Course C 9

GGRM402T6: ENVIRONMENTAL GEOGRAPHY (Theory) 84 hours

(The objective of this course is to develop conceptual and theoretical ideas of environment as well as relationship between man and environment in different geo climatic regions. The learners will also attain the nature and intensity of some burning environmental issues at local, regional and global level along with mitigation programs and policies.)

Title	Contents	L	T	P
Environmental Geography	1. Environmental Geography – Concept and Scope	6	4	-
	2. Human-Environment Relationships – Historical Progression, Adaptation in different Biomes.	12	6	-
	3. Ecosystem – Concept, Structure and Functions	12	6	-
	4. Environmental Problems in Tropical, Temperate and Polar Ecosystems	12	6	-
	5. Environmental Programmes and Policies – Global, National and Local levels	14	6	-

Reading List

1. Chandna R. C., 2002: *Environmental Geography*, Kalyani, Ludhiana.
2. Cunninghum W. P. and Cunninghum M. A., 2004: *Principals of EnvironmentalScience: Inquiry and Applications*, Tata Macgraw Hill, New Delhi.
3. Goudie A., 2001: *The Nature of the Environment*, Blackwell, Oxford.
4. Singh, R.B. (Eds.) (2009) Biogeography and Biodiversity. Rawat Publication, Jaipur
5. Miller G. T., 2004: *Environmental Science: Working with the Earth,* Thomson BrooksCole,
Singapore.
6. MoEF, 2006: *National Environmental Policy-2006,* Ministry of Environment andForests, Government of India.
7. Singh, R.B. and Hietala, R. (Eds.) (2014) Livelihood security in Northwestern Himalaya: Case
studies from changing socio-economic environments in Himachal Pradesh, India. Advances in
Geographical and Environmental Studies, Springer
8. Odum, E. P. et al, 2005: *Fundamentals of Ecology,* Ceneage Learning India.
9. Singh S., 1997: *Environmental Geography,* Prayag Pustak Bhawan. Allahabad.
10. UNEP, 2007: *Global Environment Outlook: GEO4: Environment For Development,* United Nations Environment Programme.
11. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) Climate change and biodiversity: Proceedings of IGU Rohtak Conference, Volume 1. Advances in Geographical and Environmental Studies, Springer
12. Singh, R.B. (1998) Ecological Techniques and Approaches to Vulnerable Environment, New
Delhi, Oxford & IBH Pub..
13. Singh, Savindra 2001. *Paryavaran Bhugol,* Prayag Pustak Bhawan, Allahabad. (in Hindi)

Course C14

GGRM602T6: DISASTER MANAGEMENT BASED PROJECT WORK 84 Hours

(The main objective of the field work is to conduct an extensive survey over an area to evaluate the nature, intensity, frequency and impact of a Hazard/ disaster and suggesting possible mitigation measures)

	L	T	P
Unit –I: Disaster Management based Project work (Practical)	6	-	54
Unit- II : Field Survey	4	-	20

Reading List

1. Government of India. (1997) Vulnerability Atlas of India. New Delhi, Building Materials &
Technology Promotion Council, Ministry of Urban Development, Government of India.
2. Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.
3. Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters,
Macmillan, Delhi.
4. Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi. Chapter 1, 2 and 3
5. Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.
6. Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.
7. Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic
Publications. Dordrecht.
8. Singh Jagbir (2007) "Disaster Management Future Challenges and Oppurtunities", 2007. Publisher- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).

Discipline Specific Elective 03
Environmental Sociology

Total Credit=6
Total Marks 80+20=100
Total Classes: 38
Total Tutorials: 7
Class duration: 1 class=1 hour
1 tutorial = 1 hour
6 classes per week

Course Objective:
This course is designed to introduce students to the core debates of environmental sociology, different approaches within the sub-discipline and how these approaches may be used to understand environmental issues and movements in India.

		Classes	Tutorials	Marks
1.Envisioning Environmental Sociology		10	1	25
1.1	Meaning , Definition, Nature and Scope			
1.2	Realist-Constructionist Debate			
2.Environmental Approaches		16	3	25
2.1	Treadmill of Production			
2.2	Ecological Modernization			
2.3	Environmental Risk			
2.4	Ecofeminism and Feminist Environmentalism			
2.5	Political Ecology			
3.Environmental Movements in India		12	3	30
3.1	Forest based movement – Chipko			
3.2	Water based movement – Narmada			
3.3	Land based movements – Anti-mining and Seed			
3.4	Anti Big Dam Movements in North East India			

C O U RS E CONTENTS AND ITINERARY

1. Envisioning Environmental Sociology [Weeks 1-3]

1.1.1. Bell, MM. (2008). *An Invitation to Environmental Sociology*. Thousand Oaks, CA: Sage 3rd ed. Ch 1.(pp. 1-5).

1.1.2. Hannigan, J. A. (1995). Environmental Sociology. Routledge, London and

New York, 2nd ed. Ch1 and 2. (pp. 10-15,16 - 35).
1.2.1. Leahy, T. (2007). Sociology and the Environment. Public Sociology: An Introduction to Australian Society. Eds. Germov, John and Marilyn, Poole. NSW: Allen & Unwin, Ch 21 (pp. 431-442).
1.2.2. Evanoff, R. J. (2005). Reconciling realism and constructivism in environmental ethics. *Environmental Values*, 61-81.

2. Approaches [Weeks 4-10]

2.1.1. Gould, K. A., Pellow, D. N., & Schnaiberg, A. (2004). Interrogating the Treadmill of Production: Everything You Wanted to Know about the Treadmill but Were Afraid to Ask. Organization & Environment, 17(3), 296-316.
2.1.2. Wright, E. O. (2004). Interrogating the Treadmill of Production: Some Questions I Still Want to Know about and Am Not Afraid to Ask. Organization & Environment, 17(3), 317-322.
2.2.1. Mol, A. P. (2002). Ecological modernization and the global economy. Global Environmental Politics, 2(2), 92-115.
2.2.2. Buttel, F. H. (2000). Ecological modernization as social theory. Geoforum,31(1), 57-65.
2.2.3. O'Connor, J. (1994). Is sustainable capitalism possible. Is capitalism sustainable? *Political Economy and the Politics of Ecology*. The Guilford Press. Ch . (pp.152-175).
54
2.3.1. Beck, U. (2006). Living in the world risk society: A Hobhouse Memorial Public Lecture given on Wednesday 15 February 2006 at the London School of Economics. *Economy and Society*, 35(3), 329- 345.
2.4.1. Shiva, V. (1988). Women in Nature. In *Staying Alive: Women, Ecology and Development*. Zed Books. Ch 3.(pp.38-54).
2.4.2. Agarwal, Bina, 2007. The Gender and Environment Debate: Lessons from India. In Mahesh Rangarajan. (ed.) 2007. *Environmental Issues in India : A Reader*. New Delhi: Pearson, Longman, Ch 19.(pp. 316-324, 342-352).
2.5.1. Robbins, P. (2011). *Political Ecology: A Critical Introduction* (Vol. 16). Wiley and Sons ltd. East Sussex, U.K. Ch 1 (pp.10-25).

3. Environmental Movements in India [Weeks 11-14]

3.1.1. Guha, R. Chipko : Social history of an environmental movement. In Ghanshyam Shah ed.(2002). *Social Movements and the State* (Vol. 4). Sage Publications Pvt. Ltd., Ch. 16 (pp.423-454).
3.2.1. Khagram, S., Riker, J. V., & Sikkink, K. (2002).Restructuring the global politics of development: The Case of India's Narmada Valley Dams. *Restructuring World Politics: Transnational Social Movements, Networks, and Norms* (Vol. 14). U of Minnesota Press. (pp.206-30).
3.3.1. Padel, F., & Das, S. (2008). Orissa's highland clearances: The reality gap in R & R. *Social Change*, 38(4), 576-608.
3.3.2. Scoones, I. (2008). Mobilizing against GM crops in India, South Africa and

Brazil. *Journal of Agrarian Change*, 8(2-3), 315-344.
3.4.1.Baviskar, Amita: In the belly of the river : Tribal Conflicts over Developmemtment in the Narmada Valley, 1995, delhi, Oxfrod University Press (Introdution Chapter.
3.4.2Omvedt's , Gail : An Open Letter to Arundhati Roy, Outlook December 19, 2008(e-source)narmada.org/debates/gmail.open.letter.html.
[Projects, feature films and documentary screenings and field visits will be will be undertaken by students through the course]

SUGGESTED READINGS

Students will not be examined on the suggested readings but may use them for projects, and presentations that will be woven into the course.

Guha, R., & Alier, J. M. (1998). The environmentalism of the poor. In *Varieties ofenvironmentalism: Essays North and South*. New Delhi: Oxford University Press.
Osofsky, H. M. (2003). Defining Sustainable Development after Earth Summit 2002. *Loy. LA Int'l & Comp. L. Rev.*, *26*, 111.
Baviskar, A. (1999). In the Belly of the River: Tribal Conflicts over Development in the Narmada Valley. Oxford University Press.

Core Course 07
Sociology of Gender

Total Credit=6
Total Marks 80+20=100
Total Classes: 38
Total Tutorials: 7
Class duration: 1 class=1 hour
1 tutorial = 1 hour
6 classes per week

Course Objective:

The course introduces gender as a critical sociological lens of enquiry in relation to various social fields. It also interrogates the categories of gender, sex, and sexuality.

		Classes	Tutorials	Marks
1. Gendering Sociology		9	1	15
1.1	Sociology of Gender: An Introduction			
1.2	Gender, Sex, Sexuality			
1.3	Concept of Masculinity and Femininity			
2.Gender Theories		11	2	25
2.1	Feminism (Liberal feminism, radical feminism and social feminism)			
2.2	Marxian theory of gender			
2.3	Queer theory of Gender			
3.Gender: Differences and inequalities 1.1		9	2	20
3.1	Gender discrimination (family, caste, class and work)			
3.2	Gender and development			
3.3	Gender budgeting			
4.Gender, Power and resistance		6	2	20

SYLLABUS

Environmental Education

UNIT-I

Environmental Education:

(i) Concept, scope and importance of Environmental Education.

(ii) Objectives of Environmental Education at secondary school level.

(iii) Approaches of Environmental Education, Role of Environmental and Natural resources in sustainable development.

UNIT-II

Environmental Hazards:

(i) *Causes and Effects of Environmental Hazards, Global and Local:* environmental pollution (Soil pollution, water pollution, air pollution, noise pollution) and its remedies.

(ii) *Green House Effect :* an impending catastrophe.

(iii) *Ozone Layer Depletion :* environmental threat, acid rain, pillar melting, rise of sea level and their implications.

UNIT-III

Environmental Awareness :

(i) *Salient Features of Environmental Awareness through Education:* programmes of environmental education for secondary school children.

(ii) Programmes of environmental education for changes of attitude among the children.

(iii) Curriculum development in environmental education.

UNIT-IV

Man and Environment:

(i) *Man as a Creator and Destroyer :* effect of human activities on environment, values and ethics related to environment.

(ii) *Biodiversity:* Conservation of genetic diversity. An important environmental priority: Learning to live in harmony with nature.

(iii) *Miscellaneous Environmental Issues:*

1. Forests and their conservation
2. Wildlife and its conservation
3. Conservation of energy resources
4. Alternate sources of energy
5. Population and environment.

UNIT-V

Sustainable Development:

(i) Sustainable development, environmental education for development conservation of soil, water, forests, wild life, movement to save environment, eco-friendly technology.

(ii) National Parks, sanctuaries and Zoos, plan and projects of Environmental protection like Save Dal, Save Hangul, Save Tiger Project and Chipko movement.

(iii) Projects of Environmental Education in India and Abroad.

OFFICE OF THE REGISTRAR:: DIBRUGARH UNIVERSITY:DIBRUGARH

Ref. No: DU/DR-A/6-1/20/74 Date: 20.01.2020.

NOTIFICATION

As recommended by the Board of Studies in Life Sciences, the Hon'ble Vice Chancellor, Dibrugarh University is pleased to approve the Syllabus of the 2 Credit Ability Enhancement Compulsory Course on Environmental Studies (Course Code: EVS CBCS) prescribed for all Under Graduate Degree Programmes in the Choice Based Credit System under report to the Under Graduate Board and Academic Council, Dibrugarh University. The Syllabus shall come into effect from the academic session 2019-2020. The Syllabus is enclosed with this Notification as Annexure A.

Issued with due approval.

Sd/- Dr. B.C. Borah
Joint Registrar (Academic)
Dibrugarh University

Copy to:

1. The Vice-Chancellor, Dibrugarh University for favour of information.
2. The Deans, Dibrugarh University.
3. The Registrar, Dibrugarh University for favour of information.
4. The Controller of Examinations, Dibrugarh University for favour of information and the needful.
5. The Director, Directorate of Open and Distance Learning, Dibrugarh University.
6. The Director, College Development Council, Dibrugarh University for favour of information.
7. The Principals/ Registrars/ Directors of the Colleges/ Departments/ Centres/ Institutes conducting the Under Graduate Degree Programmes in CBCS for favour of information and the needful. They are requested to download the syllabus from the website **www.dibru.ac.in.**
8. The Joint/ Deputy Controller of Examinations (A, B & C), Dibrugarh University for favour of information and needful. A copy of the Syllabus is enclosed herewith.
9. The Programmer, Dibrugarh University for information and the needful.
10. File.

Sd/-Dr. B.C. Borah
Joint Registrar (Academic)
Dibrugarh University.

Annexure: A

DIBRUGARH UNIVERSITY SYLLABUS FOR ENVIRONMENTAL STUDIES FOR ALL UNDER GRADUATE DEGREE PROGRAMMES IN CBCS

(Approved under report to Under Graduate Board and Academic Council and Notified vide Ref. No. DU/DR-A/6-1/20/74 dated 20.01.2020)

A. Vision

The importance of Environmental Studies cannot be disputed. The need for sustainable development is a key to the future of mankind. The degradation of our environment is linked to continuing problems of pollution, loss of forest, solid waste disposal, issues related to economic productivity and national as well as ecological security. The increasing levels of global warming, the depletion of the ozone layer and a serious loss of biodiversity have also made everyone aware of growing environmental concerns. The United Nations Conference on Environment and Development held in Rio De Janero in 1992, and the World Summit on Sustainable Development at Zoharbex in 2002 have drawn the attention of people around the globe to the developing condition of our environment. It is clear that no citizen of the earth can afford to be ignorant of environmental issues. Environmental management has become a part of the health care sector. Managing environmental hazards and preventing possible disasters has become an urgent need.

Human beings have been interested in ecology since the beginning of civilization. Even our ancient scriptures have included practices and values related with environmental conservation. It is now even more critical than ever before for mankind as a whole to have a clear understanding of environmental concerns and to follow sustainable development practices.

India is rich in biodiversity which provides various resources for people. It is also the basis for biotechnological development. Only about 1.8 million living organisms have been described and named globally. Still many more remain to be identified and described. Attempts are made to conserve them in ex-situ and in-situ situation. Intellectual Property Rights (IPRs) have become important in a biodiversity rich country like India to protect microbes, plants and animals that have useful genetic properties. Destruction of habitats, over use of energy resources and environmental pollution have been found to be responsible for the loss of a large number of life forms. It is feared that a large proportion of life on earth may get wiped out in the near future.

In spite of the developing status of the environment, the formal study of environment has so far not received adequate attention in our academic performances. Recognisation thus the Hon'ble Supreme Court directed the UGC to introduce a basic course on environment for every student. Accordingly the matter was considered by the UGC and it was decided that a six months compulsory core module course in environmental studies may be prepared and compulsorily implemented in all the Universities/ Colleges in India. The Expert Committee appointed by the UGC has looked into all the pertinent questions, issues and other relevant matters. This was followed by framing of the Core Module Syllabus for Environmental Studies for undergraduate courses of all branches of Higher Education. The Committee is deeply conscious that there are bound to be gaps between what is considered ideal and the present syllabus. The Committee has attempted to minimize the gaps by intellectual and material inputs.

The success of this course will however depend on the initiative and drive of the teachers and their students.

-Members of the Curriculum Development Committee

RULES FOR CONDUCTING THE 'ENVIRONMENTAL STUDIES' COURSE IN CBCS

1. There shall be a compulsory Course (paper) on Environmental Studies to be offered in all Under Graduate Teaching Programmes of Dibrugarh University.

2. The End Semester/Term Examination on the Environmental Studies Course shall be held for 100 marks covering all units of the syllabus approved by the University.

3. The question pattern of the Environmental Studies Course shall be Multiple Choice Objective Type comprising of 50 questions carrying 2 marks each. The candidates shall have to with the answers in the response sheet provided by the University.

4. There shall be no internal assessment and the students need not to prepare Field Study report on the course.

5. The End Semester/Term Examination of the Environmental Studies Course for all Under Graduate Teaching Programmes of Dibrugarh University shall be held on the same date as per schedule to be modified.

6. The duration of the examination of the Environmental Studies Course shall be of 90 minutes.

7. A candidate must secure at least 40 marks in order to pass in the Environmental Studies Course. The marks secured in the Course by a candidate shall be awarded in grades and that shall be shown in the Mark sheet / Grade sheet as below:

Letter Grade with meaning		Grade Point *
O	Outstanding	10 (Marks securing above 90%)
A+	Excellent	9 (Marks securing 80%-90%)
A	Very Good	8 (Marks securing 70% -80%)
B+	Good	7 (Marks securing 60% -70%)
B	Above Average	6 (Marks securing 50% -60%)
P	Pass	5 (Marks securing 40% -50%)
F	Fail	0 (Marks securing below 40%)
Abs	Absent/ Incomplete	0

* Exclusive Class Interval Technique shall be followed in calculation of Grade Point.

8. A candidate who fails in the Environmental Studies Course shall be entitled to two additional consecutive chances to clear the Course.

9. A candidate who does not pass in the Environmental Studies Course shall not be qualified for the relevant degree.

10. The marks/grades secured by the candidates in the Environmental Studies Course shall be reflected in the overall performance of the students.

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DIBRUGARH UNIVERSITY SYLLABUS FOR ENVIRONMENTAL STUDIES FOR ALL UNDER GRADUATE DEGREE PROGRAMMES IN CBCS

Type of the Course: Ability Enhancement Compulsory Course (AECC)

Course Code: EVS CBCS

Total Marks: 100

Total Classes: 64

Total Credit: 2

Unit 1 : The Multidisciplinary nature of environmental studies

Classes : 4
Marks : 5

Definition, scope and importance

Need for public awareness.

Unit 2 : Natural Resources :

Classes : 10
Marks : 20

Renewable and non-renewable resources:

- Natural resources and associated problems.

a) Forest Resources: Use and over-exploitation, deforestation. Timber extraction, mining, dams and their effects on forests and tribal people.

b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, and salinity.

e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources.

f) Lance resources: Land as a resources, land degradation, man-induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

Unit 3: Ecosystems

Classes : 10
Marks : 17

- Concept of an ecosystem.
- Structure and function of an ecosystem.
- Producers, consumers and decomposers.
- Energy flow in the ecosystem.
- Ecological succession.

- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristics features, structure and function of the following ecosystem:
  a. Forest ecosystem
  b. Grassland ecosystem
  c. Desert ecosystem
  d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit 4: Biodiversity and its conservation

Classes : 10
Marks : 16

- Introduction – Definition: genetic, species and ecosystem diversity.
- Biogeographically classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values
- Hot-spots of biodiversity – India.
- Threats to biodiversity: habits loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species.
- Conservation of biodiversity: in-situ Ex-situ conservation of biodiversity.

Unit 5: Environmental Pollution

Classes : 10
Marks : 17

- Definition, Causes, effects and control measures of :
  a. Air pollution
  b. Water pollution
  c. Soil pollution
  d. Noise pollution
  e. Thermal pollution
  f. Nuclear hazards
- Solid waste Management: Causes, effects and control measures of urban and industrial wastes – biodegradable and non biodegradable wastes.
- Role of an individual in prevention of pollution.
- Disaster Management: Floods, earthquake, cyclone and landslides.

Unit 6: Social Issues and the Environment

Classes : 10
Marks : 15

- From Unsustainable to Sustainable development.
- Water conservation, rain water harvesting, watershed management.
- Resettlement and rehabilitation of people, its problems and concerns.
- Environmental ethics.
- Climate change, global warming, acid rain, ozone layer depletion, unclear accidents and holocaust.
- Wasteland reclamation.
- Consumerism and waste products.
- Environmental Legislation.
- Public awareness.

Unit 7: Human Population and the Environment

Classes : 10
Marks : 10

- Population growth, variation among nations.
- Population explosion – Family Welfare Programme.
- Environment and human health and hygiene (including Sanitation and HIV/AIDS) etc.
- Role of Information Technology in Environment and Human Health.

REFERENCES

1. Rajagopalan, R. 2018 Environmental Studies- From Crisis To Cure, Oxford University Press, New Delhi.
2. Agarwal, K.C. 2001 Environmental Biology, Nidi publ. Ltd. Bikaner.
3. Bharucha Earch, The Biodiversity of India, Mapin Publishing Pvt. Ltd. Ahmadabad – 380 013, India Email: Mapin@icenet.net (R)
4. Bharucha Erach, Text book on Environmental Studies, UGC, New Delhi
5. Borua P.K., J.N.Sarma and others, A Text book on Environmental Studies, Banlata, Dibrugarh
6. Brunner R.C., 1989 Hazardous Waste Incineration, McGraw Hill Inc. 480p.
7. Clark R.S., Marine Pollution, Clanderson Press Oxford (TB).
8. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jacio Publ. House, Mumbai, 1196p.
9. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
10. Down to Earth, Centre for Science and Environment (R).
11. Dutta Prasanna, Rofique Ahmed & Sumbit Chaliha, Environmental Studies., Eunika Publication, Jorhat
12. Gleick, H.P. 1993. Water in crisis, Pacific Institute for Studies in Dev., Environment & Security, Stockholm Env. Institute. Oxford Univ. Press 473p.
13. Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R).
14. Heywood, V.H. & Watson, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.
15. Jadav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284p.
16. Joshi P.C. and Namita Joshi, A Text book of Ecology and Environment, Himalaya Publishing
17. Kaushik Anubha and C.P.Kaushik ,Perspective in Environmental Studies, New Age International
18. Mckinney, M.L. & Schooh, R.M. 1996. Environmental Science systems & Solution, Web enhance/edition. 639p.
19. Mhaskar A.K. Matter Hazardous, Techono-Science Publications (TB).
20. Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB).
21. Odum, E.P. 1911 Fundamentals of Ecology. W.B. Saunders Co. USA, 574p.
22. Rao M.N. & Datta, A.K. 1987. Waste Water treatment. Oxford & IBH Publ. Co. Pvt. Ltd. 345p.
23. Sharma B.K., 2001. Environmental Chemistry. Goel Publ. House, Meerut.
24. Survey of the Environment, the Hindu (M).
25. Townsend C., Harper J and Michael Begon, Essentials of Ecology, Blackwell Science (TB).
26. Trivedi R.K. Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol I and II, Enviro Media (R).
27. Trivedi R.K. and P.K. Goel, Introduction to air pollution, Techno-Science Publications (TB).
28. Wagner K.D., 1998. Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p.

(M) Magazine (R) Reference (TB) Textbook

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