

KSH 343 Management of Environmental Services and Impact Control

Credit	:	2(2-0)
Semester	:	6 (even)
Course format	:	100 minutes per week. 13 weeks.
Pre-requisite	:	-
Lecturers	:	Mr. Agus Priyono, MS (Course coordinator) Mrs. Siti Badriyah Rushayati, MSi Dr. Endes N Dahlan, MS

Course Description

This course describes environmental services such as water system regulation, oxygen supplier, decreasing air pollutants, maintenance of soil fertility, biodiversity, prevention of erosion and flood and environment as ecotourism service supplier. Furthermore, this course also explains how to manage environmental services and controlling the impacts of environmental services for sustainable utilization.

Course Objectives

This course is designed to allow students to recognize environmental services such as water system regulation, oxygen supplier, decreasing air pollutants, maintenance of soil fertility, biodiversity, prevention of erosion and flood and environment as ecotourism service supplier. The students are also expected to understand how to manage environmental services and controlling the impacts of environmental services for sustainable utilization.

Learning Outcomes

1. General learning outcomes

Upon successful completion of this course the students will be able to:

Explain, manage and control environmental services utilization to produce sustainable utilization.

2. Specific learning outcomes

Upon successful completion of this course the students will be able to:

Identify the potentials of environmental services, environmental service utilization and management and able to implement programmes on environmental services activities controls.

Structure of Course Delivery

1. Lectures and discussions.
2. Individual and group assignments

Major References

1. Andrianto, T.T. 2002. Audit Lingkungan. Global Pustaka Utama. Yogyakarta.
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12. Murdiyarso D. 2003. Sepuluh Tahun Konvensi Perubahan Iklim. Penerbit Buku Kompas. Jakarta.
13. Oemarsono, H. dan A. Kristanto A. 1993. Upaya Penanggulangan Sedimentasi pada waduk : model pengalaman pelaksanaan penghijauan rehabilitasi lahan dan konservasi tanah di Kabupaten Wonogiri. Pemda Kabupaten Tingkat II Wonogiri. Jawa Tengah.
14. Prawiwardoyo, S. 1996. Meteorologi. Penerbit ITB Bandung. Bandung.

15. Pusposutardjo, S dan Sahid S. 1993. Perspektif dari Pengembangan Manajemen Sumber Air dan Irigasi untuk Pengembangan Pertanian (kumpulan karangan). Liberty. Yogyakarta.
16. Salim, E. 1986. Pembangunan Berwawasan Lingkungan. PT. Pustaka LP3ES Indonesia. Jakarta.
17. Sastrapradja, S. Dkk. 1992. Khazanah Flora dan Fauna Nusantara. Yayasan Obor Indonesia. Jakarta.
18. Shiva, V. Dkk. 1993. Perspektif Sosial dan Ekologi Keragaman Hayati. KHONPALINDO. Jakarta.
19. Soemarwoto, O. 1999. Analisis mengenai Dampak Lingkungan. Gadjah mada University Press. Yogyakarta.
20. Soemarwoto, O. 2001. Atur Diri Sendiri : Paradigma Baru Pengelolaan lingkungan Hidup (Pembangunan ramah lingkungan, berpihak pada rakyat, ekonomi berkelanjutan). Gadjah Mada University Press. Yogyakarta.
21. Suratmo, F.G. 1993. Analisis mengenai Dampak Lingkungan. Gadjah Mada University Press. Yogyakarta.

Teaching Material Support

The choice of media and type of technology use include:

1. Face-to-face contact.
2. Printed power point presentation.
3. Legal materials. Regulations (Act No.32 year 2009, legislations on EIS and water resources management, etc),
4. Computer
5. Projector Infocus

Course Outline

Topics	Sub-topics	Bloom's Taxonomy	Week
Introduction	<ol style="list-style-type: none"> 1. Lecture conduct 2. Definition of environmental services 3. Definition of impact controlling 4. Wants and needs 5. meaning of environmental management and impact controlling 	C1	1
Environmental services for regulating water system, maintenance of	<ol style="list-style-type: none"> 1. Hydrological cycle 2. Nutrient cycle 3. Watershed ecosystem 4. Environment as regulator of water system 5. Environment for maintenance of soil fertility and 	C1, C2	2

Topics	Sub-topics	Bloom's Taxonomy	Week
soil fertility and prevention of erosion and flood	prevention of erosion and flood		
Environmental services in increasing air quality	1. Meaning of air quality 2. Environmental capacity especially forest in decreasing air pollutants	C1, C2	3
Environmental services in preventing erosion and flood	1. Watershed management concept 2. Determinant factors for erosion and flood 3. Erosion prevention 4. Linkages between forest, climate, erosion and flood	C1, C2	4
Environmental services in regulating micro and global climates	1. Meaning of climate and weather 2. Role of forest in establishing microclimate 3. Role of forest in preventing local, regional and global climate change	C1, C2	5
Environmental services for ecotourism	1. Types of ecotourism 2. Forest utilization for ecotourism	C1, C2, C3	6
Environmental services as source of biodiversity	1. Environmental services, especially forest as source of biodiversity 2. Benefits of biodiversity	C1, C2	7
Environmental services management through environmental impact assessment analysis	1. Meaning and role of Environmental Impact Assessment (EIA) 2. EIS methodology (scope and framework, impact estimation, environmental risk analysis and evaluation of impact and risk) 3. Project management	C1, C2	8
Environmental services management through environmental audit	1. Environmental audit policy 2. Basic principles of environmental audit 3. Various aspects of environmental audit 4. Materials and evaluations of environmental audit	C1, C2, C3, C4	9
Environmental services management through Clean Development Mechanism	1. Definition of Clean Development mechanism (CDM) 2. CDM in global and national perspectives 3. CDM institution 4. CDM project cycle 5. CDM in forestry sector	C1, C2, C3	10
Environmental services management through Carbon Trade	1. Meaning of carbon trade 2. Calculating carbon trade 3. Carbon trade as one kind of environmental service management	C1, C2, C3	11
Scarcity of oil and gas fuels	1. Increased energy needs and utilization that cause energy scarcity 2. Alternative types of energy for replacement	C1, C2, C3	12
Environmental services management	1. Self management for environmental friendly development 2. Transitioning ADA (Regulate and Monitor) to ADS	C1, C2	13

Topics	Sub-topics	Bloom's Taxonomy	Week
through Self-management environmental management method	(Self management)		

Potential Course Overlap

Potential overlap may occur with topics offered in Environmental Pollution (KSH341) although with different emphasis and in-depth focus.

Evaluation and Grading

1. Midterm examination

Midterm examination will be held during examination period scheduled by Registrar's office (after 7 weeks lecture). Each exam is composed 100% essay. Length of the exam is 90-120 minutes. The exam will cover course topics delivered in week 1-7. A key and score will be attached on announcement board after exam paper is graded.

2. Final examination

Final examination will be held during examination period scheduled by Registrar's office (after 14 weeks lecture). Each exam is composed Multiple Choice (25) and essay (10). Length of the exam is 90-120 minutes. The exam will cover course topics delivered in week 8-14. A key and score will be attached on announcement board after exam paper is graded.

3. Assigned paper

Group of student are required to submit assigned papers. This assigned papers or reports are objected to help students make connection between lecture material and field application, through case study reports. The due date of the reports submission is one week after during lecture period. Standardized format for paper writing is expected. The reports are graded based on formulas and calculation format.

Compositions of grading are as follows:

Assessment Tools	Maximum Score	% of Grade
Midterm Examination	100	35
Final Examination	100	40
Assigned papers	100	25

Final grade classification: A (≥ 75); B (65 – 74); C (55 – 64); D (≤ 54)

**Coverage of DFORCE Core Competence
in Management of Environmental Services and Impact Control (KSH 343)**

Code : KSH 343

Course : Management of Environmental Services and Impact Control

Credit : 2(2-0)

Code	Core Competencies	Course Content Covered	Cognitive Level	Topic
I	Students will be able to understand reasons for environmental problems and meaning of environmental services and impact controlling	Lecture conduct	C1	Introduction
		Definition of environmental services		
		Definition of impact controlling		
		Wants and needs		
II	Students will be able to understand function of environmental services for regulating water system, maintaining soil fertility and preventing erosion and flood	Meaning of environmental management and impact controlling	C1, C2	Environmental services for regulating water system, maintenance of soil fertility and prevention of erosion and flood
		Hydrological cycle		
		Nutrient cycle		
		Watershed ecosystem		
III	Students will be able to understand function of environmental services in increasing air quality	Environment as regulator of water system	C1, C2	Environmental services in increasing air quality
		Environment for maintenance of soil fertility and prevention of erosion and flood		
IV	Students will be able to understand function of environmental services for preventing erosion and flood	Meaning of air quality	C1, C2	Environmental services in preventing erosion and flood
		Environmental capacity especially forest in decreasing air pollutants		
		Watershed management concept		
		Determinant factors for erosion and flood		
		Erosion prevention		

Code	Core Competencies	Course Content Covered	Cognitive Level	Topic
		Linkages between forest, climate, erosion and flood		
V	Students will be able to understand function of environmental services for regulating climate	Meaning of climate and weather Role of forest in establishing microclimate Role of forest in preventing local, regional and global climate change	C1, C2	Environmental services in regulating micro and global climates
VI	Students will be able to understand the use of environmental services for ecotourism	Types of ecotourism Forest utilization or ecotourism	C1, C2, C3	Environmental services for ecotourism
VII	Students will be able to understand function of environmental services source of biodiversity	Environmental services, especially forest as source of biodiversity Benefits of biodiversity	C1, C2	Environmental services as source of biodiversity
VIII	Students will be able to understand and apply environmental services management through Environmental Impact Assessment analysis	Meaning and role of Environmental Impact Assessment (EIA) EIS methodology (scope and framework, impact estimation, environmental risk analysis and evaluation of impact and risk) Project management	C1, C2	Environmental services management through environmental impact assessment analysis
IX	Students will be able to understand and apply environmental services through environmental audit	Environmental audit policy Basic principles of environmental audit Various aspects of environmental audit Materials and evaluations of environmental audit	C1, C2, C3, C4	Environmental services management through environmental audit
X	Students will be able to understand and apply environmental service management through Clean Development Mechanism	Definition of Clean Development mechanism (CDM) CDM in global and national perspectives CDM institution CDM project cycle	C1, C2, C3	Environmental services management through Clean Development Mechanism

Code	Core Competencies	Course Content Covered	Cognitive Level	Topic
		CDM in forestry sector		
XI	Students will be able to understand and apply environmental service management through Carbon Trade	Meaning of carbon trade Calculating carbon trade Carbon trade as one kind of environmental service management	C1, C2, C3	Environmental services management through Carbon Trade
XII	Students will be able to understand energy scarcity and alternative energy and potential future sources of energy in the	Increased energy needs and utilization that cause energy scarcity Alternative types of energy for replacement	C1, C2	Scarcity of oil and gas fuels
XIII	Students will be able to understand and apply environmental services management using ADS (Self management) method	Self management for environmental friendly development Transitioning ADA (Regulate and Monitor) to ADS (Self management)	C1, C2, C3	Environmental services management through Self-management environmental management method

**Assessment Tools to Measure the Achievement of
Learning Outcomes in Management of Environmental Services and Impact Control (KSH 343)**

Code : KSH 343

Course : Management of Environmental Services and Impact Control

Credit : 2(2-0)

Code	Core Competencies	Learning Outcome	Bloom's Taxonomy	Assessment Tool(s)	Learning Activities
I	Students will be able to understand reasons for environmental problems and meaning of environmental services and impact controlling	Students will be able to explain reasons for environmental problems and meaning of environmental services and impact controlling	C1	Written examinations at different cognitive level (mid-term exam).	Classroom lecture and discussion
II	Students will be able to understand function of environmental services for regulating water system, maintaining soil fertility and preventing erosion and flood	Students will be able to explain function of environmental services for regulating water system, maintaining soil fertility and preventing erosion and flood	C1, C2	Written examinations at different cognitive level (mid-term exam).	Classroom lecture and discussion
III	Students will be able to understand function of environmental services in increasing air quality	Students will be able to explain function of environmental services in increasing air quality	C1, C2	Written examinations at different cognitive level (mid-term exam).	Classroom lecture and discussion
IV	Students will be able to understand function of environmental services for preventing erosion and flood	Students will be able to explain function of environmental services for preventing erosion and flood	C1, C2	Written examinations at different cognitive level (mid-term exam).	Classroom lecture and discussion
V	Students will be able to understand function of environmental services	Students will be able to explain function of environmental services	C1, C2	Written examinations at different cognitive level (mid-term exam).	Classroom lecture and discussion

Code	Core Competencies	Learning Outcome	Bloom's Taxonomy	Assessment Tool(s)	Learning Activities
	for regulating climate	for regulating climate			
VI	Students will be able to understand the use of environmental services for ecotourism	Students will be able to explain the use of environmental services for ecotourism	C1, C2, C3	Written examinations at different cognitive level (mid-term exam).	Classroom lecture and discussion
VII	Students will be able to understand function of environmental services source of biodiversity	Students will be able to explain function of environmental services source of biodiversity	C1, C2	Written examinations at different cognitive level (mid-term exam).	Classroom lecture and discussion
VIII	Students will be able to understand and apply environmental services management through Environmental Impact Assessment analysis	Students will be able to explain and apply environmental services management through Environmental Impact Assessment analysis	C1, C2	Written examinations at different cognitive level (final exam).	Classroom lecture and discussion
IX	Students will be able to understand and apply environmental services through environmental audit	Students will be able to explain and apply environmental services through environmental audit	C1, C2, C3, C4	Written examinations at different cognitive level (final exam).	Classroom lecture and discussion
X	Students will be able to understand and apply environmental service management through Clean Development Mechanism	Students will be able to explain and apply environmental service management through Clean Development Mechanism	C1, C2, C3	Written examinations at different cognitive level (final exam).	Classroom lecture and discussion
XI	Students will be able to understand and apply environmental service management through Carbon Trade	Students will be able to explain and apply environmental service management through Carbon Trade	C1, C2, C3	Written examinations at different cognitive level (final exam).	Classroom lecture and discussion
XII	Students will be able to understand energy scarcity and alternative energy and potential	Students will be able to explain energy scarcity and alternative energy and potential future	C1, C2, C3	Written examinations at different cognitive level (final exam).	Classroom lecture and discussion

Code	Core Competencies	Learning Outcome	Bloom's Taxonomy	Assessment Tool(s)	Learning Activities
	future sources of energy in the	sources of energy in the			
XIII	Students will be able to understand and apply environmental services management using ADS (Self management) method	Students will be able to explain and apply environmental services management using ADS (Self management) method	C1, C2	Written examinations at different cognitive level (final exam).	Classroom lecture and discussion