

Semester 2: Core courses

C3: Practising Interdisciplinary Research on the Environment

Instructor: Sharachchandra Lele (slele@atree.org)

Co-instructors: Veena Srinivasan, Nitin Rai, Bejoy Thomas

Credits: 3 (48 contact hours in the form of 16 sessions of 3-hours each)

Semester: II (January to April 2014)

Course description:

This core course is meant to help students understand how to carry out interdisciplinary research on the environment. It will build on the disciplinary knowledge to which students were exposed in semester 1 and focuses on the challenge of linking and integrating this knowledge to study society-environment interactions holistically. It will begin by exploring the nature of environmental problems as a special class of social problems, of the inherently value-laden nature of such problems, and the need and challenge of doing rigorous interdisciplinary but rigorous research in this context. It will explore the specific normative ideas that are central the environment-development debate, and then take students through different (often competing) perspectives on the society-environment relationship.

In the second half of the course, we will discuss in detail a series of examples of interdisciplinary research that have used one or more of these perspectives to frame and analyse a particular environmental problem. Attention will be paid to understanding the normative, theoretical, and methodological choices made in the studies, including specifically the interdisciplinary linkages and the within-disciplinary choices and modifications.

At the end of such a course, the student is expected to be well-prepared to devise and implement an interdisciplinary research programme on the environment, and to understand the place of their research (now and future) in the wider action-research-policy work on the environment.

Session format

This course will be reading- and writing-intensive. It will be taught in 3-hour sessions. Each session will have readings assigned to it, and these will form the basis for class discussion.

Course assessments:

1. Students will be expected to submit written summaries of key readings related to the 7 case studies (35% of total marks) (*Details on what is expected will be provided*)
2. Students will be expected to participate actively in class discussions and to have completed readings even when written summaries are not required (30%)
3. Students are expected to make a presentation of a proposal for interdisciplinary environmental research (preferably on their PhD topic) that addresses the challenges of framing, theoretical integration, linked variables, methods, scales, etc. (35%) (*Details on what is expected will be provided*)

Session-wise time-table (All classes Monday 10:00am - 1:00pm)

Session	Date	Title	Readings	Instructor
1	13-01-2014	Nature of environmental problems and need for inter- disciplinary and functional bridging	[1], [2]. [3], [4]	Sharad
2	20-01-2014	Key normative ideas (Conservation, Sustainability, Environmental Justice, Sustainable Development, Democracy)	[5 ,chapter 1] [6], [7], [8]	Sharad
3	27-01-2014	Perspectives 1&2: Economics and Institutional Analysis	TBA	Sharad
4	03-02-2014	Perspectives 3&4: Political Ecology and Env.Ethics/Psychology	[9]-chapter	Sharad
5	10-02-2014	Perspective 5: Population	[9]-chapter 2	Sharad
6	17-02-2014	Perspective 6: Technology	[10], [11], [12]-excerpt	Sharad
	24-02-2014	FIELD WORK WEEK for methods course		
7	03-03-2014	Implementing interdisciplinary research: Variables, scales, methods & rigour	[1],	Sharad
8	10-03-2014	Forest Degradation: Sopinnabettas	[13, 14-chapter 6, 15]	Sharad
9	17-03-2014	Forest Degradation: Som & Prabhakar	[16], [17], [18]	Sharad
10	24-03-2014	Case study: TBA	TBA	TBA
	31-03-2014	HOLIDAY (Ugadi)		
11	02-April (afternoon)	Forest degradation: Scales	[19, 20]	Nitin
12	7-4-2014	Grasslands: Turner	[21], [22], [23]	Nitin
13	14-04-2014	Water: case 1: GW in Chennai	[24], [25], [26]	Veena
14	21-04-2014	Water: case 2: Irrigation tanks	[27],	Veena
15	28-04-2014	Population, Soil, Agriculture: Machakos	[28], [29],	Bejoy
16	EXAM WEEK DATE TBA	Student presentations		

READING LIST

1. Lélé, S. and R. Norgaard, *Practicing interdisciplinarity*. Bioscience, 2005. **55**(11): p. 967-975.
2. Lowe, P., G. Whitman, and J. Phillipson, *Ecology and the social sciences*. Journal Of Applied Ecology, 2009. **46**(2): p. 297-305.
3. Lackey, R.T., *Science, scientists, and policy advocacy*. Conservation Biology, 2007. **21**(1): p. 12-17.
4. Jones, P.C., J.Q. Merritt, and C. Palmer, *Critical thinking and interdisciplinarity in environmental higher education: the case for epistemological and values awareness*. Journal of Geography in Higher Education, 1999. **23**(3): p. 349-357.
5. Joy, K.J., et al., *Watershed Development Review: Issues and Prospects*, 2004, Centre for Interdisciplinary Studies in Environment and Development: Bangalore.
6. Guha, R., *Towards a cross-cultural environmental ethic*, in *Varieties of Environmentalism: Essays North and South*, R. Guha and J. Martinez-Alier, Editors. 1997. p. 77-91.
7. Gadgil, M., *Why conserve living diversity?*, in *The Hindu* 1998: Bangalore.
8. Lélé, S., *Thinking about ecological sustainability*. Seminar, 2006. **565**: p. 48-52.
9. Robbins, P., J. Hintz, and S.A. Moore, *Environment and society: a critical introduction*. Vol. 13. 2011: John Wiley & Sons.

10. Huesemann, M.H., *Can pollution problems be effectively solved by environmental science and technology? An analysis of critical limitations*. Ecological Economics, 2001. **37**(2): p. 271-287.
11. Guha, R., *Lewis Mumford: The forgotten American environmentalist: An essay in rehabilitation*. Capitalism Nature Socialism, 1991. **2**(3): p. 67 - 91.
12. Merchant, C., *The death of nature: Women, ecology, and the scientific revolution*1990: HarperCollins.
13. Lélé, S. and G.T. Hegde, *Potential herblayer production and grazing effects in anthropogenic savannahs in the moist tropical forests of the Western Ghats of India*. Tropical Grasslands, 1997. **31**(6): p. 574-587.
14. Lélé, S., *Degradation, Sustainability, or Transformation: A case study of villagers' use of forest lands in the Malnaad region of Uttara Kannada district, India*, in *Energy & Resources Group*1993, University of California: Berkeley.
15. Lélé, S., *Sustainable use of biomass resources: A note on definitions, criteria, and practical applications*. Energy for Sustainable Development, 1994. **1**(4): p. 42-46.
16. Prabhakar, R., E. Somanathan, and B.S. Mehta, *How degraded are Himalayan forests?* Current Science, 2006. **91**(1): p. 61-67.
17. Somanathan, E., R. Prabhakar, and B.S. Mehta, *Does Decentralization Work? Forest Conservation in the Himalayas*, 2005, Bureau for Research and Economic Analysis of Development: Cambridge.
18. Agrawal, A. and G.N. Yadama, *How do local institutions mediate market and population pressures on resources? Forest panchayats in Kumaon, India*. Development and Change, 1997. **28**: p. 435-465.
19. Scales, I., *Forest Frontiers: The political ecology of landscape change in Western Madagascar*, in *Department of Geography*2008, University of Cambridge: Cambridge.
20. Scales, I.R., *Lost in translation: conflicting views of deforestation, land use and identity in western Madagascar*. The Geographical Journal, 2012. **178**(1): p. 67-79.
21. Turner, M., *Overstocking the range: A critical analysis of the environmental science of Sahelian pastoralism*. Economic Geography, 1993. **69**(4): p. 402-421.
22. Turner, M.D., *Spatial and temporal scaling of grazing impact on the species composition and productivity of Sahelian annual grasslands*. Journal of Arid Environments, 1999. **41**(3): p. 277-297.
23. Turner, M.D., *Political ecology and the moral dimensions of "resource conflicts": the case of farmer-herder conflicts in the Sahel*. Political Geography, 2004. **23**(7): p. 863-889.
24. Srinivasan, V., S.M. Gorelick, and L. Goulder, *A hydrologic-economic modeling approach for analysis of urban water supply dynamics in Chennai, India*. Water Resources Research, 2010. **46**(7): p. W07540.
25. Srinivasan, V., S.M. Gorelick, and L. Goulder, *Factors determining informal tanker water markets in Chennai, India*. Water International, 2010. **35**(3): p. 254-269.
26. Srinivasan, V., S.M. Gorelick, and L. Goulder, *Sustainable urban water supply in south India: Desalination, efficiency improvement, or rainwater harvesting?* Water Resources Research, 2010. **46**(10): p. W10504.
27. Shah, E., *Social Designs: Tank Irrigation Technology and Agrarian Transformation in Karnataka, South India*2003, New Delhi: Orient Longman.
28. Tiffen, M. and M. Mortimore, *Malthus controverted: The role of capital and technology in growth and environment recovery in Kenya*. World Development, 1994. **22**(7): p. 997-1010.

29. Malakoff, D., *Are more people necessarily a problem?* Science, 2011. **333**(6042): p. 544-546.
30. Pielke, R.A., *The Honest Broker* 2006, Cambridge, U.K.: Cambridge University Press.
31. Clark, S.G., et al., *College and University Environmental Programs as a Policy Problem (Part 1): Integrating Knowledge, Education, and Action for a Better World?* Environmental Management, 2011: p. 1-15.
32. Clark, S.G., et al., *College and university environmental programs as a policy problem (part 2): strategies for improvement.* Environmental Management, 2011. **47**(5): p. 716-726.
33. Stott, P., *Tropical Rain Forest: A Political Ecology of Hegemonic myth making*, 1999, The Environment Unit, The Institute of Economic Affairs: London.

POSSIBLE ADDITIONAL READINGS:

[30]

[31, 32]

[33]