppers (eds), *Early Warning Systems for Natural Disaster Reduction*, Berlin Heidelberg GmbH:: Springer-Verlag

Mallach, E.G., (2002). Decision Support system and Data Warehouse Systems, New Delhi: Tata McGraw Hill

Sprague Jr., Ralph, H. and Curlson, E.D, (1982). Building Effective DSS, New Jersey: Prentice Hall Englewood Cliffs.

Eleana Asimakopoulou and Nik Bessis (2010). Advancement ICTs for Disaster Management and Threat Detection: Collaborative and Distributed Frameworks, New York: IGC Global.

DMC 208: Disaster Response and Recovery

Course Objectives

This course is designed to develop knowledge in the area of disaster response and recovery – and its planning and management. The course would be able to make the students understand about the theoretical approaches to response and recovery and its practical implications. The course will also provide significant practical knowledge on the process of disaster response and recovery.

Course Outline

1. Disaster Response at a Glance

- i) Concepts and Terminologies in Disaster Response
- ii) Principles, Frameworks and Models of Disaster Response
- iii) Emergency Response vs Disaster Response
- iv) Emergency Management: Principles and Practices
- v) How does the world respond to disasters?
- vi) Key People and Advocacy Groups

2. Incident Response: Preparation, Organization and Prevention

- i) Preparing for Incident Response
- ii) Incident Response Policy
- iii) Building the Security Incident Response Team
- iv) Incident Response Planning
- v) Assembling and Maintaining the Final Incident Response Plan
- vi) Coordination and Collaboration across responsible agencies

3. Implementing Initial Response Measures

- i) Hazard Detection
- ii) Issuing Warnings
- iii) Evacuation: Means, Behaviour, Considerations and Procedure
- iv) Sheltering: Types and Characteristics

4. Caring for the Injured, Dead and Distraught

- i) Search and Rescue Operations
- ii) Emergency Medical Care and Triage
- iii) Mass Fatality Management
- iv) Stress Management
- v) Donation and Volunteer Management
- vi) Hospital Management

5. Harnessing Technology and Organization

- i) Communication Equipment and Interoperability
 - ii) Decision Support System
 - iii) Incident Command System: Principles, Strengths and Weaknesses
 - iv) EOC: Usage and Characteristics
 - v) Comparisons of EOC and ICS
- 6. Immediate Needs and Moving Beyond Immediate Needs**
- i) Relief Distribution and Management - emergency relief, selection of relief items and relief standards, selection of relief beneficiaries, duplication control, coordination, accountability, and governance in relief management system.
 - ii) Flash appeal, emergency assistant requests to national and international bodies
 - iii) Damage Assessment Procedures
 - iv) Humanitarian Response – UN Agencies, NGO-INGO response interventions during crisis and disasters
- 7. Overviewing the Process of Response in different contemporary emergencies and disasters**
- i) Responding to disasters and emergencies in Bangladesh
 - ii) Global Disaster Response System and Practices
 - iii) Best Practices and Case Studies
- 8. Understanding Disaster Recovery**
- i) Key concepts and Terminologies in Disaster Recovery
 - ii) Recovery as a process
 - iii) Framework and Approaches of Disaster Recovery
 - iv) Challenges of Recovery
 - v) Disaster Recovery Planning
 - vi) Short Term Recovery
 - vii) Long Term Recovery
- 9. Dimensions of Disaster Recovery**
- i) Debris Management
 - ii) Environmental Recovery
 - iii) Historic and Cultural Resources
 - iv) Housing
 - v) Business Recovery
 - vi) Infrastructure and Lifelines
 - vii) Social Psychological Recovery
 - viii) Public Sector Recovery
- 10. Recovery Resources**
- i) Donations
 - ii) Community Resources
 - iii) Voluntary Organizations
 - iv) Financing Recovery
- 11. Build Back Better: Holistic Recovery**
- i) Linking recovery, rehabilitation and reconstruction
 - ii) Why build back better
 - iii) Restoration and Revitalization
 - iv) Foreseeing the future
 - v) Increasing Resilience of the Community and People

Suggested Readings

- Whiteman and Mattord (2007). Incident Response and Disaster Recovery. Boston, Course Technology.
- Brenda D. Philips. (2009). Disaster recovery. Auerbach publications. Tylor and Francis group
- McEntire (2014) Disaster Response and Recovery: Strategies and Tactics for Resilience, New Jersey, Willey
- Robson D (2010). Disaster Response, Reference Point Press
- Drabek, Thomas. (2013). The Human Side of Disaster, Second Edition. New York: CRC Press
- Step-by-Step Practical Guide for Humanitarian Needs Overviews
Humanitarian Response Plans and Updates
Humanitarian Programme Cycle (2020)

DMC 209: Qualitative Research Methodology (Theoretical)

Course Objectives

This course provides students with a basic understanding of the distinct character of qualitative research process and its roles in social and disaster research. The course deals with the general logic of scientific inquiry, research design and measurement, as well as qualitative data-analysis and presentation. The prevalent methods, tools, and techniques commonly used in elucidating the qualitative research will be enlarged here. As an appropriate methodology precedes a successful research, the students are expected to hone their qualitative skills that will help them gain a deeper understanding as to extract exactitude from the data. All aspects and perspectives of qualitative approaches along with the variegated tools included here will be illustrated. One of the major objectives is to get the students oriented to unearth the reality from the field by getting deep into the contexts directly by employing profound interviews, observation etc. where quantification processes may not be that much helpful. The usage of non-probability sampling technique will also be explored. By the end of this course, students will be able to conceptualize details on qualitative tools and techniques for investigating research problems and will be able to design and conduct his/her research project.

Course Outline

- 1. Logic and Methodology:** Inductive and Deductive Logic Theoretical Congruity of a Theory, Relationships between Theory and Research; Disaster Management and Multidisciplinary Research; Science, Research and History of Qualitative Methods
- 2. Qualitative Research Approaches:** Grounded Theory; Ethnomethodology; Phenomenology; Postmodernism, Poststructuralism, Feminism.
- 3. Qualitative Research and its Place in Disaster Management:** Doing Disaster

Management Research; Disaster Research Methods, Scientific methods in Disaster Research; Disaster Literature and the Role of Disaster Theories; Ethical Considerations in Research, Particular Ethical Issues for Conducting Research; The Ethics of Problem Focused in Research: Reporting Qualitative Disaster Management Research Results; Common Weaknesses in Disaster Management Research; the Importance of Multi- and Inter-disciplinary Research on Disasters Management; Problems and Prospects of Disaster Management Research in the Developing World.

4. Qualitative approach: Concept of qualitative research, general criteria, qualitative research design

5. Qualitative Data Collection Tools: Unstructured interview; Indepth Interview; Participatory Research Approaches: Observation, Participatory Action Research, Ethnography; Focus Group Discussion (FGD); Key Informants' Interview (KII). Grounded Theory; Narrative Method; Content Analysis; Discourse Analysis; Observation Method, Case study: Methods and Procedures. Participatory Research Assessment (PRA); Community Risk Assessment (CRA)

7. Mixed Methods Procedures: Components, Nature and Types of Mixed Methods; Planning Mixed Methods Procedures; Triangulation Strategy

8. Data Collection Procedures, Data Analysis and Validation Procedures: Basic Concepts, Techniques and Approaches of Qualitative Analysis; Logical Framework Approach, Gender Analysis & Toolkit; Narrative Analysis and Life History, Data Management, and Analysis Methods.

9. Proposal Development: Why Proposal Writing, Different Types of Proposal Writing, Structure of Different Proposal.

10. Thesis and Report Writing: Organizing a Thesis, Thesis Writing: Introduction, Literature Review, Methodology, Result, Discussion, and Conclusion; Organizing a Report, Report Writing; Referencing.

11. Scientific Paper Writing: Organizing a Scientific Paper: Scientific Paper Writing. Journal Selection, Impact Factor of Journals. Basic Techniques of Scientific Paper Writing: Abstract or Summary, Introduction, Methodology, Result, Discussion, Acknowledgements, References and Notes Writings for Scientific Paper; Figures and Figure Legends, Tables Contraction, Submission of Paper.

Suggested Readings

Anthony Oliver-Smith, (1996) "Anthropological Research on Hazards and Disasters", *Annual Review of Anthropology*, Vol. 25. (1996), pp. 303-328.

Berg, Bruce L., (2006), "Qualitative Research Methods for the Social Sciences", Allyn & Bacon.

Neuman, L. N. (2000). *Social Research Methods: Qualitative and Quantitative Approaches*. Boston: Allyn & Bacon.

Sarantakos, S. (2005). *Social Research*. Australia: Macmillian Education Australia.

- Bailey, K.D.(1987).*Methods of Social Research*. New York: The Free Press.
- Benton, T. & Craib, I (2001) *Philosophy of Social Science: The philosophical Foundations of Social Thought*. New York: Palgrave.
- Creswell, J.W. (1994). *Research Design: Qualitative and Quantitative Approaches*. Thousand Oaks, California: Sage.
- Creswell, J.W. (2007). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. Thousand Oaks, California: Sage Publications, Inc.
- Crotty, Michale (1998). *The Foundations of Social Research: Meaning and Perspective in the Research Process*. Australia: Allen & Unwin.
- Denzin, N.K.& Lincoln, Y.S.(Eds.) (2000). *Handbook of Qualitative Research*. London: Sage.
- Hughes, John, A. & Sharrock, W.W. (2007).*Theory and Methods in Sociology: An Introduction to Sociological Thinking and Practice*. New York: Palgrave Macmillan.
- Punch, K.F (1998). *Introduction to Social Research: quantitative and Qualitative Approaches*: London: Sage Publication.
- Dennis S. Mileti. (1987), “Sociological Methods and Disaster Research.” *Sociology of Disasters: Contribution of Sociology to Disaster Research*, edited by Russell R. Dynes, Bruna DeMarchi and Carlo Pelanda. Milano, Italy: Franco Angeli.
- Drabek, Thomas E., (1986), *Human System Responses to Disaster: An Inventory of Sociological Findings*, New York: Springer-Verlag.
- Dynes, Russell R, Drabek, Thomas E., (1992), “The Structure of Disaster Research: Its Policy and Disciplinary Implications”, *Disaster Research Center Series/Report, Preliminary Papers*; 183.
- Erikson, Kai. 1976, “Everything In It’s Path”, New York: Simon and Schuster.
- Fischer, Henry W., 1998, “Response to Disaster: Fact Versus Fiction & Its Perpetuation. The Sociology of Disaster”, 2nd Edition. Lanham, Maryland: University Press of America.
- Ira H. Cisin and Walter B. Clark. 1962. “The Methodological Challenge of Disaster Research.” Pp. 23-49 in *Man and Society in Disaster*, edited by George W. Baker and Dwight W. Chapman. New York: Basic Books;
- Kreps, G.A., “Sociological Inquiry and Disaster Research”, *Annual Review of Sociology*, Vol. 10. (1984), pp. 309-330.
- Leavy, Patricia (ed). (2014). *The Oxford Handbook of Qualitative Research*. New York: Oxford University Press.
- Moser, S.R. and Kalton, G. (1975) *Survey Methods in Social Investigation*. London, Heinemann.
- Nasreen, M. (2009). ‘Disaster and Disaster Research: A Case Study of Floods in Bangladesh’ published in *Understanding Global Environment* (Samir Dasgupta ed.). Delhi: Pearson-Longman.
- Pijawka, K. David et al., (1988), “Coping with Extreme Hazard Events: Emerging Themes in Natural and Technological Disaster Research”, *Omega: Journal of Death and Dying*, 18(4), 281-97.

- Palm, R.I. (1990) *Natural Hazards: An Integrative Framework for Research and Planning*. Maryland, John Hopkins University Press.
- Pratt, B. and Loizos, P. (1992) *Choosing Research Methods*. Oxford, Oxfam.
- Preston, Richard, 1994, "The Hot Zone", New York: Random House.
- Punch. K. F. (1998) *Introduction to Social Research: Quantitative and Qualitative Approaches*, SAGE Publications Ltd
- Quarantelli, E.L., (1978), "Disasters: Theory and Research", Beverly Hills: Sage.
- Quarantelli, E.L., (1994), "Disaster Studies: The Consequences of the Historical Use of a Sociological Approach in the Development of Research", University of Delaware, Disaster Research Center, Preliminary Paper, 264.
- Taylor, J. Steven, Robert Bogdan and Marjorie L. DeVault. (2016). *Qualitative Research Methods: A Guidebook and Resource*. New Jersey, USA: Wiley & Sons.
- Theis, J. and Grady, H. (1991) *Participatory Rapid Appraisal (PRA) for Community Development*.
- Thomas E. Drabek. (1970). "Methodology of Studying Disasters: Past Patterns and Future Possibilities." *American Behavioral Scientist* 13:331-343;
- Thomas E. Drabek, (1989), "Taxonomy and Disaster: Theoretical and Applied Issues." Pp. 317-345 in *Social Structure and Disaster*, edited by Gary A. Kreps. Newark, Delaware: University of Delaware Press.
- Yin, Robert K. (2011). *Qualitative Research from Start to Finish*. New York: The Guilford Press

DMC 210: Qualitative Research Methodology (Practical)
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Course Objectives

The practical part of the course aims to equip students with field base knowledge. It will be part of their learning through applying different tools in accomplishing various research activities throughout their learnings in disaster management. After acquiring theoretical knowledge (DMC 209), this practical course will help students in the application of different qualitative tools in collecting data from disaster affected community. It will enhance their theoretical learning and understanding through applying different tools in different disaster-prone areas.

Course Outline

1. Role Play: Classroom/in field
2. Software: INFO and Qualitative Research, Analyzing Talk and Text, Applied Ethnography, NVivo.
3. Data collection; data analysis and presentation

FIFTH SEMESTER (THIRD YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 301	Geographic Information System and Remote Sensing	100	4
DMC 302	Disaster Governance and Global Protocols	100	4
DMC 303	Disaster Risk Reduction and Resilience	100	4
DMC 304	Gender, Intersectionality and Disasters	100	4
DMC 305	Geographic Information System (Lab)	50	2
	Total	450	18

DMC 301: Geographic Information System and Remote Sensing

Course Objectives

To get an overview of Geographic Information System (GIS) and Remote Sensing (RS); to learn background theories and historical perspectives about GIS and RS; to achieve in-depth knowledge of GIS and RS to use them in specifically disaster management aspect; to simulate GIS and RS to solve real time problems and develop plans for future issues.

Course Outline

1. Introduction to Geographic Information System (GIS)
2. GIS Components
3. GIS in Organizations
4. Data Models, Datums, Projections, and Coordinate system
5. Global Navigation Satellite Systems and Coordinate Surveying
6. Aerial and Satellite Images
7. Digital Data
8. Introduction to Remote Sensing (RS)
9. Electromagnetic Radiation
10. Mapping Cameras
11. Digital Imagery and Image Interpretation
12. Land Observation Satellites
13. Image Resolution

Suggested Readings

- Paul Bolstad, (2016), GIS Fundamentals, 4th Edition, Eider Press, ISBN 978-1-50669-587-7
- James B. Campbell, Randolph H. Wynne, (2011). Introduction to Remote Sensing. The Guilford Press, ISBN 978-1-60918-176-5
- Bernhardsen, T. (2002). *Geographic information systems: An introduction*. New Delhi, India: Wiley.
- Bonham-Carter, G. F. (1994). *Geographic information systems for geoscientists: Modeling with GIS*. Burlington, MA: Pergamon.
- Burrough, P. A., McDonnell, R. A., Lloyd, C. D. (2015). *Principles of geographical information systems* (3rded.). Oxford, England: Oxford University Press.
- Chang, K. (2012). *Introduction to geographic information systems*. New York, NY: McGraw-Hill.
- DeMers, M. N. (2000). *Fundamentals of geographic information systems* (4thed.). Hoboken, NJ: John Wiley & Sons.
- Gibson, P. J. (2000). *Introductory remote sensing: Principles and concepts*. New York, NY: Routledge.
- Heywood, I., Cornelius, S., & Carver, S. (2006). *An introduction to geographical information systems* (3rded.). Essex, England: Pearson Education.
- Jensen, J. R. (2007): *Remote sensing of the environment: An Earth perspective* (2nded.). Essex, England: Pearson Education.
- Lillesand, T. M., Kiefer, R. W., & Chipman, J. W. (2000). *Remote sensing and image interpretation* (5thed.). Hoboken, NJ: John Wiley & Sons.
- Nayak, S., & Zlatanova, S. (Eds.). (2008). *Remote sensing and GIS technologies for monitoring and prediction of disasters*. Berlin, Germany: Springer-Verlag. <https://doi.org/10.1007/978-3-540-79259-8>
- Sabins, F. F. (1987). *Remote sensing: Principles and interpretation*. Long Grove, IL: Waveland Press
- Yeung, A. K. W., & Lo, C. P. (2004). *Concepts and techniques of geographic information systems*. New Delhi, India: Prentice-Hall.

DMC 302: Disaster Governance and Global Protocols
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Course Objectives

In this course students will learn the global treaties and protocols related to environment, disaster management and climate change and will be able to relate those clauses with national policies.

Course Outline

1. **From Protocol to Policy:** Definition and relation among Declaration, Convention, Treaty, Protocol and Policy, Significance, Principles and approaches of disaster management policy, Components of disaster management policy, Formulation and execution of disaster management policy by Regulatory Framework: Global-UNFCCC, Regional -SAARC and National level etc.
2. **Protocols to Environment:** UN Conference on Human Environment, RIO Earth summit, RIO + 20
3. **Protocols to Disaster Management:** Yokohama Strategy, HFA, SFDRR
4. **Protocols to Climate Change:** Montreal Protocol, Kyoto Protocol, Paris Agreement
5. **Inter-Governmental Panel on CC and Conference of Parties -COP arrangement**
6. **Environment, Disaster management and Climate change issues in SGDs**
7. **UNDRR, (2018). The Dhaka Declaration, 2015+1 on Disability and Disaster**

Suggested Readings

- Islam, Nazrul (2018). Bangladesh environment movement history, achievements, challenges. Dhaka: Eastern academic
- Bernd et al, (2008). Economics and Management of climate change risks mitigation and adaptation. Springer
- Third United Nations world conference on DRR, (2015). Sendai Framework for Disaster Risk Reduction (SFDRR, 2015 – 2030).
- Bangladesh Sendai framework data readiness review report 2015
- Bangladesh National progress report on the implementation of the Hyogo Framework for Action 2013-2015
- Yokohama strategy and plan of action for a safer world guideline for natural disaster prevention, preparedness and mitigation world conference on natural disaster reduction Japan 1994
- Majumdar, M Abdul Kasem et al, (2017). Sustainable development in Bangladesh Dhaka: AH Development publishing house.
- UNISDR, Rio+20 Future We Want -outcome document Intergovernmental committee of sustainable development financing
- United Nations, (1972). Rio declaration on environment and development
- World Commission on Environment and Development, (1997). Our Common Future, London: Oxford University Press
- United Nations, PARIS AGREEMENT
https://unfccc.int/sites/default/files/english_paris_agreement.pdf
- UNITED NATIONS, (1998). KYOTO PROTOCOL TO THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE
<https://unfccc.int/resource/docs/convkp/kpeng.pdf>

Course Objectives

The primary objective of this course is to offer a comprehensive understanding of the key concepts of disaster risk reduction and resilience to its students. The outlines of the course consist of three key objectives: (i) to spell out the principles and practices of disaster risk reduction efforts commonly known as DRR and its implications; (ii) to develop skills of students on risk assessment and risk reduction along with mainstreaming and institutionalizing DRR through providing theoretical and practical knowledge; (iii) to empower the students as a potential emergency manager by honing knowledge on resilience and disaster risk reduction mechanisms. The course will also help the graduates to open a multidisciplinary spectrum from a critical viewpoint.

Course Outline

1. Concepts and Issues in Disaster Risk Reduction:

- a) The Disaster Challenge and Disasters Explained
- b) Disaster Risk Reduction- Historical Background, Origin and Evolution of the Concept
- c) Disaster Risk Management
- d) Principles of Disaster Risk Reduction
- e) Relevant concepts in the study of Disaster Risk Reduction – Hazard and Risk Identification, Vulnerability, Risk Reduction etc.
- f) Traditional Disaster Management vs. Disaster Risk Reduction Approach

2. Disaster Risk Reduction Approaches, Frameworks and Tools:

- a) Disaster Risk Reduction Models
- b) Paradigm Shift in DRR
- c) Principle of ALARP
- d) Components of DRR
- e) Global and Regional Frameworks in DRR
- f) Risk and Hazard Assessment
- g) Vulnerability and Capacity Assessment
- h) Managing Urban Risk
- i) Financial Mechanisms and services for DRR

3. Resilience

- a) Understanding Resilience
- b) Resilience Frameworks and Tools
- c) Measuring Resilience
- d) Building Resilience and Resilience Communities
- e) Indigenous Knowledge and Coping Strategies
- f) Debate and Discourse over using the term “Resilience”.
- g) Challenges and Way Forward

4. Mainstreaming and Institutionalizing DRR

- a) Policies and Strategies
- b) Planning and Operational Guidelines
- c) Knowledge Sharing

- d) Mainstreaming risk reduction across different sectors
- e) Partnership, Governance and Stakeholders – Governance, Decentralization, Networks, Private Sector Partnership

5. Resilient Livelihoods and DRR:

- a) Overviewing existing interventions for resilient livelihood
- b) Sustainable Livelihood Approaches
- c) Issues to consider in livelihood centred DRR
- d) Social protection and safety nets
- e) Alternative Livelihood Options

6. Inclusion and Participation

- a) Understanding the specific and special needs of disenfranchised communities
- b) Identifying the vulnerable groups and protection measures
- c) Community Action
- d) Facilitating Community Based Disaster Risk Management
- e) Sustainability and External Inputs

7. Communities and Technology – Choice and Innovation:

- a) Appropriate Technology
- b) Green Engineering
- c) Community infrastructures and lifelines
- d) Information and Communication Technologies

8. DRR in Humanitarian Setting:

- a) Humanitarian Project Cycle
- b) Project Planning
- c) Scopes of Integration and Enablers
- d) Setting DRR Indicators
- e) Reviewing Best Practices

9. Linking DRR, Climate Change Adaptation and Sustainable Development

- a) Disaster Risk Reduction and Climate Change Adaptation
- b) Disaster and Development
- c) Finding Common Grounds among Different Schools of Thought
- d) Advantages of Linking DRR and CCA
- e) Challenges and Way Forward

10. Risk Reduction After Disaster

- a) Opportunities, Issues and Challenges
- b) Recovery Interventions and DRR
- c) Reconstruction and Key Considerations
- d) Relocation and Resettlement

11. Reviewing National and Global Best Practices and Innovative Approaches in DRR

Suggested Readings

- Blakie, P. et al (1994) *At Risk: Natural Hazards, People's Vulnerability and Disasters*. London, Routledge.
- Disaster Resilience: A National Imperative (2012)
- Kelman I. (2020) *Disasters by Choice “Disaster by Choice”*. Oxford University Press
- McEntire (2014) *Disaster Response and Recovery: Strategies and Tactics for Resilience*, New Jersey, Wiley
- Murayama, Yuko Dimiter Velez, Plamena Zlateva (2020) “Information Technology in Disaster Risk Reduction: 4th IFIP TC 5 DCITDRR International Conference, ITDRR 2019, Kyiv, Ukraine, October 9–10, 2019, Revised Selected Papers [1st ed.]” Springer International Publishing; Springer.
- Nasreen, M. (2016). ‘Disasters and Disaster Risk Reduction in Bangladesh’, published in *Bangladesh's Development: Some Issues and Perspectives*, (Qazi Kholiquzzman Ahmed & Shafi Ahmed [eds.], book in honour of AMA Muhith), 2016. Dhaka: PKSf, BUP, DScE.
- Nasreen, M. (2016). *Bangladesh National Conservation Strategy: Gender Issues*. MoEF, Government of Bangladesh & IUCN
- Nasreen, M. (2016). *Resilient Livelihood Framework*. Dhaka: Christian Aid
- Pelling M. (2003) *The Vulnerability of Cities: Natural Disaster and Social Resilience*, London, EARTHSCAN Publications.
- Shaw, Rajib, Fuad Mallick, Aminul Islam (eds.) (2013) *Disaster Risk Reduction Approaches in Bangladesh*. Japan: Springer.
- Shaw, Rajib, Juan M. Pulhin, Joy Jacqueline Pereira (2010). *Climate Change Adaptation and Disaster Risk Reduction: Issues and Challenges*. Emerald Group Publishing
- Twigg J. (2015) “Disaster Risk Reduction.” London, Overseas Development Institute.
- United Nations (2020). *Scaling Up Disaster Risk Reduction in Humanitarian Action*

DMC 304: Gender, Intersectionality and Disasters

1. **Basic concepts:** Gender; Gender Equality; Gender Equity; Empowerment; Intersectionality; Gender Mainstreaming; Gender Sensitivity; Gender Lens; Gender Role; Gender Division of Labor; Gender Needs (Both Practical and Strategic);
2. **Gender based Vulnerability and Disasters :** Gender aspects and Vulnerability: Social, Physical, and Psychological, Gender specific needs during disaster; Gender Based Violence and Violation of Gender Rights during three phases of disasters.
3. **Mapping of Agencies:** Mapping of National, Regional and International interventions on Gender, DRR and Intersectionality : Strengths and weaknesses of each approach. Role of Academia in gender and Disaster Risk Reduction issues: A historical overview and selected case studies.

4. **Gender analysis:** Analyze and identify key gender issues and challenges with respect to the specific interventions areas in DRR, Identify and evaluate strategic options for future gender and DRR. Rural-Urban and Regional differences
5. **Poverty:** Poverty, Feminization of Poverty, from intersectionality perspective.
6. **Health, Gender and Intersectionality::** Health and reproductive health during emergency, disaster and pandemic; Differences in responses to disasters in differential impacts and responses in pre-during and post-disaster situations
7. Persons with Disability: The Dhaka Declaration-15+1 on Persons with Disability; Issues and Challenges of DRR for Persons with Disabilities; **Gender, Coping, Adaptation and Resilience:** Coping Mechanisms, Resilience and Adaptation Strategies; Gender and Household Food Security Coping Mechanisms, Adaptation Strategies and Resilience; Gender and Household Food Security, Social Network, Livelihood, Village Common Resources, Water, Hygiene and Health.
8. **Gender in National Policies on Disaster Management and Climate Change:** Gender in the National Plan for Disaster Management (NPDM), Disaster Management Act, Disaster Management Policy; Gender Action Plans in Climate Change (ccGAP) of BCCSAP, NAPA, Five Year Plan & National Women's Advancement Policy. Development of gender-sensitive Disaster Management Programme; Gender, Disaster, Inclusion and Empowerment in Policy and Practices; Gender Budgeting and DRR; National Resilience Programme
9. **Gender Mainstreaming in International /Policies:** From HFA to SFDRR; UNFCCC; SDG; Development of gender-sensitive Disaster Management Program.

Suggested Readings

- Ahmed, A. et al. (2010). *Comparing Food and Cash Transfer to the Ultra Poor in Bangladesh*, International Food Policy and Research Institute (IFPRI).
- Alston, M., &Whittenbury, K. (Eds.). (2013). *Research, action and policy: Addressing the gendered impacts of climate change*. The Hague, the Netherlands: Springer Science & Business Media.
- Ariyabandu, M. M., &Wickramasinghe, M. (2005). *Gender dimensions in disaster management: A guide for South Asia*. New Delhi, India: Zubaan.
- Azad, A. K., Hossain, K. M., &Nasreen, M. (2013). Flood-induced vulnerabilities and problems encountered by women in northern Bangladesh. *International Journal of Disaster Risk Science*, 4(4), 190-199. <https://doi.org/10.1007/s13753-013-0020-z>

Boserup, E. (1970). *Woman's role in economic development*. London, England: Allen & Unwin

Dasgupta, Samir; Siriner, ismail and De, Partha Sarathi (eds) (2010) *Women's Encounter with Disaster*, India: Frontpage Publication Ltd.

Enarson, E., & Morrow, B.H. (Eds.). (1998). *The gendered terrain of disaster: Through women's eyes*. Westport, CT: Greenwood.

Enarson, E. (2000) *Gender and Natural Disasters*. IDCRR Working Paper no. 1, Geneva, ILO.

Fothergill, A. (1996). Gender, risk, and disaster. *International Journal of Mass Emergencies and Disasters*, 14(1), 33-56. Retrieved from <http://www.ijmed.org/articles/96/download/>. Accessed: October 20, 2017

Hasan, Md. Robiul, M. Nasreen and A. Chowdhury (2019). 'Gender-inclusive disaster management policy in Bangladesh: A content analysis of national and international regulatory frameworks', *International Journal of Disaster Risk Reduction*, 41 (2019) 101324: 1-10
<https://www.sciencedirect.com/science/article/abs/pii/S2212420919302687>

Ministry of Environment and Forest, Government of Bangladesh (2013). *Bangladesh climate change and gender action plan*. Retrieved from https://cmsdata.iucn.org/downloads/iucn_bangladesh_climate_change_gender_action_plan_1.pdf. Accessed: October 20, 2017.

Moser, C. O. N. (2003). *Gender planning and development: Theory, practice and training*. London, UK: Routledge.

Morrow, B.H. and Phillips, B.D. (eds) (1999) Special Issue: "Women and Disasters". *Mass Emergency and Disasters*, Vol. 17, No. 1.

Nasreen, M. (2016). *Bangladesh National Conservation Strategy: Gender Issues*. MoEF, Government of Bangladesh & IUCN

Nasreen, M. and Raisa, I. Chowdhury (2020). 'Humanitarian Response for Improving Quality of Life of Persons with Disabilities: A study on Rohingya Camps of Cox's Bazar, Bangladesh,' *Journal of Human Rights and Peace Studies* 2020, Vol. 6 Issue 1, 60 – 88

Nasreen, M. (1995). *Coping with floods: The experiences of rural women in Bangladesh*. Unpublished PhD dissertation, Department of Sociology, Massey University, Massey, New Zealand.

Nasreen, M. (2008). *Violence against women during disaster and post-disaster situations in Bangladesh*. Dhaka, Bangladesh: ActionAid Bangladesh.

Nasreen, M. (2009). Disaster and disaster research: A case study of floods in Bangladesh. In Dasgupta, S. (Ed.), *Understanding the global environment*. New Delhi, India: Pearson-Longman.

Nasreen, M. (2010). Rethinking disaster management: Violence against women during floods in Bangladesh. In Dasgupta, S., Şiriner, İ., & De, P. S. (Eds.), *Women's encounter with disasters* London, England: Frontpage.

Nasreen, M. (2019). *Women and girls: Vulnerable or resilient?* Second Edition. Dhaka, Bangladesh: Institute of Disaster Management and Vulnerability Studies (University of Dhaka).

Nasreen, M. (2014). *Ten years of disaster risk reduction in Bangladesh*. Retrieved from <https://reliefweb.int/sites/reliefweb.int/files/resources/113%20Snet%20Adding%20to%20the%20Agenda%20of%20the%206th%20AMCDRR.pdf>. Accessed: October 20, 2017.

Nasreen, M. (2015). *Effectiveness of resilient livelihood framework*. Retrieved from <http://gobeshona.net/wp-content/uploads/2015/01/Effectiveness-of-%E2%80%98Resilient-Livelihood-Framework%E2%80%99-of-Christian-Aid.pdf>. Accessed: October 20, 2017.

Nasreen, M. (2017). *Bangladesh national conservation strategy: Gender issues*. Retrieved from <http://www.ncsbd.info/wp-content/uploads/2016/09/17.-Gender-Issues.pdf>. Accessed: November 19, 2017.

Nasreen, M., & Tate, S. (2007). *Social inclusion: Gender and equity in education SWAPs in South Asia: Bangladesh case Study*. Retrieved from [https://www.unicef.org/rosa/Unicef_Rosa\(Bangladesh_cash_study\).pdf](https://www.unicef.org/rosa/Unicef_Rosa(Bangladesh_cash_study).pdf). Accessed: October 20, 2017.

Nasreen, M., Hossain, K. M., Azad, A. K., & Hasan, K. (2017). *Reproductive health of women during emergencies*. Dhaka, Bangladesh: Institute of Disaster Management and Vulnerability Studies, University of Dhaka (with the support from Family Planning Association of Bangladesh and SPRINT)

Nasreen, M. et al (2014). 'Flood induced Vulnerabilities and Problems Encountered by Women in Northern Bangladesh', *International Journal of Disaster Risk Science*, China: Springer, 2014

Nasreen, M. (2014). *Gender Toolkit in Disaster Management*. Dhaka: Department of Women Affairs (DWA), Ministry of Women and Children Affairs (MoWCA), Government of the Peoples' Republic of Bangladesh.

Nasreen, M. & Sean Tate. (2007). *Social Inclusion: Gender and Equity in Education SWAPs in South Asia, Bangladesh Case Study*. 2007. Regional Office for South Asia: United Nations Children's Fund, , (UNICEF ROSA).

Nasreen, M. (2020). 'Gender and WASH in Emergency: What happens when a Super Cyclone hits at the Height of a Pandemic?' Oxford: REACH-water security for the

poor<https://reachwater.org.uk/gender-and-wash-in-emergency-what-happens-when-a-super-cyclone-hits-at-the-height-of-a-pandemic/>

Nasreen, M. (2009). 'Sustainable Development and Impact of Climate Change: A Gender Perspective', paper published in *Facing the Challenges of Climate Change: Issues, Impacts and Adaptation Strategies for Bangladesh*, Edited by ITN-BUET and British Council.

Nasreen, M. (2008). *Violence Against Women during Disaster and Post-Disaster Situations in Bangladesh*, 2008. Dhaka: ActionAid International and ActionAid Bangladesh.

Nasreen, M. (2017). Global National Policies on Food Security: a Review of Post-2015 Policies, *Social Science Review* (The Dhaka University Studies, Part-D, 34, no. 2 (December 2017):1:19

Nasreen, M. (2004). *Gender and Sustainable Development in Bangladesh: Myths and Realities*' paper published in the *Environment and Sustainable Development*, edited by Prof. Vo Quy et al. Hanoi, Vietnam: Agriculture Publishing House, 2004.

Shiva, Vandana. (1998). *Staying Alive: Women, Ecology and Survival in India*, New Delhi: Zed Press

DMC-305: Geographic Information System (Lab)

Course Objective

The course is designed to achieve the following Goals: i) to get hands on training on different topics related to GIS; and ii) to explore different practical cases for advancing GIS knowledge.

Course Outline

1. Hands-on Tutorial How to Incorporate Geographical Features

(a) Digitizing Geographical features like points, lines, and polygons; (b) Conversion of Vector data into Raster data and vice versa; (c) Making window to have a particular area as study of interest; (d) Mask preparation to separate a particular area for intensive study; (e) Preparation of continuous surface map from tabular data (preparation of water quality, pollution, temperature, rain fall map etc.); (f) Application of Buffer, Distance, Reclass, weighting procedure and Overlay technique in GIS environment to safeguard the environmentally sensitive areas.

2. Concept of Image Classification and Enhancement for Resource Identification

Preparing false color composite image for better visual discrimination; (b) Unsupervised and Supervised Image Classification technique to classify various land use pattern (water body, mangrove, other forested land and agricultural crop separation technique); (c) Land use change detection over time (Time series analysis).

3. Maps, Data Entry, Editing, and Output
4. Use of GPS
5. Basic Spatial Analysis
6. Vector Analysis (GIS)
7. Raster Analysis (RS)

Suggested Readings

1. Mastering ArcGIS, Maribeth Price, 2016, McGraw-Hill Education, ISBN 978-0-07-809514-6
2. Image Processing and Data Analysis with ERDAS IMAGINE, Stacy A. C. Nelson, Siamak Khorram, 2019, CRC Press, ISBN: 978-1-1380-3498-3

SIXTH SEMESTER (THIRD YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 306	Introduction to Statistics	100	4
DMC 307	Disaster, Emergency and Public Health	100	4
DMC 308	Humanitarian Actions and Project Management	100	4
DMC 309	Quantitative Research Methodology (Theory)	50	2
DMC 310	Quantitative Research Methodology (Practical)	50	2
	Viva	50	2
	Total	450	18

DMC 306: Introduction to Statistics

Course Objectives

This course deals with the application of various statistical methods by providing instruction and practice in their use in social science data analysis. The selection of appropriate statistical methods requires some understanding of the various types of levels of measurements that can be obtained. This course will basically introduce basic concepts of descriptive and inferential statistics. At the end of the course, students will be able to select appropriate statistical method for analyzing their data.

Course Outline

1. Introduction: Introduction to statistical methodology: why study statistical science, data, what is statistical science; Descriptive and inferential statistics: population and samples, parameters and statistics, actual and conceptual populations; Variables and their measurements: quantitative and categorical variables, nominal, ordinal, and interval scale measurements, discrete and continuous variables; Randomization: simple random sampling, sample survey and experiment, sampling variability and potential bias.
2. Descriptive statistics: Describing data with tables and graphs: frequency distribution, relative frequency and cumulative frequency, bar chart, histogram, stem-and-leaf plot; Describing the center of the data: mean, median, and mode; Describing variability of data: range, standard deviation, and variance; Measures of positions: percentiles,

quartiles, inter-quartile range, boxplot; Bivariate descriptive statistics for different types of data.

3. Probability Normal Distributions: Introduction to Probability: probability as a long-run relative frequency, basic probability rules; Probability distributions for discrete and continuous variables; The normal probability distributions: finding normal probabilities from tables and software, finding z-values for certain tail probabilities, standard normal distribution; Sampling distributions to describe how statistics vary; Sampling distribution of sample means: mean and standard error of sampling distribution of sample mean.

4. Statistical Inference (Estimation): Point and interval estimation: estimate and estimator, unbiased and efficient point estimators, estimators of mean, standard deviation, and proportion, margin of error; Confidence interval for a proportion: sample proportion and its standard error, confidence interval for a proportion, confidence level; Confidence interval for a mean: the t distribution, t-scores; Choice of sample size: determining sample size for estimating proportions and means; Estimation methods: maximum likelihood method.

5. Statistical Inference (Significance tests): The five parts of a significant test: assumption, hypotheses, test statistic, p-value, and conclusion; significant test for a mean: one- and two-sided tests; significant test for a proportion; Decisions and types of errors in tests; Limitations of significance tests.

6. Comparisons of two groups: Preliminaries for comparing groups: dependent and independent samples, standard error of estimated difference between groups. Comparing two proportions: confidence interval for difference of proportions, significance tests, contingency tables and conditional probabilities. Comparing two means: confidence interval for difference of two means; Comparing means with dependent samples: inferences for comparing means from paired samples, comparing proportions from dependent samples.

7. Analyzing association between categorical variables: Contingency tables: conditional distributions, independence and dependence; Chi-square tests of independence: expected frequencies, chi-square probability distribution; measuring association in contingency tables: odds ratio; Association between ordinal variables.

Suggested Readings

Agresti , A. and Barbara Finalay (1997) *Statistical Methods for the Social Sciences*. NJ: Prentics Hall Inc.

Gibbons, J. D. (1993) *Nonparametric Statistics: An Introduction*. London: Sage

Hinton, R. R. (2004) *Statistics Explained* (2nd ed.). NY: Routledge

Kirk, R.E.(1999) *Statistics: An introduction* (4th ed.).Ny: Harcourt Brace College Publishers

Tabachnick,B.G. and Linda S. Fidell (2001) *Using Multivariate Statistics*. Boston:Allyn and Bacon

Walsh, A. (1990) *Statistics for the Social Sciences with Computer Applications*: NY: Harper and Row Publishers

DMC 307: Disaster, Emergency and Public Health

Course Objectives

This course will discuss about basic and fundamental knowledge about disaster, hazard, risk, emergency, disaster preparedness, disaster response, recovery, prevention, mitigation, restoration, reconstruction, rehabilitation, vulnerability, and preparedness for disasters and large scale public health emergencies. This course will also provide the professionals and academic learners with a heightened awareness, understanding and addressing of the natural and man-made disasters during emergencies. This course is allowing professionals and learners to learn from some of the most critical areas of disaster risk response of affected community people on the eve of sudden catastrophic disasters and hazards. The course content is designed to assist disaster students, health care professionals, planners, policy makers and service providers in acquiring theoretical knowledge and evidence-based emergency response mechanism during disaster and hazards in order to respond in a timely and appropriate manner.

The course would help the professionals to share the critical and comprehensive knowledge how to increase coping capacity, resilience, and sustainability on the eve of epidemic, natural and human induced disasters. How epidemics and pandemics like Ebola, Bird Flue, Malaria, HIV-AIDS, Spanish Flue, SARS, MARS, COVID-19, etc. affect human lives, health care management system, economy, culture, livelihood and sustainability of human society and world civilization is also the concern of this course. Post Disaster Trauma and Mental Stress; Disaster and Trauma Responses Mechanism; Disaster Impact and Recovery Mode etc. would also be dealt with this course.

Finally this course will share the knowledge about the policy formulation and implications of health care providers including state, NGOs, INGOs, development partners, private sectors, community people, and voluntary organizations in response to specific disasters and public health emergency events resulting from epidemic, pandemic, manmade and natural disasters like cyclonic storm, flood, earthquake, terrorism, fire incidences, accidents, and emerging communicable and non-communicable diseases, chemical, biological and radiological emergencies.

Course Outline

1. Disasters and Emergency: Basic concept of disasters, emergency, hazards, risks, vulnerability, preparedness, response, mitigation, prevention, restoration, reconstruction, rehabilitation.
2. Disasters, Health, and Emergency: Interrelationship between disaster, health and emergency; emergency risk management; public health problem during disasters
3. Types of Disasters and Hazards, Emergency Response and Public Health: Natural and Manmade Disasters, Public Health Vulnerability and Emergency Response
4. Vulnerability and Public Health: Types: Physical; Social; Economic and Environmental; Elements Exposed to Hazard and vulnerability.
5. Risks and Risk Factors and Risk Exposed to Public Health: Earthquake; Tsunami, Floods, Cyclones, Bushfires, Landslides, Volcanoes, Engineering, Structures, Economic, Social, Buildings Collapse, Business Infrastructures and Public health.
6. Disaster Risks, Life and Public Health: Basic concept; Characteristics of Disaster Risks: losses of life, destruction and damage of resources due to sudden occurrence of disasters and emergency response mechanism in the context of public health.
7. Trauma And Disaster Mental Health: Post Disaster Trauma and Mental Stress; Disaster and Trauma Responses Mechanism; Disaster Impact and Recovery Mode
8. Public Health Roles and Responsibilities in Emergencies and Disasters: Initiating the public health response during the first 24 hours, i.e., the acute phase of an emergency or disaster; coordinating with the existing emergency response structures in specific types of incidents, such as COVID-19, floods, earthquakes, cyclones.
9. Public Health Policies, Programs and Actions in Emergency Disaster Preparedness: Government, Global Organizatios, International Drivers for Health and Disaster Response; NGOs and INGOs; Related Stake Holders and Academics.

Suggested Readings

Center for Diseases and Control Prevention (2011) Public Health emergency response guide (for state, local, and tribal Public Health directors);

Jane M. Webber and J. Barry Mascari (Edited) Disaster Mental Health Counseling: A Guide to Preparing and Responding, Fourth Edition

C. Cuny (2012) Introduction to Disaster Management: Lesson Concepts and Terms in Disaster Management, Cambridge University Press, U.K.

Edward A. Keller and Duane E. De Vecchio Natural Hazards: Earth's Processes As Hazards, Disasters, and Catastrophes 4th Edition

Emily Ying, Yang Chan, Rajib Shaw (2020) Public Health and Disasters: Health Emergency and Disaster Risk Management in Asia, University of Oxford

McKinney Suzet, Papke Mary Elise (2018) Public Health Emergency Preparedness: A Practical Approach for the Real World Latest Edition, Kindle Edition.

Satish Modh (2011) Introduction to Disaster Management, VES Institute of Management Studies and Research, Mumbai Management Studies India

DMC 308: Humanitarian Actions and Project Management

Course Objective

The key objective of this course is to orient its students with the humanitarian actions carried out by different humanitarian organizations during dire situations. Humanitarian response and humanitarian assistance however are mostly project based and hence this course will also impart knowledge regarding basic concepts of project management to its students. Furthermore, this course will allow students to learn about different stages about disaster and humanitarian action along with the management of different projects.

Course Outline

1. Introduction to Humanitarian Action and Intervention

- i) Definition and Principles of Humanitarian Actions
- ii) The Changing Context of Humanitarian Action
- iii) World Politics and Humanitarian Action
- iv) Key Actors and Agencies
- v) Core Humanitarian Standards

2. Humanitarian Action: Legal and Political Aspects

- i) The political and moral aspects of humanitarian intervention
- ii) International Human Rights Law
- iii) International Humanitarian Law
- iv) Protection of Refugees and Minorities
- v) Coping with the constraints pertaining to humanitarian intervention
- vi) Politics of Humanitarian Assistance

3. Humanitarian Response and Assistance

- i) Nature of Humanitarian Response and Assistance
- ii) Types of Assistance
- iii) Humanitarian Response Planning
- iv) Protection, Gender and Inclusion during Emergencies
- v) Common Challenges
- vi) Reporting and Documentation

4. Project Planning and Proposal Development in Humanitarian Setting

- i) Project Identification
- ii) Situational and Stakeholder Analysis
- iii) Operationalization into Indicators – The Logical Framework or Log Frame

- iv) Financing the Project
- v) Impact Analysis
- vi) Project Review Appraisal
- vii) Piloting
- viii) Writing a Project Proposal

5. The Humanitarian Programme Cycle

- i) Accountability for Collective Results
- ii) Components of Programme Cycle
- iii) Humanitarian Coordination at Field Level
- iv) Consortium and Cluster Approach
- v) Joint Need Assessment and Analysis

6. Project Implementation

- i) Major Tasks Within the Project Implementation Phase
- ii) Implementation: A learning process
- iii) Monitoring and Evaluation
- iv) Auditing Humanitarian Projects
- v) Overcoming external challenges during humanitarian implementation

7. Humanitarian Logistics and Supply Chain Management:

- i) Particularities of Humanitarian Logistics
- ii) Logistics and Coordination
- iii) The Humanitarian Supply Chain
- iv) Procurement of Relief Goods and Services
- v) Warehousing

8. Ethical Considerations in Humanitarian Actions and Project Management

- i) Ethical Principles in Humanitarian Actions
- ii) Ethical Guidelines for Humanitarian Project Management
- iii) Data and Information Privacy and Ethical Obligations
- iv) Challenges and Dealing with Fraudulent Activities
- v) Compliant and Feedback Mechanism

Suggested Readings

Alexander, J. (2013). *Chasing chaos: My decade in and out of humanitarian aid*. New York, NY: Broadway Books.

Beristain, C. M. (2008). *Humanitarian aid work: A critical approach*. Philadelphia, PA: University of Pennsylvania Press.

Carbonnier, G. (2016). *Humanitarian economics: War, disaster and the global aid market*. New York, NY: Oxford University Press.

Christopher, M., & Tatham, P. (Eds.). (2014). *Humanitarian logistics: Meeting the challenge of preparing for and responding to disasters* (2nd ed.). London, UK: Kogan Page.

Development Assistance Research Associates (DARA) (2010). *The humanitarian response index 2009: Whose crisis? clarifying donor priorities*. New York, NY: Palgrave Macmillan.

Heintze, H.-J., & Zwitter, A. (Eds.). (2011). *International law and humanitarian assistance: A crosscut through legal issues pertaining to humanitarianism*. Berlin, Germany: Springer-Verlag.

Hilhorst, D. (Ed.). (2013). *Disaster, conflict and society in crises: Everyday politics of crisis response*. New York, NY: Routledge.

Klumpp, M., de Leeuw, S., Regattieri, A., & de Souza, R. (Eds.). (2015). *Humanitarian logistics and sustainability*. Basel, Switzerland: Springer International Publishing AG.

Meier, P. (2015). *Digital humanitarians: How big data is changing the face of humanitarian response*. Boca Raton, FL: CRC Press.

Retamal, G., & Aedo-Richmond, R. (Eds.). (1998). *Education as a humanitarian response*. New York, NY: Continuum International Publishing Group.

Sahay, B. S., Gupta, S., & Menon, V. C. (Eds.). (2016). *Managing humanitarian logistics*. New Delhi, India: Springer. <https://doi.org/10.1007/978-81-322-2416-7>

Smillie, I., & Minear, L. (2004). *The charity of nations: Humanitarian action in a calculating world*. Bloomfield, CT: Kumarian Press.

The Sphere Project. (2004). *Humanitarian charter and minimum standards in disaster response*. Retrieved from <http://www.ifrc.org/PageFiles/95530/The-Sphere-Project-Handbook-20111.pdf>. Accessed: October 31, 2017.

Fundamentals of Project Management, Joseph Heagney, American Management Association, 2015

International Humanitarian Action, Hans-Joachim Heintze, Pierre Thielbörger, 2018, Springer, ISBN 978-3-319-14454-2

The Palgrave Handbook of Humanitarian Logistics and Supply Chain Management, Gyöngyi Kovács, Karen Spens, Mohammad Moshtari, 2018, Palgrave Macmillan, ISBN 978-1-137-59099-2

DMC 309: Quantitative Research Methodology (Theory)

Course Objectives

This course provides students with a basic understanding of the distinct character of quantitative research process and its roles in disaster research. The main objective is to provide students with hands on training of various research methods used in disaster studies. The course deals with the general logic of scientific inquiry, research design, sampling, measurement, questionnaire design, as well as quantitative data-analysis and presentation. By the end of this course, students will be able to conceptualize a research problem and will be able to design and conduct his/her research project.

Course Outline

1. Introduction:

Research and Research Methodology:
 a. Meaning and Goals of Research; Research approaches;
 b. Types of Research; Steps and Features of Research;
 c. Characteristics of Research;
 d. Ontology, Epistemology, and Philosophical Perspectives for interdisciplinary Research conducting in

- a) **Formulation of Research Problem**
 - a. Statement of a Research Problem;
 - b. The nature of problem: sources of research problem;
 - c. Literature Review; Ethical consideration and check of Plagiarism
- b) **The Concept and Meaning of Theory**
- c) **Importance of theory in research**
 - a. Inductive and Deductive Theories
 - b. Theoretical and Conceptual Framework and Paradigm

3. Quantitative Approach: Central principles of quantitative methodology, types of variables, causal relationships & hypotheses, Quantitative measurement, operationalization, validity & reliability, Research Question and Research Objectives; Research Hypothesis; Indicators and Variables

- 1. Research Design
 - a. Basic Principles and Need of Research Design
 - b. Features of Good Research Design
 - c. Types of Research Design
- 2. Cross-sectional Study;
 - a. Longitudinal Study; Correlational Research;
 - b. Cohort Study; Case Control Study; Experimental Research; Quasi-Experimental Research.

d) Sampling and Data Collection Methods

- a. Sampling Methods: Population, Sample, and Sample size; what sampling strategies are used by disaster researchers?
- b. Sample determination; Scales of Measurement
- c. Quantitative Research VS Qualitative Research
- d. Survey; Face-to-Face Interview;
- e. Telephonic Survey;
- f. Digital Survey;
- g. Online Survey;
- h. Mobile Survey
- i. Content Analysis.

e) Data Analysis and Interpretation

- a. Process of different types of raw data; flow of data; data input, out-put and storage
- b. Methods of data processing; Types of data analysis; Different statistical tools for analysis; Construction of Univariate, bi-variate and multi-variate tables; graphical presentation and interpretation of data
- c. Hypothesis Testing; Data Interpretation

f) Doing Disaster Management Research

- a. Disaster Research Methods, Scientific methods in Disaster Research
- b. Developing a Researchable Issue in Disaster Management: Research Questions, Hypotheses and Models
- c. Disaster Literature and the Role of Disaster Theories.
- d. Quantitative Research and its Place in Disaster Management
- e. Quantitative Research Design and process in Disaster Research;
- f. The ethics in Disaster research, objectivity in research, value judgment.

g) Data Collection and Analysis of Disaster Management Research Data

- a. Quantitative Tools and Data Collection: Census, Survey Method, Questionnaire and Interview, Content Analysis.
- b. Quantitative Data Analysis in Disaster Management Research.

h) Research Report Writings

- a. Reporting Qualitative Disaster Management Research Results.
- b. Reporting Quantitative Disaster Management Research Results: Problems, types statistics, interpretation of results, graphical representation and tabulation
- c. Problems and Prospects of Disaster Management Research in the Developing World. Future Disaster Research

Suggested Readings

- Anthony Oliver-Smith, (1996) "Anthropological Research on Hazards and Disasters", *Annual Review of Anthropology*, Vol. 25. (1996), pp. 303-328.
- Bailey, K.D.(1987).*Methods of Social Research*. New York: The Free Press.
- Benton, T. & Craib, I (2001) *Philosophy of Social Science: The philosophical Foundations of Social Thought*. New York: Palgrave.
- Berg, Bruce L., 2006, "Qualitative Research Methods for the Social Sciences", Allyn & Bacon.
- Bryman, A & Cramer, D.(1994).*Quantitative Data Analysis for Social Sciences*. London: Rutledge.
- Creswell, J.W. (1994). *Research Design: Qualitative and Quantitative Approaches*. Thousand Oaks, CA: Sage.
- Crotty, Michale (1998). *The Foundations of Social Research: Meaning and Perspective in the Research Process*. Australia: Allen & Unwin.
- Denzin, N.K.& Lincoln, Y.S.(Eds.)(2000). *Handbook of Qualitative Research*. London: Sage.
- Drabek, Thomas E., 1986, "Human System Responses to Disaster: An Inventory of Sociological Findings", New York: Springer-Verlag.
- Dynes, Russell R, Drabek, Thomas E., 1992, "The Structure of Disaster Research: Its Policy and Disciplinary Implications", *Disaster Research Center Series/Report, Preliminary Papers*; 183.
- Erikson, Kai. 1976, "Everything In It's Path", New York: Simon and Schuster.
- Fischer, Henry W., 1998, "Response to Disaster: Fact Versus Fiction & Its Perpetuation. The Sociology of Disaster", 2nd Edition. Lanham, Maryland: University Press of America.
- Fink, A. (1995) *How to Analyze Survey Data*. London, Sage.
- Hughes, John, A. & Sharrock, W.W.(2007).*Theory and Methods in Sociology: An Introduction to Sociological Thinking and Practice*. New York: Palgrave Macmillan.
- Dennis S. Mileti. 1987, "Sociological Methods and Disaster Research." *Sociology of Disasters: Contribution of Sociology to Disaster Research*, edited by Russell R. Dynes, Bruna DeMarchi and Carlo Pelanda. Milano, Italy: Franco Angeli.
- Drabek, Thomas E., 1986, "Human System Responses to Disaster: An Inventory of Sociological Findings", New York: Springer-Verlag.
- Dynes, Russell R, Drabek, Thomas E., 1992, "The Structure of Disaster Research: Its Policy and Disciplinary Implications", *Disaster Research Center Series/Report, Preliminary Papers*; 183.
- Erikson, Kai. 1976, "Everything In It's Path", New York: Simon and Schuster.

- Fischer, Henry W., 1998, "Response to Disaster: Fact Versus Fiction & Its Perpetuation. The Sociology of Disaster", 2nd Edition. Lanham, Maryland: University Press of America.
- Fink, A. (1995) How to Analyze Survey Data. London, Sage.
- Ira H. Cisin and Walter B. Clark. 1962. "The Methodological Challenge of Disaster Research." Pp. 23-49 in *Man and Society in Disaster*, edited by George W. Baker and Dwight W. Chapman. New York: Basic Books;
- Kothari C. R (2004): Research Methodology: Methods and Techniques; New Age International
- Kreps, G.A., "Sociological Inquiry and Disaster Research", *Annual Review of Sociology*, Vol. 10. (1984), pp. 309-330.
- Lewis M. Killianm, 1956, "An Introduction to Methodological Problems of Field Studies in Disasters", Washington, D.C.: National Academy of Sciences-National Research Council;
- Moser, S.R. and Kalton, G. (1975) Survey Methods in Social Investigation. London, Heinemann.
- Palm, R.I. (1990) Natural Hazards: An Integrative Framework for Research and Planning. Maryland, John Hopkins University Press.
- Pijawka, K. David et al., 1988, "Coping with Extreme Hazard Events: Emerging Themes in Natural and Technological Disaster Research", *Omega: Journal of Death and Dying*, 18(4), 281-97.
- Pratt, B. and Loizos, P. (1992) Choosing Research Methods. Oxford, Oxfam.
- Preston, Richard, 1994, "The Hot Zone", New York: Random House.
- Priscilla R. Ulin, Elizabeth T. Robinson, Elizabeth E. Tolley", 2004, "Qualitative Methods in Public Health: A Field Guide for Applied Research", Jossey-Bass (November 1, 2004).
- Punch. K. F. (1998) Introduction to Social Research : Quantitative and Qualitative Approaches, SAGE Publications Ltd
- Quarantelli, E. L. , 1997, "The Disaster Research Center (DRC) Field Studies of Organized Behavior in the Crisis Time Period of Disasters Authors:", Disaster Research Center Series/Report, P reliminary Paper;254.
- Quarantelli, E. L. 1987, "Disaster Studies: An Analysis of the Social Historical Factors Affecting the Development of Research in the Area Authors", Social Factors Issue Date: Nov-1987 Series/Report, Articles; 195B.
- Quarantelli, E. L., 1999, "Disaster related social behavior: Summary of 50 years of research findings", University of Delaware, Disaster Research Center, Preliminary Paper, 280.
- Quarantelli, E.L., 1978, "Disasters: Theory and Research", Beverly Hills: Sage.

- Quarantelli, E.L., 2000, “What is a Disaster? Perspectives on the Question”, New York: Routledge.
- Quarantelli, E.L., 1994, “Disaster Studies: The Consequences of the Historical Use of a Sociological Approach in the Development of Research”, University of Delaware, Disaster Research Center, Preliminary Paper, 264.
- Robert K. Yin, 1984, “Case Study Research: Design and Methods”, Beverly Hills, California: Sage Publications;
- Robson, C. (1997) *Real World Research: A Resource for Social Scientists and Practitioner-Researchers*. Oxford, Blackwell.
- Rodriguez, Havidán. 2004. “The Role, Contributions, and Complexities of Interdisciplinary Research: A Holistic Approach to Hazards and Disasters.” Paper presented at the 29th Annual Natural Hazards Workshop, July 14, Boulder, Colorado.
- Stallings, Robert A., 2003, “Methods of Disaster Research”, International Research Committee on Disasters, Xlibris Corporation.
- Neuman, L. N. (2000). *Social Research Methods: Qualitative and Quantitative Approaches*. Boston: Allyn & Bacon.
- Sarantakos, S. (2005). *Social Research*. Australia: Macmillian Education Australia.
- Theis, J. and Grady, H. (1991) Participatory Rapid Appraisal (PRA) for Community Development.
- Thomas E. Drabek. 1970. “Methodology of Studying Disasters: Past Patterns and Future Possibilities.” *American Behavioral Scientist* 13:331-343;
- Thomas E. Drabek, 1989, “Taxonomy and Disaster: Theoretical and Applied Issues.” Pp. 317-345 in *Social Structure and Disaster*, edited by Gary A. Kreps. Newark, Delaware: University of Delaware Press.
- Wilson, Introduction to Research Methodology. McGraw-Hill Book Co, NY.
- WHO, Health Research Methodology- A guide for training in research methods, JB Valera, Research Methodology and Applied Statistics

DMC 310: Quantitative Research Methodology (Practical)

Course Objective

After acquiring theoretical knowledge, students will conduct field base research applying quantitative methods. It will allow the learners to: design a research proposal; develop study instruments and collecting data on disaster vulnerabilities and or risk reduction using standard questionnaire. Students will then analyze and interpret data in a scientific way.

Course Outline

Collecting Empirical Data; Interpretation and Analysis

Reporting Quantitative Disaster Management Research Results

Problems, types statistics, interpretation of results, graphical representation and tabulation,

Identifying common weaknesses in Disaster Management Research

Recommending for Multi- and Inter-disciplinary Research on Disasters Management

Suggested Readings

Quarantelli, E. L. 1987, "Disaster Studies: An Analysis of the Social Historical Factors Affecting the Development of Research in the Area Authors", Social Factors Issue Date: Nov-1987 Series/Report, Articles; 195B.

Quarantelli, E. L., 1999, "Disaster related social behavior: Summary of 50 years of research findings", University of Delaware, Disaster Research Center, Preliminary Paper, 280.

Quarantelli, E.L., 1978, "Disasters: Theory and Research", Beverly Hills: Sage.

Quarantelli, E.L., 2000, "What is a Disaster? Perspectives on the Question", New York: Routledge.

Quarantelli, E.L., 1994, "Disaster Studies: The Consequences of the Historical Use of a Sociological Approach in the Development of Research", University of Delaware, Disaster Research Center, Preliminary Paper, 264.

Robert K. Yin, 1984, "Case Study Research: Design and Methods", Beverly Hills, California: Sage Publications;

Robson, C. (1997) *Real World Research: A Resource for Social Scientists and Practitioner-Researchers*. Oxford, Blackwell.

Rodriguez, Havidán. 2004. "The Role, Contributions, and Complexities of Interdisciplinary Research: A Holistic Approach to Hazards and Disasters." Paper presented at the 29th Annual Natural Hazards Workshop, July 14, Boulder, Colorado.

Stallings, Robert A., 2003, "Methods of Disaster Research", International Research Committee on Disasters, Xlibris Corporation.

Neuman, L. N. (2000). *Social Research Methods: Qualitative and Quantitative Approaches*. Boston: Allyn & Bacon.

Sarantakos, S. (2005). *Social Research*. Australia: Macmillian Education Australia.

Theis, J. and Grady, H. (1991) *Participatory Rapid Appraisal (PRA) for Community Development*.

Thomas E. Drabek. 1970. "Methodology of Studying Disasters: Past Patterns and Future Possibilities." *American Behavioral Scientist* 13:331-343;

Thomas E. Drabek, 1989, "Taxonomy and Disaster: Theoretical and Applied Issues." Pp. 317-345 in *Social Structure and Disaster*, edited by Gary A. Kreps. Newark, Delaware: University of Delaware Press.

Wilson, Introduction to Research Methodology. McGraw-Hill Book Co, NY.

WHO, Health Research Methodology- A guide for training in research methods, JB Valera, Research Methodology and Applied Statistics

SEVENTH SEMESTER (FORUTH YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 401	Child Protection in Emergency and Disaster	100	4
DMC 402	Global Climate Change: Science, Impact and Adaptation	100	4
DMC 403	Disaster Risk Financing and Insurance	100	4
DMC 404	Disability, Disaster, and Autism (Theory)	50	2
DMC 405	Disability, Disaster and Autism (Practical)	50	2
	Total	400	16

DMC-401: Child Protection in Emergency and Disaster

Course Objectives

Children are a major population and one of the most vulnerable groups. The assessment is necessary based on special attention they need in pre, during and post disaster situations. It has many dimensions. Students need to know these issues in detail so that they can execute those lesson practically. Children must be given opportunities survive with dignity, especially during disasters. Needless to say, children deserve much support and care from the society for their growth and evolution national policies, socio cultural systems, and political institutions should concern more about these issues, for children are the future builders. This course is pertinently designed to address these issues to provide the students a pragmatic training.

Course Outline

1. **Concept of Child Protection in Emergency:** Basic terms and concepts, critical debates in social-science approaches to childhood and youth development and protection, myths and facts of child protection issues. Brief history of CPIE approaches. Nature of vulnerability related to child from gender and sex

perspective, National and International safeguard policies and Compliances for CPiE

2. **Vulnerability of Children to Disaster and Climate Change:** Physical and Psychological in general. Hazard and disaster specific vulnerability of children: Cases of flood, cyclonic storms, tidal surge, arsenic contamination, fire, industrial hazards, urban and industrial work environment, ethnic conflict, war etc. And good practices.
3. **Education in Emergency for children:** National and international guideline for EiE under education cluster, good practices and way forward.
4. **Child Protection Rapid Assessment:** MIRA guideline and child friendly tools and mechanism assessment.
5. **Mechanisms of Child Protection in Emergencies:** Community based Child Protection, Case management, Child Friendly Space etc. Best interest of Child.
6. **Humanitarian Response in Emergency:** Emergency response to protection of children during and after disaster such as shelter, food and nutrition, health facility; medicine and treatment, WASH; challenges to emergency responses to child protection. Child protection aftermath with evidence.
7. **Special Context of Child Protection:** Disabled children management, Refugee children management, Unaccompanied and Separated children management
8. **Child Protection Mechanism for Resilience:** Implementation of national and international law, Socio-psychological support arrangement for children, policies and compliances and provisions for the child protection in emergencies, development Planning, Preparedness and action programme in Child Protection , children centered and participatory resilience in DRR; rural and urban context.

Suggested Readings

Ansell, N. (2005) “Global Models of Childhood and Youth (Chapter 1)”, and ‘Changing Cultural Contexts (Chapter 3)’, in *Children, Youth and Development*, pp. 8-37 and pp. 63-90. London and New York: Routledge. (Focus on pp. 8-15, pp. 19-23 in Chapter 1 and pp. 63-77 in Chapter 3).

O’Neill, T. (2000) “What is Childhood? (Chapter 1)”, in T. O’Neill and T. Willoughby (Eds) *Introduction to Child and Youth Studies*, pp. 3-9 (read pp. 3-8). Dubuque: Kendall/Hunt.

Standing order of the Government of Bangladesh on Emergency Priorities, principles and practices; Role of UNCRC in Child Protection;

Boyden, J. (1990) “Childhood and the Policy Makers: A Comparative Perspective on the Globalization of Childhood (Chapter 9)”, in A. James and A. Prout (Eds) *Constructing and Reconstructing Childhood: Contemporary Issues in the Sociological Study of Childhood*, pp. 184-215. Second Edition. London: Routledge-Falmer Press.

Corsaro, W. A. (2005) 'Collective Action and Agency in Young Children's Peer Cultures (Chapter 14)', in J. Qvortrup (Ed) *Studies in Modern Childhood: Society, Agency, Culture*, pp. 231-247. London: Palgrave Macmillan.

Education In Emergencies In South Asia , Reducing the Risks Facing Vulnerable Children Centre for International Education and Research (CIER), School of Education, University of Birmingham, UK and UNICEF Regional Office for South Asia

Goldstein, D. M. (1998) 'Nothing Bad Intended: Child Discipline, Punishment and Survival in a Shantytown in Rio de Janeiro, Brazil', in N. Scheper-Hughes and C. Sargent (Eds) *Small Wars: The Cultural Politics of Childhood*, pp. 389-415. Berkeley: University of California Press.

Hendrick, H. (2003) 'Child Welfare: Ways of Seeing (Chapter 1)', in *Child Welfare: Historical Dimensions, Contemporary Debate*, pp. 1-17. Bristol: The Policy Press.

Mayall, B. (2000) 'The Sociology of Childhood in Relation to Children's Rights', *The International Journal of Children's Rights* 8: 243-259.

National Children Policy

UN CRC AND UNCCC by UNICEF

Vulnerability of Children in Disasters: Presented at The Second Ministerial Conference on Disaster Risk Reduction; 07-08 November 2007 New Delhi

Children's Vulnerability to Weather Shocks: A Natural Disaster as a Natural Experiment ; Javier E. Baez Maxwell School of Citizenship and Public Affairs Syracuse University , Indhira V. Santos Kennedy School of Government Harvard University

DMC 402: Global Climate Change: Science, Impact and Adaptation

Course Objectives

Climate change — one of the biggest global crises of 21st century needs to be understood in a holistic way. The fundamentals of climate science will help the students comprehend the physical causes of climate change as stated by the most authoritative scientific organizations and independent researchers. A methodical study of disaster and weather extremes and how they could be attributed to climate change will be enunciated. The mainstays of mitigation and adaptation will also be conductively focused. Besides, global climate policymaking, governance mechanisms, remarkable regimes, diplomacy and mobilization for practical actions and awareness, and ideas of sustainable green technologies will be illustrated. A deep understanding of the physical as well as other crucial aspects of climate change is the expected outcome. Finally, this course is meticulously crafted to sharpen the students' creative ideas to pursue further research and hone their analytical ability to devise uniquely pragmatic policies in the future.

Course Outline

(1) Introduction

Standard definitions of weather, climate, climate variability, and climate change. The elements of Earth's climate system. Scientific chronology of the evolution of modern climate change: from Joseph Fourier to James Hansen and beyond. Most important components of the climate system. Major spheres in the Earth system. Five layers of the atmosphere. Physical causes of climate change (insolation variability, orbital variations, volcanic eruptions, ocean circulations, geologic variability, human influences etc). Natural and anthropogenic greenhouse effects. Heat trapping abilities of the greenhouse gases. Global heating. Contemporary scenarios of global climate crisis.

(2) Basic Science of Climate Change

The preponderance of authentic data, facts, and evidence in standard climate science. Earth's energy budget. Earth's energy imbalance. Electromagnetic radiation. Significant solar irradiance variability and probable cosmic energy interventions. Radiative forcing. First law of thermodynamics. Steffan-Boltzmann expression. Global warming potential. Climate sensitivity and climate feedback mechanisms. Albedo effects. Major oceanic and atmospheric circulations like El Niño, La Niña, ENSO etc. Internal geologic variabilities. Data-facts-evidence based scientific proofs of anthropogenic climate change: historical and archeological evidence, different ice ages, dendrochronology, pollen analysis, insects, sea level fluctuations. Ozone layer depletion. Measurement and prediction of climate change: instrumental observations, satellite measurements, historical records, proxy measurements, ice cores, isotope age dating etc.; natural variability, predicting global warming etc. Experiments and scientific processes of Charles David Keeling and Roger Revelle. Climate modelling and predicting future. The roles of IPCC, US NAS, NASA, NOAA, UK Met Office, and other scientific organizations in the production of data and evidence. New frontiers of research and development in climate science.

3) The Impacts and Implications of Climate Change

The planetary boundaries of Johan Rockström and the impacts of climate change. Increase in the global mean surface temperature (GMST). Polar ice & glaciers melting and global mean sea level (GMSL) rise. Increasing GHGs, polar ice melting, permafrost thawing, glacier melting etc. The Quaternary environment (geological consequences), biodiversity and ecosystem losses, mass extinction. Weather extremes, ocean heat contents (OCH), ocean warming trends, widespread ocean acidification and coral bleaching. Historical impacts of climate variations, freshwater scarcity, agriculture, flooding, cyclones, droughts, and aridification. Human health, global and national economies, biodiversity and ecosystems, and other politicoeconomic and sociocultural consequences of extreme weather events. Global security, conflict, and humanitarian crises. Frequency, intensity, and severity of climate extremes.

(4) Mitigating Climate Change

Understanding global carbon budget, quota on fossil fuel production, ideas of Pacala and Socolow. All sorts of technological options: aggregate costs, commercial viability, and mass production. Continuous research for efficiency and efficacy on green energy systems. Sufficient, proper, and appropriate global investments. Sustainable natural resources management and conservation, alternative energy sources, carbon intensity of fossil fuels, reforestation, carbon capture and storage, all kinds of potential geoengineering options, societal controls of mitigation, mitigation in developing countries, and limitations of mitigation.

(5) Adaptations to Climate Change

Necessity for adaptation, conceptualizing adaptation, criteria for assessing responses, adaptation mechanism, methods of adaptation, local level livelihood adaptation options. Proper mobilization and management of financial resources for adaptations. Loopholes and pitfalls of adaptations in developing countries. Maintaining economic growth, development, industrial advancement, and progress with sustainability. Channeling adequate technical and technological resources (at an affordable price) for adaptations. Accepting indigenous and community-centric adaptation policies. Learning from other societies. IPCC guidelines. National Adaptation Programme of Action.

(6) Sustainability and Climate Change

Moving gradually towards net zero carbon society; decreasing fossil fuel burning and accelerating sustainable energy transition. Considering best sustainable development options. Sustainability with development and progress. The coping strategies for the developing and least developed countries. Sustainable green technologies. Climate justice, equity, and UN SDGs. Divestment from fossil fuels. Gradual decarbonization of global industries and utilities. Keeping GMST below 2 degree Celsius above preindustrial.

(7) Politics of Climate Change

Politics of development, sustainability, and climate actions. Climate crimes of G7 and BRICS nations. Climate policymaking, climate governance. From Montreal to Paris: the negotiations and climate protocols with COPs. Political ideology, political economy, and disinformation campaign against anthropogenic climate change. Fossil fuel productions, global economy and power relations. Policy frameworks and institutional hurdles on climate change. National, international, and intergovernmental actions, nongovernmental approaches.

(8) Bangladesh in the Changing Climate

Risks and vulnerability of Bangladesh as a middle income nation. Realistic problems of Bangladesh for mitigation and adaptation to climate change. Increasing industrial development, growing urbanization, and the critical problems of energy transitions. Integrating disaster risk reduction and climate change adaptation into development planning. Corruption, misappropriation, and institutional hurdles in policy implementations.

Suggested Readings

Archer, D., & Rahmstorf, S. (2012). *The climate crisis: An introductory guide to climate change*. New York, NY: Cambridge University Press.

Becker, P. (2014). *Sustainability science: Managing risk and resilience for sustainable development*. Amsterdam, the Netherlands: Elsevier.

Burroughs, W. J. (2001) *Climate change: A multidisciplinary approach* (2nd ed.). New York, NY: Cambridge University Press.

Carson, R. (2002). *Silent spring* (14th ed.). New York, NY: Mariner Books.

Colucci, A., Magoni, M., & Menoni, S. (Eds.). (2017). *Peri-urban areas and food-energy-water nexus: Sustainability and resilience strategies in the age of climate change*. Geneva, Switzerland: Springer.

Companion, M., & Chaiken, M. S. (Eds.). (2017). *Responses to disasters and climate change: Understanding vulnerability and fostering resilience*. Boca Raton, FL: CRC Press.

Cook, J., van der Linden, S., Maibach, E., & Lewandowsky, S. (2018). *The consensus handbook: Why the scientific consensus on climate change is important*. Retrieved May 9, 2018, from https://www.climatechangecommunication.org/wp-content/uploads/2018/03/Consensus_Handbook-1.pdf

Fleurbay M., Kartha, S., Bolwig, S., Chee, Y. L., Chen, Y., Corbera, E., . . . Sagar, A. D. (2014). Sustainable development and equity. In O. Edenhofer, R. Pichs Madruga, Y. Sokona, J. C. Minx, E. Farahani, S. Kadner, . . . Zwickel (Eds.), *Climate change 2014:*

Mitigation of climate change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (pp. 283-327). Retrieved November 17, 2018, from Intergovernmental Panel on Climate Change website: https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_full.pdf

Giddens, A. (2009). *The politics of climate change*. Cambridge, United Kingdom: Polity Press.

Houghton, J. (2009). *Global warming: The complete briefing* (4th ed.). New York, NY: Cambridge University Press.

Huq S., Karim, Z., Asaduzzaman, M., & Mahtab, F. (Eds.) (1999). *Vulnerability and adaptation to climate change for Bangladesh*. Dordrecht, the Netherlands: Kluwer Academic publication.

Klein, N. (2014). *This changes everything: Capitalism vs. the climate*. New York, NY: Simon & Schuster.

Meadows, D. H., Meadows, D. L., Randers, J., & Behrens III, W. W. (1972). *The limits to growth: A report for the Club of Rome's project on the predicament of mankind*. New York, NY: Universe Books.

National Research Council. (2010). *Advancing the science of climate change*.
<https://doi.org/10.17226/12782>

National Academy of Sciences. (2014). *Climate change: Evidence and causes*.
<https://doi.org/10.17226/18730>

Oreskes, N., & Conway, E. M. (2010). *Merchants of doubt: How a handful of scientists obscured the truth on issues from tobacco smoke to global warming*. New York, NY: Bloomsbury Press.

Parr, A. (2013). *The wrath of capital: Neoliberalism and climate change politics*. New York, NY: Columbia University Press.

Pelling, M. (2011). *Adaptation to climate change: From resilience to transformation*. London, United Kingdom: Routledge.

United Nations World Commission on Environment and Development. (1987). "Our common future". Oxford, United Kingdom: Oxford University Press.

DMC-403: Disaster Risk Financing and Insurance

Course Objectives

The main objective of this course is getting fundamental insights about finance and insurance and how these two entities are projected in disaster management. There are different parts in disaster risk financing. How projects related to disaster management are financed and how financing can reduce risk will be the top priority of this course. Also, what are the financial tools to reduce risk will be discussed here with special focus on insurance. Though disaster related insurance aren't common in Bangladesh, the course

will try to show examples from international perspectives and will motivate students to develop suitable disaster insurance packages.

Course Outline

1. Introduction to finance and insurance
2. Cost of disasters in developing countries
3. Catastrophe insurance and principles for public intervention in the catastrophe insurance market
4. Roles for the donor community in catastrophe risk financing
5. Managing disaster risks with financial instruments
6. Assessment of disaster risks, financial vulnerabilities and the impact of disasters
7. Private disaster risk financing tools and markets and the need for financial preparedness
8. Government compensation, financial assistance arrangements and sovereign risk financing strategies
9. Financial capacities to increase disaster resilience
10. Climate Financing
 - Fund Raising and Disbursement
 - Provision of International Funds
 - Responsibility of the Developed Nations
 - Green Climate Fund
 - Bangladesh Climate Change Trust Fund: Case Study
 - Fund Raising and Potential Sources of Fund
 - Channeling of Funds

Suggested Readings

- “Fundamentals Of Risk and Insurance” Emmett J. Vaughan and Therese M. Vaughan, 2014, Wiley, ISBN 978-1-118-53400-7
- “Climate change and insurance disaster risk financing in developing countries” by Eugene N. Gurenko, Earthscan, 2007, ISBN-13: 978-1-84407-483-9
- “Catastrophe Risk Financing in Developing Countries Principles for Public Intervention” J. David Cummins and Olivier Mahul, 2009, The World Bank, e-ISBN: 978-0-8213-7737-6
- “Disaster risk financing a global survey of practices and challenges”, OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264234246-en>

DMC 404: Disability, Disaster, and Autism (Theory)

Course Objective

Aiming at meeting the needs of a growing body of information, knowledge, and expertise on disaster, autism, and disabilities from interdisciplinary perspectives, this course predominantly focuses on the disability, psychology. The course has three main objectives: a) to familiarize students with autism and disability b) to provide a theoretical and methodological background on disaster, disability, and autism and c) to make the learners knowledgeable about the magnitudes of disasters, autism, and disability from global and national contexts. The importance of this course is multifold. There is a growing academic syllabus on natural disasters and hazards, but disability and autism consciousness has not been at the forefront of these efforts. At the international level, Article 11 of the UN Convention on the Rights of Persons with Disabilities provides a basic standard to supplement about the role and responsibility of international organizations, governments and development partners. Therefore there is a growing demand to share the academic knowledge on disasters and disability. This course therefore aims at meeting the growing knowledge on.

Course Outline

- 1. Basics of Disability and Autism:** Basic concepts of disaster, Hazards, Disability and Autism; pervasiveness of disaster, hazard, disability and autism; Global importance in studying disaster, hazard, autism and disability.
- 2. The Theoretical Perspectives:** sociocultural on disaster, disability and autism: Social, psychological, environmental, cultural and political.
- 3. Diversity of Actions:** The social, psychological, cultural, and economic constructions of disaster, autism and disability. How they affect each other and their ameliorations.
- 4. Dynamics of Disability, Gender, and Autism:** The dynamics of gender, disaster, autism and disability: Bangladesh and Global perspective. Their interconnections and policy implications in materializing equity shares.
- 5. Challenges for Disability and Autism:** Challenges posed by disasters to disabled and autistic people in maintaining their lives and livelihood during emergencies; access to health care, education, income, employment, and other basic services. Issues and challenges knowledge, good practices, promising solutions; building a disability inclusive risk resilient strategy and community.
- 6. Policy Overviews:** Overviews of policies on disaster, autism and disabled persons; state policy, social policy, regional and international policies, programs and actions disable people. Critical appraisal of United Nations' Convention on the Rights of Disabled and autistic People during disasters. Analysis the risks factors for disabled and autistic people. Rehabilitation program for autistic and disables.
- 7. Roles of Development Partners:** The role of international development partners, their interests, and NGOs in addressing the social, economic, and cultural challenges of disabled and autistic people during disasters.
- 8. Towards a Disability Inclusive Framework:** National and international policy frameworks aimed to espouse disability and autism in the processes of disaster management; developing better concepts to promote disability friendly policies.

9. Post-disaster Psychology and Trauma Management: Disaster psychology to bounce back; encountering the unimaginable blowbacks, getting over the mental bouts. Dealing with trauma and other psychological repercussions.

Suggested Readings

Carll, E. K. (2007). *Trauma psychology: Issues in violence, disaster, health, and illness*. Westport, CT: Praeger Publishers.

Charman, T., & Stone, W. (2006). *Social and communication development in autism spectrum disorders: Early identification, diagnosis, and intervention*. New York, NY: The Guilford Press.

Cipani, E. (2011). *Children and autism: Stories of triumph and hope*. New York, NY: Demosmedical.

Eisenman, D. P., Zhou, Q., Ong, M., Asch, S., Glik, D., & Long, A. (2009). Variations in disaster preparedness by mental health, perceived general health, and disability status. *Disaster Medicine and Public Health Preparedness*, 3(1), 33-41. <https://doi.org/10.1097/DMP.0b013e318193be89>

Kelman, I. & Stough, L. M. (2015). *Disability and disaster: Explorations and exchanges*. New York, NY: Palgrave Macmillan.

López-Ibor, J. J., Christodoulou, J., Maj, M., & Okasha, A. (2005). *Disasters and mental health*. Chichester, UK: John Wiley & Sons.

Marsella, A. J., Johnson, J. L., Watson, P., & Gryczynski, J. (Eds.). (2008). *Ethnocultural perspectives on disaster and trauma: Foundations, issues, and applications*. New York, NY: Springer Science & Business Media.

Morgan, P. (2017). *Child protection and parents with a learning disability: Good practice for assessing and working with adults*. London, UK: Jessica Kingsley Publishers.

Nasreen, M. (2008). Violence against women during flood and post-flood situations in Bangladesh. Retrieved from http://www.actionaid.org/sites/files/actionaid/vaw_during_disasters.pdf. Accessed: November 19, 2017.

Peek, L., & Stough, L. M. (2010). Children with disabilities in the context of disaster: A social vulnerability perspective. *Child Development*, 81(4), 1260-1270. <https://doi.org/10.1111/j.1467-8624.2010.01466.x>

Rotatori, A. F., Obiakor, F. E., &Burkhardt, S. (2008). Autism and developmental disabilities: Current practices and issues. Bingley, UK: Emerald.

Saari, S. (2005).A bolt from the blue: Coping with disasters and acute traumas (Silver, A. Trans.). London, UK: Jessica Kingsley.

Ursano, R. J, & Norwood, A. E. (Eds.). (2003).Trauma and disaster: Responses and management. Washington, DC: American Psychiatric Publishing.

DMC-405: Disability, Disaster and Autism (Practical)

Course Objectives

This practical course intends to provide hands-on training to the students via field visits, trainings and role playing. Persons with disability are disproportionately affected during disasters. This course will allow the students to not only understand but also experience how it feels to be a person with disability through role playing. Furthermore, the students are expected to learn the basics of communicating with a person with disability i.e. sign language.

Course Outline

1. **Field Visit:** Visiting schools for children with disability, autism and down syndrome, visiting organization for person with disability
2. **Training and Workshop:** Disability inclusive Humanitarian Response and Assistance, Training on Communication Disorder, Training on inclusion, Training on mainstreaming and institutionalizing the concept of disability
3. **Communication:** Basics of communicating with a person with disability. (Sign Language, Therapy)
4. **Survey:** Field survey with persons with disability, women with disability, children with disability.

Suggested Readings

Carll, E. K. (2007). Trauma psychology: Issues in violence, disaster, health, and illness. Westport, CT: Praeger Publishers.

Charman, T., & Stone, W. (2006).Social and communication development in autism spectrum disorders: Early identification, diagnosis, and intervention.New York, NY: The Guilford Press.

Cipani, E. (2011). Children and autism: Stories of triumph and hope. New York, NY: Demosmedical.

Eisenman, D. P., Zhou, Q., Ong, M., Asch, S., Glik, D., & Long, A. (2009). Variations in disaster preparedness by mental health, perceived general health, and disability

status. *Disaster Medicine and Public Health Preparedness*, 3(1), 33-41. <https://doi.org/10.1097/DMP.0b013e318193be89>

Kelman, I. & Stough, L. M. (2015). *Disability and disaster: Explorations and exchanges*. New York, NY: Palgrave Macmillan.

López-Ibor, J. J., Christodoulou, J., Maj, M., & Okasha, A. (2005). *Disasters and mental health*. Chichester, UK: John Wiley & Sons.

EIGHTH SEMESTER (FOURTH YEAR)

COURSE NO	COURSE TITLE	MARKS	CREDITS
DMC 406	Urban Disaster Risk Management	100	4
DMC 407	Community Based Disaster Risk Management	100	4
DMC 408	Internship and Report Writing	100	4
Optional Courses (Any One)			
DMC 409	Public-Private-Partnership in Disaster Risk Management	100	4
DMC 410	Water Resources Management	100	4
DMC 411	Occupational Health And Safety		
DMC 412	Environmental Management and Resource Conservation	100	4
DMC 413	Development and Disaster	100	4
DMC 414	Disasters in Arts and Literature	100	4
Comprehensive and Viva Voce (Mandatory for All)			
Comprehensive	Comprehensive	50	2
Viva Voce	Viva Voce	50	2
	Total	500	20

DMC 406 Urban Disaster Risk Management

Course Objective

The main objective of the course is to make the students familiar with the standard definition, processes, and assessment methods related to urban risk. The specific objective of the course is to:

1. Conceptualize hazard, disaster, damage, vulnerability, risk, and resilience.

2. Compute and assess hazard, damage, vulnerability, and risk.
3. Understand urban disaster processes and urban disaster risk reduction methods.

Course Outline

1. Definitions and Concepts

Hazard, Disaster, Vulnerability, Risk, Resilience; Major Disasters in the World; Disaster and Cities; Conceptual Framework of Hazard; Disaster Chain; Disaster Impact.

2. Hazard, Damage, and Risk Assessments

Hazard Prioritization; FEMA Model; Hazard Computation Methods; Multi-hazard; Damage Calculation; Stage-Damage Curve; Risk Computation Methods; Hazard and Risk Zoning; Problem Solving for Hazard and Risk Computations.

3. Urban Disaster Processes

Disaster Types: biological, geophysical, hydrological, meteorological, climatological; Cyclone and Storm Surge; Thunderstorm; Lightening; Tornado; Earthquake; Landslide; Waterlogging.

4. Integrated Urban Risk Assessment

Integrated Framework of Urban Risk Assessment; Data Acquisition and Management; Building Awareness and Public Consultations; Undertaking and Disseminating the Risk Assessment; Assessing the Level of Acceptable Risk; Implementing and Monitoring of Urban Risk Assessment; Case Study.

5. Urban Disaster Risk Reduction

Types of Risk Reduction Measures; Theoretical Definition of Risk Reduction; Acceptable Risk; Risk Reduction Measures for: cyclone and storm Surge, lightening, earthquake, landslide; Approaches to Mitigate Urban Risk; Resilient City Concept; Role of Local Government and Professionals in Reducing Urban Risk; Community Response.

Suggested Readings

1. Eric Dickson, Judy L. Baker, Daniel Hoornweg, and Asmita Tiwari (2012), Urban Risk Assessment, Understanding Disaster and Climate Risk in Cities, 2012, The World Bank, Washington DC.
2. David Dodman, Donald Brown, Katie Francis, Jorgelina Hardoy, Cassidy Johnson and David Satterthwaite (2013), Understanding the nature and scale of urban risk in low- and middle-income countries and its implications for humanitarian preparedness, planning and response, International Institute for Environment and Development (IIED), London WC1X 8NH, UK.
3. Parvin, Gulsan Ara, Ahsan, Reazul and Shaw, Rajib (2013), Urban Risk Reduction Approach in Bangladesh, Rajib Shaw et al. (eds.), Disaster Risk Reduction Approaches in Bangladesh, Springer Japan, 2013. pp. 235-257.

DMC 407: Community Based Disaster Risk Management

Course Objectives

The course provides an overview of approaches for facilitating communities to develop disaster preparedness and recovery plans. The objective is to develop appreciation of the importance of the role of the community in managing disasters that it faces and the function of organizations in facilitating this management.

Course Outline

1. Introduction, Disaster Management: A Paradigmatic Shift.
2. Participatory methods, Community mobilization, Facilitating self-help initiatives, sustaining long-term community based disaster management.
3. Toward Disaster Resilient Communities: A New Approach
4. Disaster Resilient Communities: A Conceptual Framework, Strengthening Community Resilience: Major Strategies.
5. Reducing the Vulnerabilities of the Communities at Risk, Building Local Capacities.
6. Disaster Resilient Communities: A Gender Perspective, Creation of Disaster Resilient Communities: Key Concerns.
7. How a Community Can Successfully Come Back Better and Stronger Post-Disaster?: Community Redevelopment process and Core principles, Redevelopment in Post-Disaster Communities.
8. Community based disaster management approaches in Bangladesh: Concepts and practice, community preparedness, building disaster resilient communities.
9. Organizations involved: role of government, NGOs, private and international organizations.

Suggested Readings

Ahmed, K.I. (2001) Participatory Action Research on Building-for-Safety Options for Low-Income Rural Housing in Flood-Prone Areas. Research report. Dhaka, BUET and UK, University of Exeter.

Ara, S. (1998) "Participatory Monitoring and Evaluation of Flood-Proofing Pilot Project, CARE-Bangladesh". PLA Notes, Issue 31. London, IIED.

Dixit, A. (1999) "Community-Based Initiatives in Earthquake Risk Management Process in Nepal" in NSET-2, The Kathmandu Valley Earthquake Risk Management Action Plan. Kathmandu, NSET.

Maskrey, A. (1989) “Disaster Mitigation: A Community Based Approach” in Mata, F. and MacDonald, M. (eds) Human Settlements: People Making a Difference. San Jose (Costa Rica), Earth Council.

Pinkowski, Jack. Disaster Management Handbook. CRC Press, Taylor & Francis Group, 6000 Broken Sound Parkway NW, Suite 300

UNCRD (2003) International Workshop on People, Communities and Disasters. Proceedings. Hyogo, UNCRD.

DMC 408: Internship and Report Writing

DMC 409: Public-Private-Partnerships and Corporate Social Responsibility in Disaster Management

Course Objective

This course primarily highlights the nature of cooperation, coordination, and interaction patterns between the GO, NGOs, and Development partners in addressing the events of disasters. The contents further explore the growing collaboration among State Actors, Non-Party Stakeholders (Non State), and many other Corporations to practically execute on disaster situations and management. The students will learn the nature of challenges arisen out of resource scarcity, political dilemmas and standpoints, ideological differences, and absence of good governance in handling such collaboration and coordination. The course will also attempt to develop the knowledge on different components of CSR and develop the students’ understanding ability about the strengths and weaknesses in a company’s or organization CSR work.

Course Outline

1. **Basics of PPP:** Preliminary Concept of Public Private Partnership (PPP); History and usefulness of PPP.
2. **Nature of Cooperation:** The Nature of Cooperation, Combination, and Coordination among the Stakeholders; Interaction between Government, NGOs, and Development Partners.
3. **CCA and DRR:** Public-Private Collaboration and Partnership in CCA and DRR. Business Recovery, Business-Continuity Planning; Business Size and Type.

4. **Loss and Damage Assessment:** Assessing Financial Losses and Damages; Specific Business Damage and Loss Assessment; initiating Market Based Preparedness.
5. **Community and Disaster Resilience:** Disaster resilient business; Collaborative Approach, Collaborations for Resilience.
6. **Risk, Resilience, and Accountability:** The plethora of risks, addressing them; Nature of accountability in DRR and CCA under PPP.
7. **PPP in National and International Action Plans:** Finding Potential National and International Actors; Five Year Plan, NPDM; SFDRR; UNSDGs.
8. **Corporate Social Responsibility (CSR):** Basic concepts of CSR; Methods and Tools within CSR, CSR and Sustainable Development, Corporate Citizenship, Business Ethics, Codes of Conduct and ISO 26000. Internal Organization, Politics and Tensions in the Corporation. Community Social Organization and its Local Representation. Standards, Monitoring and Accountability.

Suggested Readings

Abou-bakr, A. J. (2013). *Managing disasters through public-private partnerships*. Washington, DC: Georgetown University Press.

Asia Pacific Economic Cooperation (APEC) (2013). *New approaches on public private partnerships for disaster resilience*. Retrieved from http://www.apec-epwg.org/public/uploadfile/act/13_epwg1_003.pdf. Accessed: November 9, 2017.

Auerswald, P. E., Branscomb, L. M., La Porte, T. M., & Michel-Kerjan, E. O. (Eds.). (2006). *Seeds of disaster, roots of response: How private action can reduce public vulnerability*. New York, NY: Cambridge University Press.

Busch, N. E., & Givens, A. D. (2013). *Achieving resilience in disaster management: The role of public-private partnerships*. *Journal of Strategic Security*, 6(2), 1-19. <http://dx.doi.org/10.5038/1944-0472.6.2.1>

Chambers, R. (2005). *The Unocal settlement: Implications for the developing law on corporate complicity in human rights abuses*. *Human Rights Brief*, 13, 14-74. Retrieved from https://www.researchgate.net/profile/Rachel_Chambers4/publication/254568795_The_Unocal_Settlement_Implications_for_the_Developing_Law_on_Corporate_Complicity_in_Human_Rights_Abuses/links/542277f40cf26120b7a02c46.pdf. Accessed: November 8, 2017.

Koliba, C. J., Mills, R. M., & Zia, A. (2011). *Accountability in governance networks: An assessment of public, private, and nonprofit emergency management practices following Hurricane Katrina*. *Public Administration Review*, 71(2), 210-220. <https://doi.org/10.1111/j.1540-6210.2011.02332.x>

- Kunreuther, H. (2001). Incentives for mitigation investment and more effective risk management: the need for public-private partnerships. *Journal of Hazardous Materials*, 86(1), 171-185. [https://doi.org/10.1016/S0304-3894\(01\)00253-9](https://doi.org/10.1016/S0304-3894(01)00253-9)
- Moral, R. D., & Walker, L. R. (2007). *Environmental disasters, natural recovery, and human responses*. New York, NY: Cambridge University Press.
- O'Brien, G., O'Keefe, P., Rose, J., & Wisner, B. (2006). Climate change and disaster management. *Disasters*, 30(1), 64-80. <https://doi.org/10.1111/j.1467-9523.2006.00307.x>
- Phillips, B. D. (2009). *Disaster recovery*. Boca Raton, FL: CRC Press.
- Stewart, G. T., Kolluru, R., & Smith, M. (2009). Leveraging public-private partnerships to improve community resilience in times of disaster. *International Journal of Physical Distribution & Logistics Management*, 39(5), 343-364. <https://doi.org/10.1108/09600030910973724>
- Wettenhall, R. (2003). The rhetoric and reality of public-private partnerships. *Public Organization Review*, 3(1), 77-107. <https://doi.org/10.1023/A:1023000128175>
- vanWassenhove, L. N. (2006). Humanitarian aid logistics: Supply chain management in high gear. *Journal of the Operational Research Society*, 57(5), 475-489. <https://doi.org/10.1057/palgrave.jors.2602125>

DMC 410: Water Resources Management
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Course Objectives

Water security appears to be one of the core components in disaster risk reduction studies. As water resources involve a significant dynamics in the broader perspective of resilience and sustainability, this course will orient students (i) to understand the basic concepts of surface and groundwater and its movement; (ii) to identify causes of water scarcity and water pollutions; (iii) to get knowledge of various national and global water laws and introduces to some of the central challenges of water governance and politics. This course will also explore the links between water sanitation and health; to become familiar with various water resource management schemes for sustainable uses of surface and groundwater in future and to identify. The relationship among gender, water, and social inclusion will also be focused.

Course Outline

1. Introduction to Hydrology

Surface Water: Hydrological Cycle; Hydro Meteorology; Types and Forms of Precipitation; Evaporation, Evapotranspiration and Infiltration; Runoff and Its Components; Rainfall-Runoff Models.

Ground Water: Origin of Groundwater, Rock Properties Affecting Groundwater, Types of Aquifer, Darcy's Law, Coefficient of Permeability, Groundwater Flow Rates, Permeability Formulae, Groundwater Movement; Ground Water Assessment.

2. Water Usage: Agricultural, Domestic, Industrial, Municipal, Electric Power Generation; Navigation.

3. Water Pollution and Hazards: Agricultural; Industrial; Waterlogging; Salinity Intrusion; Arsenic Contamination; Urban Water Pollution.

4. Gender, Social Inclusion and Water Management: Rights to Water; Gender Issues in Agriculture and Irrigation; Specific Impacts of Water Insecurity on Women, Men, Children and Socially Excluded Group; Intra-Household Water Management and Water Use Behavior; Mainstreaming Gender into Water Sector; Gender and Water Conservation.

5. Water, Sanitation and Health: Drinking Water Standards; Global Water-Sanitation (Watsan) Initiatives (Gwsi); Global and National Water-Sanitation Trends: Water-Sanitation Link; Water-Health Link; Water and Health Related Human Rights; Water Related Diseases.

6. Water Based Conflicts and Global Politics: World's Water Resources; Sharing of International Water Bodies and Conflicts Case Studies of Water Politics in South Asia: Kaptai Dam; Farakka; Tista; Liver Linking Project; Maritime Industry Conflicts.

7. Water Law and Governance: National and Global (Constitutional provisions, National and International Water Policy, Riparian Rights / Ground Water Ownership, Acquisition and Use of Rights, Scope for Privatization); Water Policy and Its Operation at the Local, National, and International Levels; Water Economics; Agriculture as the Chief Consumer of Water Resources.

8. Water Management: Integrated Water Resources Management (IWRM): Dimensions of IWRM; Institutional Framework of Water Resources Management, Conservation Farming, Watershed Management Planning and Engineering; Economic, Social, Ecological, and Legal Aspects. Models of Water Security in Emergencies, Water Relief Management.

Suggested Readings

Barthel, S., & Isendahl, C. (2013). Urban gardens, agriculture, and water management: Sources of resilience for long-term food security in cities. *Ecological Economics*, 86, 224-234. <https://doi.org/10.1016/j.ecolecon.2012.06.018>

Coles, A. & Wallace, T. (Eds.). (2005). *Gender, water and development*. New York, NY: Bloomsbury Publishing.

Gleick, P. H. (1993). Water and conflict: Fresh water resources and international security. *International Security*, 18(1), 79-112. Retrieved from <http://www.jstor.org/stable/2539033>. Accessed: November 11, 2017.

Grey, D., & Sadoff, C. W. (2007). Sink or swim? Water security for growth and development. *Water Policy*, 9(6), 545-571. <https://doi.org/10.2166/wp.2007.021>

Harrington, L. W., & Fisher, M. J. (Eds.). (2014). *Water scarcity, livelihoods and food security: Research and innovation for development*. New York, NY: Routledge.

Hlavinek, P., Kukharchyk, T., Marsalek, J., & Mahrikova, I. (Eds.). (2006). *Integrated urban water resources management*. Dordrecht, the Netherlands: Springer.

Huntjens, P., Pahl-Wostl, C., Rihoux, B., Schlüter, M., Flachner, Z., Neto, S., Kiti, I. N. (2011). Adaptive water management and policy learning in a changing climate: a formal comparative analysis of eight water management regimes in Europe, Africa and Asia. *Environmental Policy and Governance*, 21(3), 145-163. <https://doi.org/10.1002/eet.571>

Lawrence, D. S. (2015). *Physical hydrology*. Long Grove, IL: Waveland Press.

Maharaj, N. (2003). *The gender approach to water management: Lessons learnt around the globe*. Delft, the Netherlands: Gender and Water Alliance.

Meinzen-Dick, R. S., & Bruns, B. R. (Eds.). (2000). *Negotiating water rights*. New Delhi, India: Vistaar Publications.

Oki, T., & Kanae, S. (2006). Global hydrological cycles and world water resources. *Science*, 313(5790), 1068-1072. <https://doi.org/10.1126/science.1128845>

Patra, K. C. (2008). *Hydrology and water resources engineering*. Oxford, UK: Alpha Science International.

Reddy, V. R., & Dev, M. S. (Eds.). (2006). *Managing water resources: Policies, institutions, and technologies*. Oxford, UK: Oxford University Press.

Pahl-Wostl, C., & Sendzimir, J. (2005). The relationship between IWRM and adaptive water management: NeWater Working Paper no. 3. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.84.7963&rep=rep1&type=pdf>. Accessed: November 10, 2017.

Subramanya, K. (1994). *Engineering hydrology*. New Delhi, India: Tata McGraw-Hill Education.

Sultana, F., & Loftus, A. (Eds.). (2012). *The right to water: Politics, governance and social struggles*. New York, NY: Earthscan.

Tortajada, C. (2014). IWRM revisited: from concept to implementation. *International Journal of Water Resources Development*, 30(3): 361-363. <https://doi.org/10.1080/07900627.2014.937085>

Trenberth, K. E. (2011). Changes in precipitation with climate change. *Climate Research*, 47(1/2), 123-138. <https://doi.org/10.3354/cr00953>

Pangare, V., Pangare, G., Shah, V., Neupane, B. R., & Rao, P. S. (2007). *Global perspectives on integrated water resources management: A resource kit*. New Delhi, India: Academic Foundation.

Vörösmarty, C. J., McIntyre, P. B., Gessner, M. O., Dudgeon, D., Prusevich, A., Green, P.,... Davies, P. M. (2010). Global threats to human water security and river biodiversity. *Nature*, 467(7315), 555-561. <https://doi.org/10.1038/nature09440>

DMC 411: Occupational Health and Safety

Course Objective

This course will provide the students a fundamental understanding of occupational health and safety. Besides, introducing the core ideas, it aims at addressing the roles and responsibilities of occupational health and safety practitioners including risk management, hazard recognition, control, and prevention, safety management systems in the workplace. The nature and types of hazards associated with workplaces and their specific management techniques will be elucidated. By acquiring knowledge through the course, the students will develop theoretical and technical skills required to create, implement and evaluate corporate health and safety programs and systems focused on the prevention of occupational injury, illness, and loss. The course incorporates a multidisciplinary approach in contributing to the development of a health and safety culture.

Course Contents

- 1. Historical Perspective and Overview:** Safety and Health Movement Accidents and their Effects; Theories of Accident Causation; Roles and Professional Certifications for Safety and Health Professionals; Safety, Health, and Competition in the Global Marketplace
- 2. Laws and Regulations:** The OSH Act, Standards, and Liability, Workers' Compensation; Accident Investigation and Reporting; Product Safety and Liability; Bangladesh Labour (Amendment) Act, 2015.

3. **The Human Element:** Ergonomic Hazards: Musculoskeletal Disorders (MSDs) and Cumulative Trauma Disorders (CTDs); Stress and Safety; Safety and Health Training; Violence in the Workplace.
4. **Hazard Assessment, Prevention, and Control:** Mechanical Hazards and Machine Safeguarding; Falling, Impact, Acceleration, Lifting, and Vision Hazards; Hazards of Temperature Extremes; Pressure Hazards; Electrical Hazards; Fire Hazards and Life Safety; Industrial Hygiene and Confined Spaces; Radiation Hazards; Noise and Vibration Hazards; Computers, Automation, and Robots.
5. **Occupational Diseases and Conditions:** Occupational Diseases; Employment Medical Advisory Service; Occupational Health Schemes; Benefits of Occupational Health Services; Sickness Absence; Smoking, Air Pollution.
6. **Hazardous Substances:** Meaning of Hazardous Substances; Classification; Principles of Toxicology; Assessment of Health Risk; Workplace Exposure Limits; Control Measures; Safe Handling and Storage of Waste; Health Surveillance.
7. **Management of Safety and Health:** Preparing for Emergencies and Terrorism; Ethics and Safety; Hazard Analysis/Prevention and Safety Management; Promoting Safety; Environmental Safety and ISO 14000 (Environmental Management); Therapeutic Spiral Model (TSM): Safety Management in a Quality Management Setting; Establishing a Safety-Friendly Corporate Culture; Blood-borne Pathogens and Bacterial Hazards in the Workplace.

Suggested Readings

- Alli, B. O. (2008). *Fundamental principles of occupational health and safety*. Geneva, Switzerland: ILO.
- Bakker, A. B., Schaufeli, W. B., Leiter, M. P., & Taris, T. W. (2008). Work engagement: An emerging concept in occupational health psychology. *Work & Stress*, 22(3), 187-200. <https://doi.org/10.1080/02678370802393649>
- Erikson, P. A. (1996). *Practical guide to occupational health and safety*. San Diego, CA: Academic Press.
- Goetsch, D. L. (2014). *Occupational safety and health for technologists, engineers, and managers*. London, UK: Pearson.
- Hopkins, A. (1995). *Making safety work: Getting management commitment to occupational health and safety*. St. Leonards, Australia: Allen & Unwin.
- Hughes, P., & Ferrett, E. (2011). *Introduction to health and safety at work*. New York, NY: Routledge.
- Lingard, H. & Rowlinson, S. (2005). *Occupational health and safety in construction project management*. New York, NY: Spon Press.

Schneid, T. D. (2008). Corporate safety compliance: OSHA, ethics, and the law. Boca Raton, FL: CRC Press.

Stranks, J. (2010). Health and safety at work: An essential guide for managers (9thed.). London, UK: Kogan Page.

Taylor, G., Easter, K., & Hegney, R. (2004). Enhancing occupational safety and health. Oxford, UK: Butterworth-Heinemann.

DMC 412: Environmental Management and Resource Conservation

Course Objectives

This course is pertinently tailored to primarily address varying issues of environment and resource management issues. It will try to point out a vital relationship between environmental protection to reduce disaster risk reduction with a special focus on holistic disaster management. The students will learn thoroughly about the interconnected and intra-contributory nature of environment, ecology, and human society to their existential sustenance. From risk reduction, preparedness, capacity building to assorted social behaviors, physical vulnerabilities, and other coping mechanisms— all these preponderant strategies will be expatiated with social tenors. How a society responds to a disaster and how it necessarily manages and conserve her resources to cope up with the severities and aftermaths of disasters will be compellingly dealt with. And this will in turn enable the students to calibrate their academic acumen through interfacing environmental challenges and disasters.

Course Contents

1. **Introduction:** Definitions of society and community, ecology, and environment and their relationships with disaster;
2. **Ecology, Ecosystems, and Biodiversity:** Relationships among ecosystems, biodiversity, human society, and human beings; Their codependency.
3. **Environmental Paradigms:** HEP and NEP, Anthropocentrism; Biocentrism; Technocentrism; Ecocentrism; Ecofeminism;

4. **Key Environmental Issues:** Deep Ecology; Social Ecology; Ecological Wisdom; Environmental Sociology: Key Perspectives and Controversies; Social Construction of Environmental Issues and Problems; Science, Knowledge
5. **Environmental Problems and Impacts:** Environmental Pollution; Unplanned Industrialization and Urbanization for Development; Displacement.
6. **Water Resources and Water Pollution:** water resources; water pollution mechanisms; water quality; water treatment.
7. **Energy Resources:** types; advantages and disadvantages of using fossil fuels; advantages and disadvantages of using nuclear power; energy efficiency; advantages and disadvantages of using renewable energy resources; transition to a more sustainable energy future.
8. **Poverty and Society:** Famine; Towards a Safer environment; Society, The voice and social choice; Famines and social response
9. **Development, Opportunity, Inequality, and Environment:** Economic Development and Social Opportunity; Public Action and Social Inequality.
10. **Environmental Movements:** Chipko; Wangari Mathai; David Suzuki; Bill McKibben; Blue Print for Survival etc.
11. **Environmental Conservation:** The coexistence of society's consumption role, ecological balance, and environmental response. Ecological conservation and its impacts. Conservation Strategy.

Suggested Readings

Alexander, D .C. (1993).*Natural disasters*. New York, NY: Routledge.

Beatley, T. (2009).*Planning for coastal resilience: Best practices for calamitous times*. Washington, DC: Island Press.

Barr, S. (2008).*Environment and society: Sustainability, policy and the citizen*. Hampshire, UK: Ashgate Publishing.

Burby, R. J., Deyle, R. E., Godschalk, D. R., & Olshansky, R. B. (2000). Creating hazard resilient communities through land-use planning.*Natural Hazards Review*, 1(2), 99-106. [https://doi.org/10.1061/\(ASCE\)1527-6988\(2000\)1:2\(99\)](https://doi.org/10.1061/(ASCE)1527-6988(2000)1:2(99))

Cudworth, E. (2003). *Environment and society*. London, UK: Routledge.

Drabek, T. E. (1986). *Human system responses to disaster: An inventory of sociological findings*. New York, NY: Springer-Verlag.

Drèze, J., & Sen, A. K. (1989). *Hunger and public action*. Oxford, UK: Oxford University Press.

Hannigan, J. (2006). *Environmental sociology* (2nded.). London, UK: Routledge.

Kaushik, A., & Kaushik, C. P. (2010). *Basics of environment and ecology*. New Delhi, India: New Age International.

Kütting, G. (2000). *Environment, society and international relations*. London, UK: Routledge.

Lash, S., Szerszynski, B., & Wynne, B. (Eds.). (1998). *Risk, environment and modernity: Towards a new ecology*. Thousand Oaks, CA: Sage Publication.

Ministry of Environment and Forest, Government of Bangladesh (2013). *Bangladesh climate change and gender action plan*. Retrieved from https://cmsdata.iucn.org/downloads/iucn_bangladesh_climate_change_gender_action_plan_1.pdf. Accessed: October 20, 2017.

Monson, R. K. (Ed.). (2014). *Ecology and the environment*. New York, NY: Springer Science & Business Media.

Nasreen, M. (2017). *Bangladesh national conservation strategy: Gender issues*. Retrieved from <http://www.ncsbd.info/wp-content/uploads/2016/09/17.-Gender-Issues.pdf>. Accessed: November 19, 2017.

Nasreen, M., K.M. Hossain & D. Kundu. (2007). *Poribesh Samajbiggan* (Book on Sociology of Environment). Dhaka: Tapan Prokashan.

Sen, A. (2011). *The idea of justice*. Cambridge, MA: Harvard University Press.

Shiva, V. (1989). *Staying alive: Women, ecology and development*. New Delhi, India: Zed Books.

The International Bank for Reconstruction and Development/The World Bank (2004). *Responsible growth for the new millennium: Integrating society, ecology, and the economy*. Washington, DC: The World Bank.

DMC 413: Development and Disaster

Course Objective

The course is meant to provide a consolidation of awareness that what we consider a disaster can be interpreted in terms of development, and that the right type of development reduces disasters. This course will impart lessons related to reasons why we should focus on disaster reduction and sustainable development as part of the same agenda. Furthermore, it will introduce many of the key ideas, terminologies, implications and applications that are part of the interconnected world of disaster and development.

Course Outline

1. Development Studies: Theories and Approaches

- i) The Meaning of Development: Introduction to development: definitions and interpretations of development, various dimensions, key aspects, Milestones in developmental thinking.
- ii) Introduction to Development Studies: Origin, evolution (from development economics to development studies), nature, focus, utility, and trends; Development studies as a social science, the hybrid nature of this social science, and is there a common thread running through this social science?
- iii) Common Characteristics of Developing Nations: Defining the developing world, the structural similarity and diversity of developing countries.
- iv) Classic Theories of Development: Development as Growth and the Linear-stages approach, Structural Change model, the International Dependence Revolution and the Neoclassical Counterrevolution with Market Fundamentalism
- v) Theories of Growth: Classic Theories of Growth and Development: Balanced and Unbalanced Growth, Rostow's Stages of Growth, Harrod-Domar Growth Model, The Lewis Theory of Development, Slow Model, Endogenous Growth Theories
- vi) Contemporary Development Approaches: Modern critique of development theories, search for micro-solutions, recent innovations in development thinking.
- vii) Measuring Development: Development indicators including their criticism and compatibility; The Human Development Index and its relationship with economic development
- viii) Foreign Aid: The debate: why donors give aid? Why developing countries accept aid? Does Aid work? Bilateral and multilateral donor agencies, the growing role of NGOs in aid and development.
- ix) Private Philanthropy: Corporate Social Responsibility, Private Donation, Social Business, Charity, crowdfunding, etc.
- x) Environment and Development: Nature, issues, arguments, problems and challenges.
- xi) Globalization and Development: Nature, Issues, Argument, Problems and Challenges

2. Social Development: Theories and Approaches

- i) Paradigm or sector: Defining social development.
- ii) Comparative Society
- iii) Social and Cultural Change
- iv) Comparative Social Security Approach
- v) Comparative Gender Systems
- vi) Human Ecological Relationships
- vii) Social risk, social capital and social security
- viii) Social development and markets
- ix) Equity and social exclusion

- x) Social development and poverty alleviation
- xi) NGOs and civil society in Social Development
- xii) The social development policy process

3. Poverty: Concept, Strategies and Programming

- i) Understanding Poverty: The Meaning of Poverty, Vicious Circle of Poverty, Causes of Poverty, Income Vs Multidimensional Concept of Poverty, Absolute and Relative Poverty, Subjective and Objective Approach of Poverty, Chronic Poverty, Social Exclusion.
- ii) Measuring Poverty: Operationalizing the Definition of the Poor, Determination of Poverty Lines, Measurement of Absolute Poverty: Head Count Index, Income Gap Index, Sen Index, Foster-Greek-Thorbecke (FGT), Measurement of Relative Poverty: Income Inequality, Gini Coefficient, Lorenz Curve
- iii) Composite Indicators: Human Development Index (HDI), Human Poverty Index (HPI), Physical Quality of Life Index (PQLI), Relation Between HDI & HPI, Compare GNP and HDI, Happiness Index
- iv) Entitlements, Poverty and Famines
- v) Micro Credit – as a Tool of Poverty Alleviation: Experience from Bangladesh
- vi) Poverty Reduction through supporting international trade, aiding economic growth, and SME facilitation activities.
- vii) Social Business, Corporate Social Responsibility
- viii) Population and Poverty, Poverty and Environment
- ix) Social Security: Income Transfers, Social Safety Net Programs: The Case of Bangladesh

4. Sustainable Development: Process and Practice

- i) Principles of Sustainability
- ii) Sustainable Development: History and Evaluation of the Concept
- iii) Global Development Frameworks
- iv) Sustainable Development Goals (SDGs)
- v) SWOT Analysis of the SDGs
- vi) Linking SDGs with Disaster Risk Reduction Agendas
- vii) Key Actors
- viii) National Development Plans: Five Year Plans, Poverty Reduction Strategy Paper, Delta Plan 2100 etc.
- ix) The future of sustainable development

5. Why Disaster and Development

- i) Disaster and Development: Hindrance or Opportunity?
- ii) Development opportunities in post disaster scenarios
- iii) Viewing disasters from perspectives of development
- iv) How do disasters influence development?
- v) Does global environmental change cause vulnerability to disaster?
- vi) Changes in capitalism and global shifts in the distribution of hazard and vulnerability

- vii) Gender, disaster and development: the necessity for integration
- viii) Natural disasters, adaptive capacity and development in the twenty-first century

6. Local Contexts and Global Pressures

- i) The social construction of natural disaster
- ii) Vulnerability reduction and the community-based approach
- iii) Risk regimes change and political entrepreneurship
- iv) Disaster as manifestation of unresolved development challenges
- v) Ecological reconstruction

7. Mainstreaming Disaster Risk Reduction for Sustainable Development

- i) Principles of Mainstreaming
- ii) Strategic Approach of Mainstreaming
- iii) Mainstreaming in Development Sector
- iv) Mainstreaming within Project Cycle Management
- v) Mainstreaming within Subnational Planning
- vi) Mainstreaming Disaster Risk Reduction when implanting the new global frameworks

8. Macroeconomic Risk and Resilience

- i) Disaster and Development Debate
- ii) Developmental Implications of Natural Disasters
- iii) Developmental Drivers of Disaster Impact
- iv) Impacts of Disaster on Macroeconomic Growth
- v) Way Forward

9. Public Policy, Disaster and Development

- i) Historical Roots of Public policy and Analysis (Trends in Policy Analysis)
- ii) Policy Analysis as Policy Science
- iii) Public Policy – The Players and Ideas in Disaster and Development
- iv) Policy Analysis and Globalization in Disaster and Development Agendas
- v) Disaster and Development Diplomacy
- vi) The future of Disaster and Development Policies

Suggested Readings

Meir, G. and Rauch, J.E (2000), *Leading Issues in Economic Development*. 7th Edition. Oxford: Oxford University Press.

Potter, Robert, B. (2004), 'The Provenance of Progress in Development Studies', *Progress in Development Studies*, 4(2): 95-98.

Rapley J. (2002), *Understanding Development: Theory and Practice in the Third World*. Boulder and London: Lynne Rienner Publishers.

Robinson, Joan (1979), *Aspects of Development and Underdevelopment*. London: Cambridge University Press

Taylor, L., S. Mehrotra, and E. Delamonica (1997), "The Links Between Economic Growth, Poverty Reduction and Social Development: Theory And Policy", in S.

Mehrothra and R. Jolly (Eds.) Development with a Human Face. Oxford: Oxford University Press, 435-467.

Collins, A (2009), Disaster and Development. Canada and USA, Routledge Publication.

Pelling (2003), Natural Disasters and Development in Globalizing World. London and New York, Routledge Publication.

UN ESCAP (2017) Mainstreaming Disaster Risk Reduction for Sustainable Development: A Guidebook for the Asia-Pacific

DMC 414: Disasters in Arts and Literature

Course Objective

Recently in CoP conference performing arts are using as a means of expressing peoples` views. In different division of art such as music, sculpture and painting, literature, drama and films, natural and man-made disaster scenarios are portrayed. Arts orient us with different culture and society, enhance cognitive skill, create empathy and promote unity and harmony towards people. Moreover, free expression of mind, differently working capacity and ideas will grow up by learning this course.

Course Contents:

1. Significance and application of art studies in disaster management and vulnerability studies.
2. Disaster vulnerabilities, environment and climate change issues in film, drama, documentary, mime, dance and related performing art.
3. Disaster and environment portrayal and management issues in literature and poetry.
4. Disasters and environment issues in world religion
5. Natural and man-made disaster in music
6. History and current trends of painting, sculpture and photography describing hazard and disasters, vulnerability, climate change, environmental degradation etc. as well as resilience and management issues.

Suggested reading

1. Ashani Sanket by Bibhutibhushan Bandopadhyay
2. Ischamoti by Bibhutibhushan Bandopadhyay
3. Padma nodir Majhi by Manik Bandopadhyay
4. Zainul Abedin: The Man and His Art by Syed Ali Ahsan , Bangladesh National Museum publication wing
5. Sculptures themed on the Liberation War by Takir Hossain
6. Shorot sahitte bakti o somaj by dr. Selima Sayed. Khan brothers
7. Bangladesher loko songit o vougolik poribesh by dr. Habibur Rahman. Falgun prokash

8. Sonchita by Kazi Nazrul Islam
9. Midnight in Chernobyl by Adam Higginbotham
10. To Sleep with the Angels: A Story of a Fire by David Cowan, John Kuenster
11. 102 Minutes: The Untold Story of the Fight to Survive Inside the Twin Towers
by Jim Dwyer, Kevin Flynn
12. Sudden Sea: The Great Hurricane of 1938 by R.A. Scotti
13. Noukadubi by Rabindranath Tagore
14. The Tempest is a play by William Shakespeare