

One year Post Graduate Diploma in Natural Resource Management

Programme Structure:

This programme will be 1 year (two Semesters) programme. The Course structure will be as follows.

Semester - I:

Paper Code	Subjects	No. of Credits
PGDNRM1.1	Foundation Course	2
PGDNRM1.2	Common Property Resource Management	4
PGDNRM1.3	Natural Resource for Sustainable Livelihood	4
PGDNRM1.4	Water Harvesting Technologies	4
PGDNRM1.5	Optional Paper	4
PGDNRM1.6	Research Methodology	4
	Total Credits of Semester I	22

Optional Paper: The Student will have to select **one** optional paper from the following

Sr. No.	Paper
1	Extension for Natural Resource Management
2	Legislations for protecting environment in India
3	Natural Resources in India

Note: Some of the topics in the optional paper will be exclusively based on Self study.

Semester - II:

Paper Code	Subjects	No. of Credits
PGDNRM2.1	Project work on any one of the organizations/institutes dealing with Natural Resource Management	8
	Total Credits of Semester II	8

Syllabus for the Programme:

PGDNRM1.1 Foundation Course for Natural Resource Management:

Objective:

This course makes students aware about the Natural Resources and the reasons for its management with emphasis on its role in the development of Rural Areas of India. It is formulated for students who may not have background of Rural India and Natural Resources.

Content:

Rural India- its characteristics and present situation. Problems of Rural India especially of the poor.

Natural Resources- its characteristics, classification, availability and present status of natural resources in India and Gujarat.

Development- concept, characteristics, types, developmental models accepted by India, problems and perspectives of selected models.

Role of Natural Resources in Rural Development with special emphasis on soil, water and forests.

References:

1. Desai, Vasant (1991) Fundamental of Rural Development, Rawat Publication, New Delhi.
2. Prasad, B K (2003) Rural Development: Concept, Approach and Strategy, Sarup and Sons, New Delhi.
3. Rau, S K (2002) Global Search for Rural Development, NIRD, Hyderabad.
4. Satya Sundaram (2002) Rural Development, Himalaya Publication, Mumbai.

PGDNRM1.2 Common Property Resource Management

Objectives :

This paper is designed to give an in depth idea about the common property resources and need for its management with the help of number of case studies from International, national and local study area. It will help students to decide policies suitable for the region for sustainable management of the common property resources.

Unit 1 :

- Concept and methods of CPRM
- Definition and Characteristics of CPRM
- Importance of CPR for the poor: Tragedy of commons
- Need for CPRM

Unit 2 :

- Traditional CPRM systems in India
- CPRM in transitional villages
- Alternatives Resource Management Systems: Privatization, public management and collective management

Unit 3 :

- Management of CPR in selected dry areas of India for animal husbandry and dry farming
- Sukhomajri and Nada: Managing CPR in two villages
- Experiment of Saurashtra Jal Dhara Trust in conservation of water
- Impact of participation in the management of CPR
- Community Forestry- Pre History to Joint Forest management

Unit 4 :

- Conflicts in CPRM
- Conflict resolution cases from local, national and international background.

Unit 5 : Field Visits

REFERENCES

1. Agarwal, R. M. (2000), 'Possibilities and Limitations to Cooperation in Small Groups: The Case of Group-Owned Wells in Southern India,' World Development 28(8): 1481 -1497.
2. Agrawal, A. (2001), 'Common Property Institutions and Sustainable Governance of Resources', World Development Report 29 1649-1672.
3. Agrawal, B. (2000), 'Conceptualizing environmental collective action: why gender matters,' Cambridge Journal of Economics 24: 283-3 10.
Annual conference the International Association for the Study of Common Property (IASCP), Simon Fraser University, Vancouver, British Columbia, Canada, June 10-14,1998.

4. Arnold, J. E. M. (1990), 'Common Property Management and Sustainable Development in India', Working Paper No. 9, Forestry for Sustainable Development Program, Department of Forest Resources, University of Minnesota, St. Paul, MN.
5. Bank, B. C. and P. Kumar (1999), 'National seminar on 'Common Property Resources and Planned Development in Western India: Challenges and prospects'', *Indian Journal of Social Work* 60(3): 4 19-426.
6. Chopra, K., G. K. Kadekodi and M. N. Murty (1989), 'Peoples participation and common property resources', *Economic and Political Weekly* 24(51-52): A189-195
7. Chopra, K., G. K. Kadekodi and M. N. Murty (1990), 'Participatory Development: People and common property resources', Sage Publications, New Delhi.
8. Chopra, K., G. K. Kadekodi and M. N. Murty (1990), 'Participatory Development: People and Common Property Resources', Newbury Park, Sage publications, CA.
9. Dadibhavi, R. V. (2000), 'Management of common property resources: a review and some policy issues', *Journal of Rural Development* 19(2): 199-2 17.
10. n, G. (1998), 'Extensions of the tragedy of the commons', *Science* 280:
Jodha, N. and A. Bhatia (1998), 'Community Management of the Commons: Reempowerment Process and the Gaps', presented at "Crossing Boundaries", the seventh
12. Jodha, N. S. (1990), 'Rural common property resources: Contributions and crisis', *Economic and Political Weekly* 25(26): A65 — A78.
13. Jodha, N. S. (1992), 'Common property resources, A missing dimension of development strategies,' *World Bank Discussion Paper no. 169*, The World Bank, Washington D. C.
14. Jodha, N. S. (1994), 'Management of common property resources in selected dry areas of India', in Kerr, John et al., op cit, pp. 339-361.
15. Jodha, N. S. (1995), 'Common property resources and the dynamics of rural poverty in India's dry regions', *Unasylva* 46(1): 23-29.
16. Jodha, N. S. (1995), 'Common property resources and the environmental context: Role of biophysical versus social stresses', *Economic and Political Weekly* 30(51): 3278-3283.
17. Kothari, A., N. Pathak, R. V. Anuradha and B. Taneja (Eds.) (1998), 'Communities and Conservation: Natural Resource Management in South and Central Asia,' UNESCO and Sage Publications, New Delhi.
18. Mishra, G. P. and B. K. Bajpai (Eds.) (2001), 'Community Participation in Natural Resource Management', Rawat Publications, Jaipur and New Delhi.
19. Pasha, S. A. (1992), 'CPRs and rural poor: a micro level analysis', *Economic and Political Weekly* 27(46): 2499-2503.

20. Poffenberger, M. (Ed.) (1996), 'Communities and Forest Management: A Report of the IUCN Working Group on Community Involvement in Forest Management with Recommendations to the Intergovernmental Panel on Forests', Gland, Switzerland, World Conservation Union (IUCN).
21. Shiva, V. (1986), 'Coming Tragedy of the Commons', *Economic and Political Weekly* 21(15): 613-614.
22. Singh, K. (1994), 'Managing Common Pool Resources: Principles and Case Studies,' Oxford University Press, New Delhi.
23. Singh, K. and V. Ballabh (Eds.) (1996), 'Cooperative Management of Natural Resources', Sage Publications, New Delhi.
24. Srivastava, H. C. and M. K. Chaturvedi (1989), 'Dependency and Common Property Resources of Tribal and Rural Poor,' Commonwealth Publications, New Delhi.

PGDNRM1. 3 : Natural Resources for Sustainable Livelihood

Objectives :

This paper is designed to provide an in depth knowledge about the used of natural resources for providing sustainable livelihood in the rural and tribal areas where otherwise livelihood options are limited. Use of the local resources on sustainable basis will not only conserve the resources but also will be helpful in reducing drudgery of the poor. A number of case studies are included in the paper to give a practical training to the students.

Introduction: Rural Livelihood and Natural Resources

Unit 1 : Micro and macro perspectives of rural livelihood:

Understanding livelihood systems as complex wholes. Economic reforms and the livelihood of rural households: evidence and future prospects

Unit 2 : Risks and opportunities for livelihood security in the villages

1. Core issues in the economy and society. Livestock and Agriculture
2. Technology adoption and farm management in rural livelihood systems.
3. Rural-urban linkages, occupational diversification, and sustainable rural livelihood systems.
4. Role of non-economic motivation in natural resource management.

Unit 3 : Gender issues in livelihood development:

1. The real realities of life: exploring rural livelihood systems from a gender perspective.
2. Gender and leadership for sustainable natural resource management: cases from India

Unit 4 : Indian livelihood systems in transition:

1. Core issues in the agrarian economy and society
2. The threshing floor disappears: rural livelihood systems in transition.
3. From Marey to market: changing faces of rural livelihood systems.
4. Emerging rural leadership and sustainable management of natural resources.
5. Integrating local experiences into watershed interventions: a modern drainage line treatment

Unit 5 : From research to practice:

1. Participatory research on rural livelihoods.
2. Role of GIS in natural resource management.

Unit 6 : Field Visits

REFERENCES

1. Mishra, G. P. and B. K. Bajpai (Eds.) (2001), 'Community Participation in Natural Resource Management', Rawat Publications, Jaipur and New Delhi
2. Poffenberger, M. (1990), 'Joint Management of Forest lands, Experiences from South Asia', Ford Foundation, New Delhi.
3. Agarwal, C. and S. Saigal (1996), 'Joint Forest Management in India: A Brief Review,' Society for Promotion of Wastelands Development, New Delhi, India.
4. Ahmed, S. (1995), 'Who Participates? The Case of Rural Women, an NGO and Joint Forest Management in Gujarat', Working Paper No. 83, Institute of Rural Management, Anand, India.

5. Barry Pound, Sieglinde Snapp, Cynthia McDougall and Ann Braun (Ed) (2003) *Managing Natural Resources for Sustainable Livelihoods Uniting Science and Participation*. Earth Scan, New Delhi.
6. Gupta Anil (1985) *Managing Common properties: Some issues in institutional designs*. IIM working Paper.
7. Jean-Marc Faures and Guido Santini (2008) *Water and the Rural Poor Interventions for improving livelihoods in sub-Saharan Africa*. Food and Agriculture Organization of the United Nations, Rome.
8. K.V. Sundaram, M. Moni and Mrityunjay M. Jha (2004) *Natural Resources Management and Livelihood Security : Survival Strategies and Sustainable Policies*. New Delhi, Concept.
9. Nursadh A (Edt) (2007). *Natural Resource Management and Sustainable Livelihood in North-East India*. New Delhi, Mittal Pub., 2007
10. Richard Matthew, Mark Halle and Jason Switzer (Ed.) (2002) *Conserving the Peace: Resources, Livelihoods and Security*. International Institute for Sustainable Development. Winnipeg, Manitoba, Canada
11. Ruedi Baumgartner and Ruedi Hogger.(Ed) (2004). *In Search of Sustainable Livelihood Systems: Managing Resources and Change*. New Delhi, Sage, 2004.
12. Singh, K. and V. Ballabh (Eds.) (1996), 'Cooperative Management of Natural Resources', Sage Publications, New Delhi.
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PGDNRM1.4 : Water Harvesting Technologies

Objectives :

To introduce students with the importance of water and to inculcate the value of water harvesting and water management under present situation. The course will also give a detail insight in various experiments conducted by people in the country and especially in Gujarat.

Unit 1 : Water Harvesting Technologies

- Need for Water Harvesting (Brief Introduction)
- Traditional Water Harvesting Technologies
 - Tank Methods of South India,
 - Vav, Talao in Gujarat
 - Phad System of Maharashtra.
 - Roof rain water harvesting in Gujarat and Rajasthan
 - Post independence water harvesting

Unit 2 : Recent trends in water harvesting

- Check dams, farm bunds
- Watershed Concept
- Different types of Check dams
- Well recharge
- Bore Recharge
- Farm Ponds

Unit 3 : Water Harvesting in Gujarat

- Modern irrigation Technologies
- Role of GIS in Water Harvesting

Unit 4 : Case studies from Gujarat and other parts of India explaining benefits of Water Harvesting especially in Agricultural production and Dairying

Unit 5 : Field Visits

REFERENCES

1. www.rainwaterharvesting.org
2. Central Public Works Department, (2002) - Rainwater Harvesting and Conservation Manual, Government of India, New Delhi
3. Atharale R.N. (2003) Water Harvesting and Sustainable supply in India, Centre for Environment Education, New Delhi, India
4. Lancaster Brad (2006) Rainwater Harvesting for Drylands and Beyond, Oasis Design, USA
5. Vivekanand Hand Book on Rain Water Harvesting, Vivekanand Kendra, Kanyakumari
6. Oweis T.Y. Rainwater Harvesting for Agriculture in the Dry Areas, CRC Press, London
7. Umashankari and Esha Shah (1993) Water Management Traditions in India, PP ST Foundation, Chennai, India
8. Government of India (2008) Common Guidelines for Watershed Development Project, Government of India, New Delhi

PGDNRM1.5 : OPTIONAL PAPER
Extension For Natural Resource Management

Objectives :

The main objective of this paper is to enable the students to assist local communities and other stake-holders, by formal or non-formal education, to acquire and use the available knowledge, skills, information and technology for their benefit, leading to an improvement in their socio-economic status and quality of life.

Introduction: Rural Livelihood and Natural Resources

Unit 1 : Concepts:

1. Natural Resource Management (NRM): Concept, Issue and Approaches.
2. Need for developing extension strategies for NRM
3. Extension strategy for disaster management.
4. Research in NRM by prioritization approach and techniques.

Unit 2 : Issues and strategies:

1. Issues in management of NRM
2. Case Studies explaining Extension methods adopted for conservation of Soil, Water, Air and Forests in India and world.
3. Monitoring and auditing in Natural Resource Management (NRM).

Unit 3 : Problems, Applications and responsibilities:

1. Problems encountered while advocating strategies for NRM
2. Joint forest management: an approach for Natural Resource Management case study from Gujarat and West Bengal.
3. The role of State and Central Government.
4. Responsibility and involvement of (Corporate sector) Indian agro-chemical industry in Natural Resource Management and ensuring food safety.
5. Context of Natural Resource Management in Urban ecology.

Unit 4 : Field Visits

REFERENCES

1. Adhikary M M, S.K. Acharya and Debabrata Basu. (2007) Extension Strategy on Natural Resource Management, Udaipur, Agrotech Publishing Academy, 2007.
2. Agarwal, C. and S. Saigal (1996), 'Joint Forest Management in India: A Brief Review,' Society for Promotion of Wastelands Development, New Delhi, India.
3. Ahmed, S. (1995), 'Who Participates? The Case of Rural Women, an NGO and Joint Forest Management in Gujarat', Working Paper No. 83, Institute of Rural Management, Anand, India.
4. Mishra, O. P. and B. K. Bajpai (Eds.) (2001), 'Community Participation in Natural Resource Management', Rawat Publications, Jaipur and New Delhi.

5. Poffenberger, M. (1990), 'Joint Management of Forest lands, Experiences from South Asia', Ford Foundation, New Delhi.
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8. Jean-Marc Faures and Guido Santini (2008) *Water and the Rural Poor Interventions for improving livelihoods in sub-Saharan Africa*. Food and Agriculture Organization of the United Nations, Rome.
9. Greg Leach (2007) *Implementing extension in natural resource management: NR&M the Agency, NRM the business*
<http://www.regional.org.au/au/apen/20017n/Leach2.htm>
10. Sharad Singh Negi (2001), *Participatory Natural Resource Management*, Indus Publishing, Delhi.

PGDNRM1.6 : Research Methodology

Objectives:-

This Paper is designed to equip the student with basic elements of Social Survey and Social Research methodology, Data Processing and Out line of Report writing which may be useful to study and analyze the rural issues.

Unit: 1. Research Methodology

- > Selection of Problem Reflective Thinking
- > Statement of Problem
- > Review of Related Literatur (Meaning; Objectives; Sources
- > Subject mater and Scope
- > Types of Social Survey
- > Merits of Social Survey
- > Limitations of Social Survey
- > Planning of Social Survey
- > Pre Testing and Pilot Survey
- > Social Survey and Social Research

Unit: 2. Designing a Research Study

- > Research Concepts
- > Meaning, Characteristics and Functions of Concepts
- > Research Design
- > Elements of Research Design
- > Types of Research Design

Unit: 3. Sampling and Inquiry

1. Purposes of Sampling

- > Principles of Sampling
- > Advantage of Sampling
- > Key Terms in Sampling
- > Types of Sampling
- > Sampling in Qualitative Research

2. Logic of Inquiry

- > Science and Logic
- > Elements of Logical Analysis: Terms, Propositions, Arguments and Syllogisms
- > Validity and Truth
- > Types of Reasoning of Arguments
- > Strategies in Research

Unit: 4. Some Statistical Concepts

1. Variables

- > Quantitative and Qualitative Variables
- > Discrete and Continuous Variables
- > Independent and Dependent Variables
- >

2. Scale

- > Nominal Scale
- > Ordinal Scale
- > Interval Scale
- > Ratio Scale
- > Limitations of Hypothesis

Unit: 5. Data Processing and Report writing

- > Coding, Checking and Editing of Data
- > Classification, Tabulation and Interpretation of Data
- > Report Writing: Introduction, Research Methodology, Analysis of Data, Findings of the Study, Conclusions, Bibliographical References and Appendix

Unit: 6. Field work**References:**

1. Ram Ahuja: Social Survey and Research, Ravat pub., ISBN-81-7033-750-x
2. Research Methodology: Methods and Techniques C.R. Kothari, Wiley Eastern Ltd., New Delhi.
3. Research Methods in Commerce - Amarchand D, Emeraled Publishers, Chennai.
4. Conceptual Foundations of Business Research - Rigley, Paul - H, John Wiley and Sons, New York.
5. Research Methodology in Social Science - B.C. Tandon, Allahabad.
6. Thesis and Assignment writing - Anderson J. berry H.D. & Poole M. Wiley Eastern Limited, New Delhi.
7. Research Methodology Techniques and Trends, Singh Y.K.; R.B. Bajpai, 2007.