

# Course outline

**Wollo-University department of natural resources management**

Courses Title **Climate Change Adaptation and Mitigation**

Courses code NaRM3121

Degree Program **BSc in Natural Resources Management**

Instructors Melkam Alewoye (alewoyemelkam15@gmail.com)

Credit (CP) **3(3+0)**

Module NaRM3121

Competence

□ □ □ The student will be able make an intervention on climate `Change mitigation and adaptation mechanisms.

## **Objective:**

□ □ Be able to demonstrate a thorough knowledge of past and present climates; the state of knowledge on likely climate change scenarios, mitigation and adaptation efforts.

Year 3 semester 2

## **Pre-requisites Introduction to Environmental Science and Climatology**

### **Course description**

Concepts of climate change and variability; historical climate change; causes; evidence of change; climate change and the society; vulnerability to the impacts of climate change; Impacts of climate changes on terrestrial and freshwater ecosystems, agriculture, human health and economy; adaptation and adaptive capacity; mitigation and mitigative capacity, international conventions and protocols on climate change; international concerns: policy responses, adaptation mechanisms to climate (agronomic practices, soil and water management, Adaptation mechanisms(conservation agriculture, pasture management, selecting animal breeds and crop varieties that can adapt to climate changes); Mechanisms for carbon trading. engineering for efficiency and sustainability, carbon capture and sequestration. The Ethiopian climate change

Adaptation strategies.

**Course objective:** at the end of the course students should be able to

- □ Define climate change and variability and account for the causes of climate change,
- □ Comprehend the actual and projected impacts of climate change
- □ Understand the vulnerability and adaptation and adaptive capacity of the actual and

Projected impacts of climate change.

- ☐ ☐ Intelligently and quantitatively discuss the pros and cons of the climate change
- ☐ ☐ Understand international conventions on climate change
- ☐ ☐ Realize concerns regarding sharing responsibilities and policy responses on mitigation of climate change as well as adaption.

### Course outline

weeks	Course Contents to be covered	Remark
<b>1-3</b>	<b>Chapter 1 introduction</b>	
	1.1. Climate change and variability (definition) 1.2. Past, present and future predictions of climate change 1.3. Evidences of climate change 1.4. Why climate change is a global issue? 1.5. Climate change and society	
<b>4-6</b>	<b>2. Drivers of climate change</b> 2.1. Natural causes 2.2. Anthropogenic drivers 2.2.1. Technological development and transportation 2.2.2. Increased world industrial activities 2.2.3. Material and energy consumption growth 2.2.4. Land use change and deforestation	
<b>7-9</b>	<b>Chapter 3. Vulnerability to and Impacts of climate change</b> 3.1. Vulnerability 3.2. observed and projected impacts on natural ecosystem 3.3. Impacts of climate change on agricultural system 3.4. Impacts of climate change on human health 3.5. Climate change impacts on sustainable development	
<b>10-11</b>	<b>Chapter 4. Adaptive capacity and adaptation to climate change</b> 4.1. Adaptive capacity	

	4.2. Adaptation	
<b>12-13</b>	<b>Chapter 5. Climate change mitigation strategies</b> 5.1. Carbon sequestration 5.2. Reduced emission 5.3. Carbon trading	
<b>14-15</b>	<b>Chapter 6. Global policies, Conventions and protocols on climate change</b> 6.1. Adaptation policy 6.2. Montreal 6.3. United Nations Framework Convention on Climate Change 6.4. Kyoto protocol 6.5. Issues of concern: sharing responsibility, policy response, carbon trade	
<b>16</b>	<b>Chapter 7. An overview of climate change adaptation strategy of Ethiopia</b>	

### **Mode of delivery**

PowerPoint, Flipchart presentations, Case studies, Field excursions and exercises, lectures, Audio-Visual aids, Policy briefs (lecture, practicum, lab, term paper, group work, field tour, etc.)

### **Assessment/Evaluation**

Assessment is carried out both as a continuous process during course delivery, which constitutes

50% weight in the total mark and final exam, which constitutes maximum of 50%.

The assessment methods involved are summarized as follow:

- ☐ ☐ Continuous assessment [Quiz, Test results, Group assignment reports, Individual assignment reports, Practical session participation/Field work or visit, Project work, Class activity]
- ☐ ☐ Final exam

**Attendance requirement:** 85 % Lecture, 100% Practical

## **References**

FDRE, 2001. Initial National Communication of Ethiopia to the United Nations Framework Convention on Climate Change (UNFCCC), Addis Ababa, Ethiopia.

FDRE.1998. National Action Program to Combat Desertification. Addis Ababa.  
IPCC (Intergovernmental panel on climate change). 2007. Climate change impacts, adaptation and vulnerability: the Working Group II contribution to the IPCC Fourth Assessment Report. <http://www.ipcc-wg2.org/>.

\_ IPCC 2001. Climate Change 2001: Impacts, Adaptation and Vulnerability.  
[http://www.grida.no/climate/ipcc\\_tar/wg2/index.htm](http://www.grida.no/climate/ipcc_tar/wg2/index.htm), last visited August 2007.

\_ IPCC 2001. Climate change: The Scientific Basis.

\_ Kurukulasuriya P. and Rosenthal S. 2003. Climate Change and Agriculture: A review of impacts and adaptations. Climate change series. Paper No. 91.

\_ Nkomo, J. C., Nyong, A. O., and. Kulindwa, K 2006. The impacts of climate change in Africa. Final Draft Submitted to 'The Stern Review on the Economics of Climate Change'. From the Internet

\_ Rasmussen, K. (2001): Effects of climate change on agriculture and environment in the semi-arid tropics - with Senegal as an example. In Jørgensen, A.M.K., Fenger, J. &

Halsnæs, K. (2001): Climate Change Research - Danish Contributions: 331 - 340. Danish Meteorological Institute, Copenhagen.

# Course outline

## **Wollo-University department of natural resources management**

Courses Title Environment and Development NaRM3151

Courses code NaRM3151

Degree Program **BSc in Natural Resource Management**

Instructors Melkam Alewoye (alewoyemelkam15@gmail.com)

Credit (CP) **3(3+0)**

Module NaRM 3151

Course objectives and Competence to be acquired

- ☐ At the end of the semester students would be able to:
- ☐ Define natural resources classify them and explain their role in human Civilization; explain natural resources endowment of Ethiopia, and their Development opportunity
- ☐ Describe and explain population, environment, development and the Interrelationship between them
- ☐ understand the concept of sustainable development
- ☐ Explain how human action can develop resource and how human Intervention may accelerate resource degradations
- ☐ Recognize the impact of unsustainable economic development and Utilization
- ☐ Show how various biophysical resources affect the social economic and cultural development of a population

Year /semester 3

## **Pre-requisites Introduction to Environmental Science**

Course description

This course is designed to make students acquaint with the meaning and link between population, environment and development; classification of natural resources based on different approaches and natural resources basis of Ethiopia. Human population-natural resources dilemma: Malthusian and Bosrup theories; Kuznets curve and other theories of sustainable development will be explored. And It also deals with environmental changes

introduced due to miss consumption of resources as well as its impact on society and the environment.

### Course outline

weeks	Chapter and topics to be covered	Remark
1-2	<b>Chapter 1. Introduction</b>	
	1.1 The link b/n population and environment <b>Chapter Two: Classification of natural resources</b> 2.1 Basis for classification 2.1.1 Based on origin (biotic and abiotic) 2.1.2 Based on stage of development 2.1.3 Based on renewability	
3-4	<b>Chapter three: Natural resources basis of Ethiopia</b> 3.1 Climate 3.2 Water and drainage basin 3.3 Forest and tree species 3.4 Wildlife and parks 3.5 Mineral resources and soils <b>Discussion, quiz, reading assignment and presentation</b>	
5-6	<b>Chapter four: Population demography</b> 4.1 Historical perspective of population demography 4.2 Demographic variables 4.2.1 Total population increase 4.2.2 Natural and migratory increase 4.2.3 Population structure 4.2.4 population pyramids 4.3 Demographic transition <b>Discussion, quiz, reading assignment and presentation</b>	
7-8	<b>Chapter five: Theory of population growth and the environment</b> 5.1 Population growth as an issue 5.2 Framing the debate 5.2.1 Malthusian theory 5.2.2 Bousrup's theory	
9-10	5.3 Poverty and population growth 5.3.1 Poverty 5.3.2 Poverty versus population growth 5.4 Population and economic growth	
11-13	5.5 Economic development 5.5.1 Basic concept of development 5.5.2 Sustainable development	

	5.5.3 Challenges to sustainable development 5.6 Population, environment and development; the link 5.6.1 Down word spiral hypothesis 5.6.2 The Kuznets curve 5.6.3 Beckerman hypothesis 5.6.4 Porter hypothesis <b>Discussion, quiz, reading assignment/ project work and presentation</b>	
<b>14-16</b>	Chapter six: Human activities and Environmental change 6.1 Why the environment change 6.2 Impact of environmental change 6.3 Consequences of human induced environmental change 6.3.1 Land degradation 6.3.2 Land degradation and food insecurity 6.4 Relationships between environment and poverty 6.4.1 Environment-poverty-environment nexus 6.4.2 Environment-poverty myths <b>Discussion, quiz, reading assignment and presentation</b>	

### **Mode of delivery**

PowerPoint, Flipchart presentations, Case studies, Field excursions and exercises, lectures, Audio-Visual aids, Policy briefs (lecture, practicum, lab, term paper, group work, field tour, etc.)

### **Assessment/Evaluation**

Assessment is carried out both as a continuous process during course delivery, which constitutes 50% weight in the total mark and final exam, which constitutes maximum of 50%.

The assessment methods involved are summarized as follow:

- ☐ ☐ Continuous assessment [Quiz, Test results, Group assignment reports, Individual assignment reports, Practical session participation/Field work or visit, Project work, Class activity]
- ☐ ☐ Final exam

**Attendance requirement:** 85 % Lecture, 100% Practical

## References

Boserup, E.1965. condition of agricultural growth, the economics of agrarian change under population pressure New York: Aldine publishing co.

Stephen D. Mink 1993. Poverty, Population, and the Environment pp.37.

**FDRE 2003. State of environmental report of Ethiopia AA ETHIOPIA.**



## Course outline

**Wollo-University department of natural resources management**

Courses Title **Natural Resources policy and law**

Courses code NaRM3152

Degree Program **BSc in Natural Resource Management**

Instructors Melkam Alewoye (alewoyemelkam15@gmail.com)

Credit (CP) **3(3+0)**

### **Objectives and Competence to be acquired**

At the end of the course students will be able to:

- ☐ ☐ Grasp the role of natural resources in society and economic development & The importance of appropriate policies and laws for sustainable resource management.
- ☐ ☐ Understand the status of Ethiopian natural resources and issues and problems associated with them
- ☐ ☐ Recognize the incidence of conflict over natural resource & the role of the state and Community institutions in conflict management.
- ☐ ☐ Be familiar with terms, concepts, theories & models of public policy making, and Identify the various stages in policy making, including implementation & evaluation
- ☐ ☐ Appreciate Ethiopia's experience in natural resource policy making, study the contents Of the existing natural resource policies, laws & associated constraints.

Year /semester 3

### **Course statues compulsory**

### **Course descriptions**

This course is designed to introduce students with sustainable use and management of Natural resources through policy formulation, analysis, implementation and enforcement Of natural resources policies and laws. It further explains existing national and International environmental policies and laws; constraints and opportunities of natural Resources policy of Ethiopia.

<b>weeks</b>	<b>Chapters and topics</b>	<b>Remark</b>
<b>1</b>	<b>Chapter 1. Natural Resources put in context</b> 1.1 Definition & the Role of Natural Resources in Economic Development 1.2 Status of Ethiopian natural resources and the issue of sustainability	
<b>2-8</b>	<b>Chapter Two: Policy Making and implementation</b> 2.1 Definition of policy, law and major principles of legal procedures 2.1.1 Critical relation of policy and law 2.2 General Characteristics, policy goals & objectives 2.3 Approaches and models of policy making 2.4 Policy formulation and analysis 2.5 Policy advocacy and Appraisal 2.6 Policy Implementation & performance Evaluation	
<b>9-13</b>	<b>Chapter three: The Ethiopian Experience of Natural Resource policy making</b> 3.1 Resource base and the need for policy making 3.1.1 The policy goal, objectives and guiding principles 3.1.2 Government Tradition & State Capacity for policy making 3.2 The sectorial natural resource policies & laws of Ethiopia 3.2.1 Forest Policy and Law 3.2.2 Wildlife Policy and Law 3.2.3 Land use and Land Administration Policy and Law 3.2.4 Water policy and Strategy 3.2.5 Environmental policy and law 3.3 International Environmental policy	
<b>14-16</b>	<b>Chapter Four: Issues, constraints &amp; opportunities in NR mgt in Ethiopia</b> <b>Seminar, discussion, presentation</b>	

### **Mode of delivery**

PowerPoint, Flipchart presentations, Case studies, Field excursions and exercises, lectures, Audio-Visual aids, Policy briefs (lecture, practicum, lab, term paper, group work, field tour, etc.)

### **Assessment/Evaluation**

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50% weight in the total mark and final exam, which constitutes maximum of 50%.

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☐ ☐ Continuous assessment [Quiz, Test results, Group assignment reports, Individual assignment reports, Practical session participation/Field work or visit, Project work, Class activity]

☐ ☐ Final exam

**Attendance requirement:** 85 % Lecture, 100% Practical

### **References**

[www.epa.org](http://www.epa.org) National and International Environmental policies and Laws  
NUsadh Ali (2002) NRM ad sustainable development in India

# Course outline

**Wollo-University department of natural resources management**

Courses Title **participatory natural resources and conflict management**

Courses code **NaRM 3153**

Degree Program **BSc in Natural Resource Management**

Instructors Melkam Alewoye (alewoyemelkam15@gmail.com)

Credit hour **3**

## **Competence**

- ✓ The student will be able understand the concept of natural resources and apply different strategies to resolve conflict over resource utilization

## **Objective:**

At the end of the course students will:

- ✂ Grasp the principles and importance of participation and participatory natural resources management
- ✂ Understand and apply different methods to promote participation
- ✂ Have the capacity to monitor and evaluate participatory natural resource management projects
- ✂ Evaluate local conditions, opportunities and constraints for participation
- ✂ Describe the basic theories of conflicts and conflict management
- ✂ Explain the relevance and limitation of different conflict resolution mechanisms
- ✂ Gain the necessary knowledge to resolve disputes in amicable means and mechanisms

Explain the role of negotiation in conflict resolution

- ✂ Analyze and demonstrate the process of interest based negotiation

- ✂ Describe the various roles a third party can play

Effectively evaluate various models of alternative dispute resolution

Year /semester 3

**Pre-requisite none**

## **Course description**

The course PNR and conflict management is designed to equip necessary knowledge and skills participatory managing resources and conflict resolution in

general, It also enables the student to develop approach and tools for facilitating and empowering community. In light with Conceptual specifications of participation; natural resources governance and levels of participation; establishment and application of participatory natural resources management projects and programs; participatory approaches; commonly used participatory approaches; conflict and theoretical background to the concept of conflict; nature and functions of conflict; characteristics and consequences of conflict; conflict approaches; conflict dynamics; conducting conflict assessment; conflict prevention and conflict resolution strategies; alternative dispute resolution mechanisms (ADRM); finally, it deals with negotiation and principles of negotiation; positional and interest based negotiation; hardened soft positional bargaining are discussed in this course.

### Course outline

weeks	Course Contents to be covered	Remark
1-2	<b>Cha-1. Conceptual specifications</b> 1.1. Meaning of participation 1.2. Community participation and community contribution 1.3. Community empowerment 1.4. Typology of participation 1.5 Principles of participation 1.6. Challenges for effective participation 1.7. Ways to insure effective participation 1.8. Advantages of participation	
3-4	<b>Cha-2. Natural Resource Governance and Levels of Participation</b> 2.1. The concept of natural resource governance 2.2 Levels of participation in natural resource management 2.3. Enabling environment for participation – decentralization of natural resources 2.4. Empowerment of women and gender equity in participatory natural resource management	
5-8	<b>Cha-3. Establishment and Application of Participatory Natural Resource Management (PNRM) Projects and Programs.</b> 3.1 Stages of PNRM project/program establishment 3.2. Stakeholder analysis 3.3. Tools and methods for working with communities	

	<p>3.4. Participatory monitoring and evaluation of natural resource management projects and programs</p> <p>3.5.1. Why monitoring and evaluation?</p> <p>3.5.2. The process of participatory monitoring and evaluation</p>	
9-10	<p><b>Cha-4. Participatory Approaches</b></p> <p>4.1. . Participatory development vs. participation-in development</p> <p>4.2 Why practice participatory approaches</p> <p>4.3. Advantages of participatory approaches</p> <p>4.4. Difficulties in implementing participatory approaches</p> <p>4.5. Commonly used participatory approaches</p> <p>4.6. 1Rapid Rural Appraisal (RRA)</p> <p>4.6.2. Participatory Rural Appraisal (PRA)</p> <p>4.6.3. Participatory Action Research (PAR)</p> <p>4.6.4. Appreciative Inquiry (AI)</p>	
11-14	<p><b>Cha-5. Conflict</b></p> <p>5.1. concept of conflict the dialectical, functional, exchange and structural models of conflict;</p> <p>5.2. Nature of conflict</p> <p>5.3. Functions of conflict</p> <p>5.4. Some important terminologies of conflict and conflict resolution</p> <p>5.5. what causes conflicts and disputes</p> <p>5.6. the circle of conflict</p> <p>5.7. characteristic and consequences of conflict</p> <p>5.8. cycle of escalation of conflict</p> <p>5.9. conflict approaches</p> <p><b>Cha-6. Conflict Dynamics</b></p> <p>6.1. Conflict Dynamics</p> <p>6. 2 conflict outcomes</p> <p>6.3 symmetric and asymmetric conflicts</p> <p>6.4 strategies of conflict</p> <p><b>7. Conducting Conflict Assessment</b></p> <p>7.1. The practice of conflict assessment</p> <p>7.3. why conflict assessments are essential</p> <p>7.4. the pitfalls of proceeding without conflict assessment</p> <p>7.5. how to conduct a conflict assessment;</p> <p><b>Cha-8. Conflict Prevention and Conflict Resolution Strategies</b></p> <p>8.1. frequent sources of conflict</p> <p>8.2. strategies of conflict (boundary-setting strategy, communication strategy, supportiveness strategy, other strategies)</p> <p>8.3. conflict transformation</p> <p><b>Cha-9. Alternative Dispute Resolution Mechanisms</b></p> <p>9.1 a brief history of ADR</p>	

	9.2 characteristics of ADR approaches 9.3 goals and possible users of ADR 9.4 communication; mediation; arbitration; etc 9.5 Litigation in natural resources conflict management 9.6 Participatory approaches as conflict management tools	
<b>13-16</b>	<b>Cha-10. Negotiation and Principles of Negotiation</b> 10.1. what is negotiation 10.2. position and interests 10.3. positional negotiation 10.4. interest based negotiation 10.5. don't argue over positions 10.6. hard and soft positional bargaining 10.7. Methods of negotiation 10.7.1. separate people from the problem 10.7.2. focus on interests not positions 10.7.3. invent options on mutual gain	

### **Assessment/Evaluation**

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- ☐ Final exam

**Attendance requirement:** 85 % Lecture, 100% Practical

### **Reference:**

- Carpenter, S.L. & Kennedy, W.J.D. (1988). Managing public disputes. San Francisco: Jossey-Bass.
- FAO (1998). Integrating conflict management considerations into national policy frameworks
- FAO. (2000). Conflict and Natural Resource Management
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- Kumar, S. (2002). Methods for Community Participation. Vistaar publications, New Delhi.
- Sithole, B. (1998). Making sense in micro-politics in multiple stakeholders groups: A participatory methods guide for researchers and development practitioner
- USAID. (1998). Alternative Dispute Resolution Practitioner's Guide. Technical publication series. Washington, D.C.