

Natural Resources Management (Course Code: NRM 501)

Fall semester, 2018-2019

Coordinator	Om Katel
Credits	5 ECTS (Compulsory course)
Lecturers	Om Katel (Environment and Climate Studies, The College of Natural Resources, Royal University of Bhutan) D. B. Gurung (Forest Science, The College of Natural Resources, Royal University of Bhutan) Penjor (Animal Science, The College of Natural Resources, Royal University of Bhutan)
Level	MSc
Host institution	Department of Forest Science, College of Natural Resources, Royal University of Bhutan
Course duration	August 01 – November 15, 2018

Summary

This 5 ECTS course covers the foundations of natural resources management, Forest as natural resources, Ecological principles of natural resources management, human dimensions of nature, environment and conservation, water and land as natural resources in Asia and Bhutan, society and natural resources, climate change and its impact to natural resources, application of GIS tools in managing the natural resources and including policy instruments for natural resources management. Also this course covers the Statistics of natural resources in Bhutan and how different eco floristic zones is classified in Bhutan and their significance to the natural resources in Bhutan. Also, this course allow students to explore the GIS and remote sensing tools to assess and monitor the natural resources for effective management. It introduces students to the natural resources management in general and then raises questions on how the small countries like Bhutan can manage the limited resources effectively. The course includes several group exercises, such as seminar. The exercises are expected to develop hand on practical skills and have in depth understanding of natural resources management in specific context.

Target student audiences

First year MSc students who have bachelors in Science from a recognized university.

Prerequisites

None but research experience is given priority:

Aims and objectives

The main aim of this course is to equip students with knowledge required to understand the basic concepts of biophysical and human dimensions of natural resources management. Also, this course allow students to explore the GIS and remote sensing tools to assess and monitor the natural resources for effective management. It introduces students to the natural resources management in general and then raises questions on how the small countries like Bhutan can manage the limited resources effectively. The course includes several group exercises, such as seminar. The exercises are expected to develop hand on practical skills and have in depth understanding of natural resources management in specific context. The explanations are based on the examples from the developing

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countries and, where applicable, reflect on options for Bhutan, in particular and also links with their transboundary context.

General learning outcomes:

- By the end of the course, successful students will:
- List the type of natural resources and relate to the drivers of change
- Narrate the principles of natural resources management
- Explain the human dimensions of natural resources and environment
- Analyse the status of natural resources in Asia and associate to society and natural resources
- Design appropriate strategy in managing natural resources using relevant tools and techniques
- Develop relevant strategies in negotiating process in managing conflicts related to natural resources
- Apply GIS tools in mapping, assessing, and monitoring of natural resources

Overview of sessions and teaching methods

The course is delivered in the interactive and self-reflective manner in which teaching and learning and, where possible, avoid teacher centered lectures but encourages students to participate in class presentation through analysis of case studies. The course starts with brief introduction to natural resources management and will continue with class exercises to prepare the students in making them effective communicator. Subsequent sessions will combine interactive lecturing, role-play games, and class debates and quizzes. The focus will be on students' participation and their level of argumentation. The major sections of the study will depend on the case studies used in different contexts.

Course workload

The table below summarizes course workload distribution:

Activities	Learning outcomes	Assessment	Estimated workload (hours)
In-class activities			
Lectures	Understanding theories, concepts, methodology and tools	Class participation	30
Moderated in-class discussions	Understanding various policy and management contexts and common problems in communication in managing natural resources	Class participation and preparedness for discussions	30
In-class assignments	Understanding various policy and management contexts and common problems in communication in environmental governance	Class participation and preparedness for assignments	30
Independent work			
Group work: - Contribution to the case-study projects	Ability to interpret data, to analyze audience, and to use the concepts, tools, and methods for communication in managing natural resources	Quality of group assignments and individual presentations	20

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<ul style="list-style-type: none"> - Contribution to the preparation and delivery of individual presentation - Contribution to the web-application 	Plan and develop a message to nature resource management (NRM) participants, be aware of information visualization tools and methods		
Course group assignment	Ability to conceptualize and frame an environmental governance problem, find related literature and data, interpret data, use the concepts, tools and methods covered in the course, and draw policy/management relevant conclusions	Quality of their presentation	20
Reading and discussion of assigned papers for seminars and preparation for lectures	Familiarity with and ability to critically and creatively discuss key concepts, tools and methods as presented in the literature	Class participation, creative and active contribution to discussion	20
Total			150

Grading

The students' performance will be based on the following:

- Level of preparedness for participation in class discussions and seminars (10 %) (from 100 % for active participation and demonstrated familiarity with the course readings to 0 % for completely ignoring in-class discussions);
- Contribution to Natural Resources Management seminar group assignments (10 %) (from 100% for clearly demonstrated input to 0 % for non-participation);
- Quality of the Presentation (40%)
- Quality of communication strategies (40%)

Course schedule

Day	Time	Topic	Lecturer
August 06 Monday	13:15- 16:15	- Guide to the course – purpose, objectives, learning outcomes, assignment and grading.	Om Katel
August 07 Tuesday	13:15- 15:45	Foundations of Natural Resources Management, - Definition and categories of natural resources -Social, economic.	Om Katel
August 09 Thursday	09:00- 12:00	Ecological and political dimensions of natural resource management	Om Katel
August 15 Wednesday	13:15 – 16:15	-Overview of Natural resources in Asia -Land degradation and conservation	Om Katel
August 17 Friday	09:00- 12:00	-Rural transition and food security -Decentralization and governance	Om Katel
August 21 Tuesday	09:00: 12:00	-Ecological principles of Natural Resources Management	D. B. Gurung

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		- Characteristics of ecosystems, Ecosystem types and biodiversity, Ecological processes in terrestrial ecosystems, Ecosystem services (Ecosystems and human relations), Characteristics of ecosystem services, Evaluation of ecosystem services.	
August 29 Wednesday	13:15- 16:15	- Forest as Natural Resources (Forest biomes of the world, Forest Ecosystem Ecology,	D. B. Gurung
September 5 Wednesday	09:00- 12:00	-Wildlife ecology, Water and land as natural resources in south Asia and in Bhutan,	D. B. Gurung
September 7 Friday	09:00- 12:00	Environmental dilemma: A case study from central Himalaya.	Om Katel
September 10 Tuesday	09:00- 12:00	Landscape ecology: Landscape Patterns; effects of landscape to ecosystems.	Om Katel
September 13 Thursday	09:00- 12:00	Multiple forest resources: NWFP, timber and others.	Om Katel
September 14 Friday	13:15- 16:15	-Human dimensions of nature, environment and conservation.	D. B. Gurung
September 20 Thursday	09:00- 12:00	Human dimensions and methods to analysing real-world environmental issues	Om Katel
September 25 Tuesday	09:00- 12:00	Peoples values, beliefs, attitudes and actions in managing natural resources.	Om Katel
September 27 Thursday	13:15- 16:15	Incorporating human dimensions into conservation and management planning and implementation processes.	Om Katel
October 8 Monday	09:00- 12:00	-Society and Natural Resources, Paradigms and theoretical approaches to the management of common pool natural resources.	Penjor
October 10 Wednesday	13:15- 16:15	The logic of collective action and self-governance, An institutional approach to the study of common pool natural resources	Penjor
October 16 Tuesday	13:15- 16:15	Value, attitudes, and cultural perspectives and their effects on natural resources, Conflicts and controversies.	Om Katel
October 31 Tuesday	13:15- 16:15	- Reports by assignment groups	Om Katel

Course assignments

Course assignments will constitute a project:

- Assignment #1 (mostly in-class) – a debate on natural resources management issues in Asia
- Assignment #2 (mostly in-class) – Linking society and natural resources management – a proposal for locally led natural resources management approach
- Assignment #3 – Development of strategies for local communities, which can be used for effective management of natural resources.

To complete the assignments the class will be divided into several groups. **Assignment #1** will help students to understand the scope of the problem, rules of the game and understand

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stakeholder perspectives. The outcome of the first assignment is to develop a deeper understanding of the status of natural resources management such as land, water and forests in Asia. (ppts and oral presentations will be used during the class).

Assignment #2 will link Assignment #1, and do a research on whether the conflicts of management of natural resources differs in different parts of the world with respect to their values and practices.

Assignment #3 is based on the previous assignments. Now the students will have to propose a communication package for local leaders and communities who would self-organize to manage the resources effectively. The group work output can be in a form written assignment but students will also have to do a role play or ppt presentation.

Literature

- Campbell, B. M. and Sayer, J. A. (2003). Integrated Natural Resource Management, CABI Publishing, 2003.
- Corvette, B. A. B. (2014). Conflict Management: A Practical Guide to Developing Negotiation Strategies First Edition, Pearson New International Edition International.
- Ives, J. D and Messerli, B. (1989). The Himalayan Dilemma: Reconciling Development and Conservation. United Nations University Publications.
- Singh, C. K. (2018). Geospatial Applications for Natural Resources Management. Publisher: CRC Press.
- Wester, P., Mishra, A., Mukherje, A., and Shrestha, A. B. (2019) eds. The Hindu Kush Himalaya Assessment: Mountains, Climate Change, Sustainability and People. Springer Publication.
- Young, R. A. and Giese, R. L. (2003). Introduction to forest Ecosystem Science and Management.
- Magurran, A. E. (1988). Ecological diversity and its measurement, Princeton University press, Princeton.

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