

UNIVERSITY EXTENSION  
*International Programs*  
*SCHOOL OF ENVIRONMENTAL AND WASTE MANAGEMENT*  
MASTER OF SCIENCE IN ENVIRONMENTAL STUDIES  
DOCTORATE OF ENVIRONMENTAL STUDIES



**Universidad Central de Nicaragua *Internacional*, (UCNI)**

*Central University of Nicaragua International Consortium*

UNIVERSITY CONSORTIUM

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# Course Catalog



## University Extension International Programs

*School of Environmental and Waste Management*

Master of Science in Environmental Studies

with specialisations in

Environmental Policy  
Environmental Management

Doctorate of Environmental Studies

2008/2009

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## Master of Science in Environmental Studies

### Introduction

The M.Sc. in Environmental Studies curriculum consists of 90 ECTS credits of postgraduate study, offered as modular fashion. M.Sc. candidates complete required modules/courses (48/60 ECTS credits), plus additional modules (30/42 ECTS credits) all of these focused on a specific field of environmental studies.

The Modular Masters in Environmental Studies programme has as a general aim of provision of an academically rigorous education designed to develop skills, expertise, knowledge and vision to enable students, whatever their chosen route, to be critical, analytical and creative. The programme aims to provide opportunity for self-development in relation to career enhancement and as life-long learners.

The programme offers students the opportunity to develop their own capabilities, skills and competencies within a supported environment. The outcome of the programme can be summarised by the following objectives.

- Develop a critical approach to the use of contemporary sources as a means of exploring complex concepts, ideas and issues of relevance and value to the chosen area of study.
- Develop the power of critical enquiry, logical thought, creative imagination and independent judgment.
- Provide a forum of study that allows each student to build on his or her past academic and vocational experience in a relevant and meaningful fashion.
- Expose the student to a range of prospective, which may be applicable to both the interests and work situations as appropriate.
- Recognize the variety of sources of learning and an appropriate diversity of means for assessing achievement.

### Objectives of the Programme

This programme intends to allow the individual student to develop the own potential through a carefully selected programme of study, which includes elements of a variety of methods of study orientated on the academic and vocational aspects.

The primary objectives of the programme are to:

- Enable the student to achieve an appropriate level of academic competence
- Achieve personal development and to develop critical awareness of benefit to themselves and to their organisation
- Develop skills of initiation, implementation and analysis in a range of contexts
- Develop capability in the analysis and evaluation of complex issues and situations

The specific objectives of the programme will vary according to the chosen named award but will include the:

- Development of knowledge at an advanced level
- Development of skills of analysis, research and policy formulation and implementation
- Unification of theoretical analysis and practice through a variety of contexts appropriate to environmental management and decision-making
- Issues of environmental management and the management of resources

### Basics entry requirements

There is a common entry policy to the programme whichever route or mode of delivery is being followed. All applicants will be assessed for admission with regard to their ability to fulfill the objectives of their proposed route and to achieve the standards required for the award of Masters. Students, whenever possible, will be interviewed. The interview is designed to ensure that those students accepted onto the programme have the background both in terms of academic and / or professional experience and motivation to undertake a rigorous programme.

Given the multi-disciplinary nature of the programme, applications are welcomed from candidates from wide academic and various employment backgrounds.

Fully complete the application form. The admissions application is divided into two parts. Part I asks for basic information that you can quickly supply. Part II asks about previous education and employment, also requests that you submit a thoughtful essay of at least 200 words about your readiness to undertake (Post)Graduate Programmes [Postgraduate in Europe] via independent study and about your educational goals. Please respond fully to these questions. Be specific about your goals. This essay is an important aspect of the admissions process.

Have completed, in a satisfactory manner, certain minimum course work in designated areas; the specific courses and amount of work depending upon the field of work which the student proposes to enter.

Copy of prior academic records sent directly from all institutions attended, including graduate and undergraduate colleges and universities

#### Once Admitted as Official Student

Once all requirements for admission has been submitted, reviewed, Prospect is officially admitted as formal student, Universidad Central de Nicaragua International will issue:

- Letter of Acceptance.
- Student ID Number.
- UCN Student Manual.
- Personal Study Plan.
- Assigned Course and Tutor.
- UCN institutional e-mail account.
- Invoice or Financial Statement.
- Additional details for Academic Process.
- User ID and password to get access to virtual campus and courses online.

#### Learning Process at UCN

**Mentor:** Immediately after registration, we will appoint a Mentor to take care of you in everything you need for your first module or course. You can communicate with him/her by e-mail, telephone, fax or ordinary mail

**Study Plan:** Your study plan, with all courses you need to take, and the corresponding credit units assigned will be sent to you without delay.

**Books and Educational Technology:** Technology has broadened the opportunities for students to be engaged in distance learning. Then, we will send a listing with all bibliography suggested and/or -in some cases- books, manuals and/or study material required.

**Assignments and Examinations:** You start studying and contact your mentor whenever you need to. After completing a course, you may ask for the established assignment or examination.

**Correction:** Your assignments or exams are corrected and results computed on your transcript. Upon completion of all subjects, you will earn your degree.

## General Presentation of the Programme

### Master of Science in Environmental Studies

This degree provides the student with curriculum and research opportunities in one of the world's most relevant study areas: the environment. This degree is designed to meet the needs of people concerned with participating creatively in and improving decision-making processes related to the environment. Students will study environmental challenges, business and policy issues, strategies and eco-restructuring for sustainability, relations between energy, food and poverty, international environmental law, the impact of trade on environment, colonization and landuse, ecology in development policy, global greenhouse regime, EMAS, conflicts over natural resources, impact of education on conflict and international development, politics and management issues: science for sustainable living, tools to aid environmental decision making, the potential for societal collapse, the earth's climate crisis, and a vital blueprint for ensuring our future. Students also have the opportunity to focus their courses of study in directions of elective choice. This degree aims to develop students skills in critical environmental analysis, modelling and management, as well as broaden and deepen students comprehension of environmental issues from a multidisciplinary perspective. This degree is applicable for government and industry environmentally related professions. It also serves as a foundation degree for study at the doctorate level in the related study area.

#### Qualification:

Name of qualification and title conferred:

Master of Science (M.Sc.) in Environmental Studies

Main Fields of study for the qualification:

Multi-disciplinary – Specialisations in Environmental Policy & Environmental Management

Name and status of awarding institution:

Universidad Central de Nicaragua. Accredited university.

Universidad Cristiana del Sur. Accredited university.

#### Level of the qualification:

Masters

#### Official length of the programme:

There is no requirement to complete the credit requirement for this award within a certain time period.

#### Access requirements:

The minimum entrance requirement is either a first degree awarded by an accredited and recognised college or university or other recognised degree awarding body, or an equivalent qualification of at least 120 ECTS credits.

#### Mode of study:

Distance and e-Learning

#### Grading Scheme:

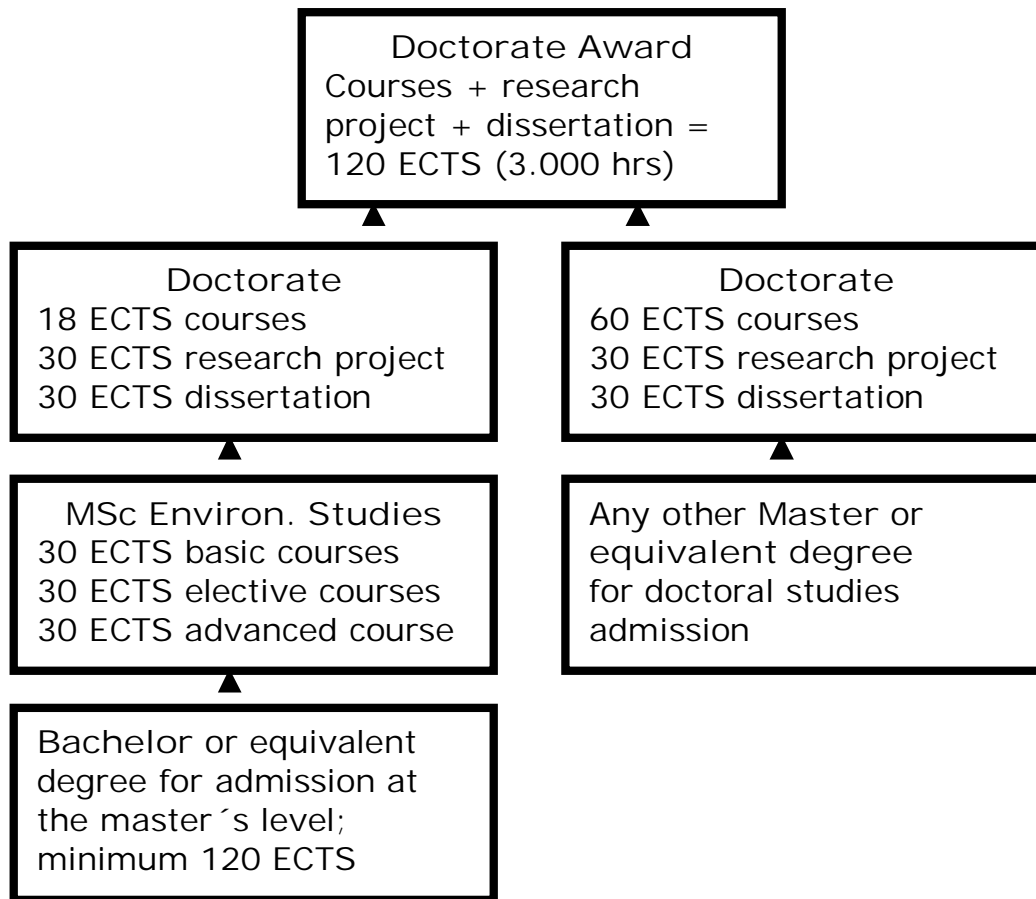
Assessment is divided between continuous assessment of assignments and end of course assessment of examinations. Student performance is measured either tutor-marked or computer-marked. The final course result depends on the overall performance.

#### Information on the function of the qualification:

Access to further study: Foundation degree for the Doctorate in Environmental Studies

Professional status: Specialist in the study area at the ECTS-postgraduate level.

Structure of the study area Environmental Studies in a two tier system



The Master of Science in Environmental Studies requires 90 ECTS credits in courses.

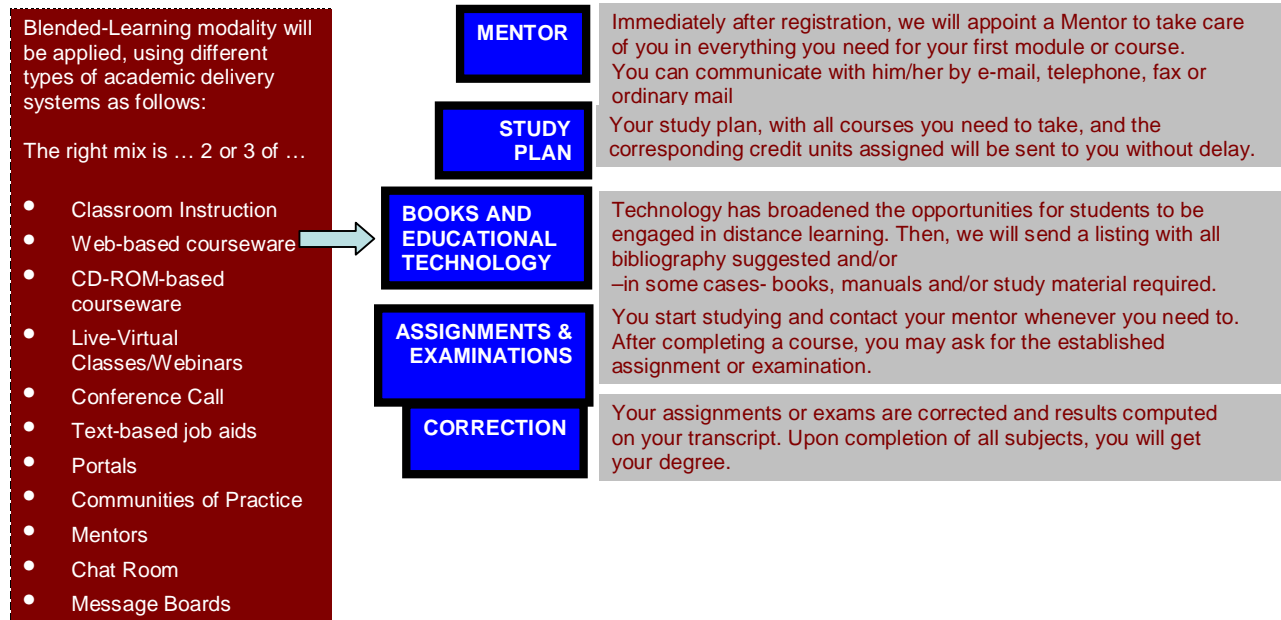
The Master degree without specialisation requires 30 ECTS credits from each study level, the specialisation degree requires 18 ECTS credits from basic courses, 42 ECTS credits from elective executive courses and 30 credits from advanced courses.

The Doctorate in Environmental Studies (120 ECTS credits) offers two different options: Graduates of the M.Sc. programme can enrol directly in the Doctoral research programme, and need only take an additional three courses at 6 ECTS credits each (18 ECTS credits), while the residual 42 ECTS credits for courses can be transferred from the Masters programme.

Graduates of different Master or equivalent degree programmes need to pass 60 ECTS credits in coursework for the doctorate.

All doctoral candidates must take the research project course (30 ECTS), and submit and defend their thesis (30 ECTS), totalling 60 ECTS credits.

## Learning Process at UCN



## Assessment

Throughout the programme assessment by assignments are designed to enable students to develop their own potential and permit a close working relationship between the learning experience and individual assessment. Assessment strategies employed will be consistent with the student centered rather than teacher centered focus of the programme.

## Aims of assessment

The aims of assessment process are to:

- Ensure that students are developing the powers of critical enquiry, logical thought, creative imagination and independent judgment associated with postgraduate study;
- Indicate to students progress in the part of students in relation to the achievement of specified learning outcomes;
- Ensure the students ability to critically evaluate policy, management, techniques, philosophies, approaches, and methodologies appropriate to environmental management in general and their chosen route.

Whilst understanding, critical analysis, evaluation and integration will be expected at all levels, increasing emphasis will be placed on the requirement for systematic evaluation and integration in assessment at Masters Level.

Courses in Environmental Studies Area at the Postgraduate Level:

Master of Science in Environmental Studies (M.Sc.) without Specialisation

Core Courses – Basic Level – 30 ECTS credits:

EnvStud 601 – Environmental Challenges – Environmental and Human Needs

ECTS credits: 4

EnvStud 605 – Strategies for Sustainability

ECTS credits: 6

EnvStud 608 – Business and Sustainability

ECTS credits: 6

EnvStud 610 – Eco-restructuring for sustainable development

ECTS credits: 6

EnvStud 662 – Energy and Poverty

ECTS credits: 6

EnvStud 635 – Food and Energy

ECTS credits: 2

Elective Courses – Executive Level – 30 ECTS credits out of the following:

EnvStud 620 – International Environmental Law

ECTS credits: 6

EnvStud 650 – Environment and Trade

ECTS credits: 6

EnvStud 712 – Colonization and Environment in Central America

ECTS credits: 6

EnvStud 715 – Ecology in Development Policy

ECTS credits: 6

EnvStud 722 – Global Greenhouse Regime

ECTS credits: 6

EnvStud 730 – European eco-management and audit scheme (EMAS)

ECTS credits: 6

EnvStud 741 – Conflicts Over Natural Resources in India

ECTS credits: 6

EnvStud 742 – Conflict over Natural Resources in South-East Asia and the Pacific

ECTS credits: 6

EnvStud 743 – Hydropolitics along the Jordan River

ECTS credits: 6

EnvStud 750 – Education, Conflict and International Development

ECTS credits: 4

Core Courses – Advanced Level – 30 ECTS credits:

EnvStud 801 – A Science for Sustainable Living

ECTS credits: 6

EnvStud 805 – Tools to Aid Environmental Decision Making

ECTS credits: 6

EnvStud 810 – Collapse or Survival of Societies

ECTS credits: 6

EnvStud 825 – The Earth's Climate Crisis

ECTS credits: 6

EnvStud 835 – The Meaning of the 21<sup>st</sup> Century. A Vital Blueprint for Ensuring Our Future.

ECTS credits: 6

Students must take the basic core courses (30 ECTS credits), and the advanced core courses (30 ECTS credits). Students may choose 30 ECTS credits from the executive level free elective courses. Degree requirements are 60 ECTS credits from the core courses and 30 ECTS credits from the elective courses.

In addition to university and degree level learning outcomes objectives, the Master of Science in Environmental Studies also seeks specific learning outcomes of its graduates. Graduates in this degree programme will be able to:

Develop management strategies that incorporate environmental sustainability and organizational development.

Respect the interconnections among environmental subsystems to comprehend the affected systems.

Assess costs and environmental regulations.

Apply environmental assessment and management to develop and evaluate environmental strategies and policies.

Students may opt for the Master of Science in Environmental Studies without specialisation or for one of the following specialisations in Environmental Policy (with a focus on European initiatives) and in Environmental Management.

Master of Science in Environmental Studies (M.Sc.)  
with Specialisation in Environmental Policy

Core Courses – Basic Level – 18 ECTS credits out of the following:  
EnvStud 601 – Environmental Challenges – Environmental and Human Needs  
ECTS credits: 4  
EnvStud 605 – Strategies for Sustainability  
ECTS credits: 6  
EnvStud 608 – Business and Sustainability  
ECTS credits: 6  
EnvStud 610 – Eco-restructuring for sustainable development  
ECTS credits: 6  
EnvStud 662 – Energy and Poverty  
ECTS credits: 6  
EnvStud 635 – Food and Energy  
ECTS credits: 2

Elective Courses – Executive Level – 42 ECTS credits out of the following:  
EnvStud 620 – International Environmental Law  
ECTS credits: 6  
EnvStud 650 – Environment and Trade  
ECTS credits: 6  
EnvStud 670 – European Environment Action Plan – Environment 2010  
ECTS credits: 6  
EnvStud 671 – Europe´s Environment  
ECTS credits: 12  
EnvStud 673 – Environmental Agreements - Environmental Effectiveness  
ECTS credits: 6  
EnvStud 675 – Using the market for cost-effective environmental policy Market-based instruments in Europe  
ECTS credits: 6  
EnvStud 680 – OECD Environmental Strategy for the First Decade of the 21st Century  
ECTS credits: 6  
EnvStud 683 – OECD Environmental Policy Briefs  
ECTS credits: 6  
EnvStud 690 – Climate Change 2007: Synthesis Report  
ECTS credits: 6  
EnvStud 730 – European eco-management and audit scheme (EMAS)  
ECTS credits: 6

Core Courses – Advanced Level – 30 ECTS credits:  
EnvStud 801 – A Science for Sustainable Living  
ECTS credits: 6  
EnvStud 805 – Tools to Aid Environmental Decision Making  
ECTS credits: 6  
EnvStud 810 – Collapse or Survival of Societies  
ECTS credits: 6  
EnvStud 825 – The Earth´s Climate Crisis  
ECTS credits: 6  
EnvStud 835 – The Meaning of the 21<sup>st</sup> Century. A Vital Blueprint for Ensuring Our Future.  
ECTS credits: 6

Students must take the basic core courses (18 ECTS credits), and the advanced core courses (30 ECTS credits). Students may choose 42 ECTS credits from the executive level free elective courses in the specialisation. Degree requirements are 48 ECTS credits from the core courses and 42 ECTS credits from the elective specialisation courses.

In addition to university and degree level learning outcomes objectives, the Master of Science in Environmental Studies also seeks specific learning outcomes of its graduates. Graduates in this degree programme will be able to:

Develop management strategies that incorporate environmental sustainability and organizational development.

Respect the interconnections among environmental subsystems to comprehend the affected systems.

Assess costs and environmental regulations.

Apply environmental assessment and management to develop and evaluate environmental strategies and policies.

Master of Science in Environmental Studies (M.Sc.)  
with Specialisation in Environmental Management

Core Courses – Basic Level – 18 ECTS credits out of the following:  
EnvStud 601 – Environmental Challenges – Environmental and Human Needs  
ECTS credits: 4  
EnvStud 605 – Strategies for Sustainability  
ECTS credits: 6  
EnvStud 608 – Business and Sustainability  
ECTS credits: 6  
EnvStud 610 – Eco-restructuring for sustainable development  
ECTS credits: 6  
EnvStud 662 – Energy and Poverty  
ECTS credits: 6  
EnvStud 635 – Food and Energy  
ECTS credits: 2

Elective Courses – Executive Level – 42 ECTS credits out of the following:  
EnvStud 730 – European eco-management and audit scheme (EMAS)  
ECTS credits: 6  
EnvStud 780 – Assessment of information related to waste and material flows  
ECTS credits: 6  
EnvStud 781 – Key challenges for corporate environmental performance  
ECTS credits: 6  
EnvStud 782 – Environmental Risk Assessment  
ECTS credits: 6  
EnvStud 783 – Environmental Management - Tools for SMEs  
ECTS credits: 6  
EnvStud 784 – Environmental Management Practices in USA  
ECTS credits: 6  
EnvStud 785 – Measuring Material Flows and Resource Productivity - Synthesis report  
ECTS credits: 6  
EnvStud 786 – Environmentally Sound Management (ESM) of Waste  
ECTS credits: 6  
EnvStud 787 – EPR Policies and Product Design  
ECTS credits: 6  
EnvStud 788 – Environmental Innovation and Global Markets  
ECTS credits: 6

Core Courses – Advanced Level – 30 ECTS credits:  
EnvStud 801 – A Science for Sustainable Living  
ECTS credits: 6  
EnvStud 805 – Tools to Aid Environmental Decision Making  
ECTS credits: 6  
EnvStud 810 – Collapse or Survival of Societies  
ECTS credits: 6  
EnvStud 825 – The Earth´s Climate Crisis  
ECTS credits: 6  
EnvStud 835 – The Meaning of the 21<sup>st</sup> Century. A Vital Blueprint for Ensuring Our Future.  
ECTS credits: 6

Students must take the basic core courses (18 ECTS credits), and the advanced core courses (30 ECTS credits). Students may choose 42 ECTS credits from the executive level free elective courses in the specialisation. Degree requirements are 48 ECTS credits from the core courses and 42 ECTS credits from the elective specialisation courses.

In addition to university and degree level learning outcomes objectives, the Master of Science in Environmental Studies also seeks specific learning outcomes of its graduates. Graduates in this degree programme will be able to:

Develop management strategies that incorporate environmental sustainability and organizational development.

Respect the interconnections among environmental subsystems to comprehend the affected systems.

Assess costs and environmental regulations.

Apply environmental assessment and management to develop and evaluate environmental strategies and policies.

## Master Degrees

The master's degree is designed to provide additional education or training in the student's specialized branch of knowledge, well beyond the level of baccalaureate study. Master's degrees are offered in many different fields, and there are two main types of programmes: academic and professional.

**Academic Master's:** The master of arts (M.A.) and master of science (M.S.) degrees are usually awarded in the traditional arts, sciences, and humanities disciplines.. Original research, research methodology, and field investigation are emphasized. These programmes usually require the completion of between 30 and 60 credit hours (60 and 120 ECTS credits) and could reasonably be completed in one or two years of study depending the field of study. They may lead directly to the doctoral level.

Many master's programmes offer a thesis and a non-thesis option. The degree is the same in both cases, but the academic requirements are slightly different. Students in non-thesis programmes usually take more coursework in place of researching and writing a thesis, and they take a written comprehensive examination after all coursework is completed. Students in degree programmes that include a thesis component generally take a comprehensive examination that is an oral exam covering both coursework and their thesis.

**Professional Master's:** These degree programmes are designed to lead the student from the first degree to a particular profession. Professional master's degrees are most often "terminal" master's programmes, meaning that they do not lead to doctoral programmes. Such master's degrees are often designated by specific descriptive titles, such as master of business administration (M.B.A.), master of social work (M.S.W.), master of education (M.Ed.), or master of fine arts (M.F.A.). Other subjects of professional master's programmes include journalism, international relations, urban planning and public administration (M.P.A.),

Professional master's degrees are oriented more toward direct application of knowledge than toward original research. They are more structured than academic degree programmes, and often require that every student take a similar or identical programme of study that lasts from one to three years, depending on the institution and the field of study.

**Important Difference:** One main difference between master's programmes is whether or not they are designed for students who intend to continue toward a doctoral degree. Those that specifically do not lead into doctoral programmes are known as terminal master's programmes. Most professional master's degrees fall under this category. Credits earned in terminal master's programmes may or may not be transferable or applicable in case you decide to continue toward a doctoral degree later on.

Some institutions restrict admission to certain departments solely to potential doctoral candidates, although they may award a terminal master's degree to students who complete a certain level of coursework but do not go on to their doctoral work. Other departments require a master's degree as part of the requirements for admission to their doctoral programme.

Since policies vary from institution to institution and within various departments of each institution, it is best to check directly with individual graduate departments to determine the structure and admissions policies for their master's and doctoral candidates after you complete your studies at UCN International Programmes.

(Post)Graduate degrees offered are the master's degree and the doctoral degree; both involve a combination of research and coursework. (Post)Graduate education differs from undergraduate education in that it offers a greater depth of training, with increased

specialization and intensity of instruction. Study and learning are more self-directed at the graduate level than at the undergraduate level.

(Post)Graduate courses assume that students are well-prepared in the basic elements of their field of study. Depending on the subject, courses may be quite formal, involving virtual participation, research papers, assessments and examinations are all important.

Qualifications that signify completion of the second cycle are awarded to students who:

have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with Bachelor's level, and that provides a basis or opportunity for originality in developing and/or applying ideas, often within a research context;

can apply their knowledge and understanding, and problem solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study;

have the ability to integrate knowledge and handle complexity, and formulate judgements with incomplete or limited information, but that include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgements;

can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously;

have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous.

(Dublin Descriptors)

## Application of the ECTS European Credits Transfer System

We apply the ECTS European Credit Transfer System for all our courses and degree programmes.

All degrees are issued along with the Transcript of Records (Diploma Supplement) in accordance with ECTS-regulations.

ECTS KEYWORDS (Source: ECTS website)

What is a credit system?

A credit system is a systematic way of describing an educational programme by attaching credits to its components. The definition of credits in higher education systems may be based on different parameters, such as student workload, learning outcomes and contact hours.

How did ECTS develop?

ECTS was introduced in 1989, within the framework of Erasmus, now part of the Socrates programme. ECTS is the only credit system which has been successfully tested and used across Europe. ECTS was set up initially for credit transfer. The system facilitated the recognition of periods of study abroad and thus enhanced the quality and volume of student mobility in Europe. Recently ECTS is developing into an accumulation system to be implemented at institutional, regional, national and European level. This is one of the key objectives of the Bologna Declaration of June 1999.

### Why introduce ECTS?

ECTS makes study programmes easy to read and compare for all students, local and foreign. ECTS facilitates mobility and academic recognition. ECTS helps universities to organise and revise their study programmes. ECTS can be used across a variety of programmes and modes of delivery. ECTS makes European higher education more attractive for students from abroad.

### What are the key features of ECTS?

ECTS is based on the principle that 60 credits measure the workload of a full-time student during one academic year. The student workload of a full-time study programme in Europe amounts in most cases to around 1,500-1,800 hours per year and in those cases one credit stands for around 25 to 30 working hours.

Credits in ECTS can only be obtained after successful completion of the work required and appropriate assessment of the learning outcomes achieved. Learning outcomes are sets of competences, expressing what the student will know, understand or be able to do after completion of a process of learning, long or short.

Student workload in ECTS consists of the time required to complete all planned learning activities such as attending lectures, seminars, independent and private study, preparation of projects and examinations.

Credits are allocated to all educational components of a study programme (such as modules, courses, placements, dissertation work, etc.) and reflect the quantity of work each component requires to achieve its specific objectives or learning outcomes in relation to the total quantity of work necessary to complete a full year of study successfully.

The performance of the student is documented by a local/national grade. It is good practice to add an ECTS grade, in particular in case of credit transfer. The ECTS grading scale ranks the students on a statistical basis. Therefore, statistical data on student performance is a prerequisite for applying the ECTS grading system.

## Doctorate of Environmental Studies

This degree provides the student with curriculum and research opportunities in one of the world's most relevant study areas: the environment. This degree is designed to meet the needs of people concerned with participating creatively in and improving decision-making processes related to the environment. Students will study environmental challenges, business and policy issues, strategies and eco-restructuring for sustainability, relations between energy, food and poverty, international environmental law, the impact of trade on environment, colonization and landuse, ecology in development policy, global greenhouse regime, EMAS, conflicts over natural resources, impact of education on conflict and international development, politics and management issues: science for sustainable living, tools to aid environmental decision making, the potential for societal collapse, the earth's climate crisis, and a vital blueprint for ensuring our future. Students also have the opportunity to focus their courses of study in directions of elective choice. This degree aims to develop students skills in critical environmental analysis, modelling and management, as well as broaden and deepen students comprehension of environmental issues from a multidisciplinary perspective. This degree is applicable for government and industry environmentally related professions.

### Qualification:

Name of qualification and title conferred:

Doctor of Environmental Studies

Main Fields of study for the qualification:

Multi-disciplinary

Name and status of awarding institution:

Universidad Central de Nicaragua. Accredited university.

Universidad Cristiana del Sur. Accredited university.

Level of the qualification:

Doctorate

Official length of the programme:

There is no requirement to complete the credit requirement for this award within a certain time period.

Access requirements:

The minimum entrance requirement is either a first Master degree awarded by an accredited and recognised college or university or other recognised degree awarding body, or an equivalent qualification of at least 240 ECTS credits.

Mode of study:

Distance and e-Learning

Grading Scheme:

Assessment is divided between continuous assessment of assignments and end of course assessment of examinations. Student performance is measured either tutor-marked or computer-marked. The final course result depends on the overall performance. Thesis must be defended before a commission (tribunal).

Information on the function of the qualification:

Access to further study: -

Professional status: Specialist-researcher in the study area at the postgraduate level.

## Doctorate of Environmental Studies

Core Courses – Basic Level – 12 ECTS credits out of the following:

EnvStud 601 – Environmental Challenges – Environmental and Human Needs

ECTS credits: 4

EnvStud 605 – Strategies for Sustainability

ECTS credits: 6

EnvStud 608 – Business and Sustainability

ECTS credits: 6

EnvStud 610 – Eco-restructuring for sustainable development

ECTS credits: 6

EnvStud 662 – Energy and Poverty

ECTS credits: 6

EnvStud 635 – Food and Energy

ECTS credits: 2

Elective Courses – Executive Level – 30 ECTS credits out of the following:

EnvStud 620 – International Environmental Law

ECTS credits: 6

EnvStud 650 – Environment and Trade

ECTS credits: 6

EnvStud 670 – European Environment Action Plan – Environment 2010

ECTS credits: 6

EnvStud 671 – Europe´s Environment

ECTS credits: 12

EnvStud 673 – Environmental Agreements - Environmental Effectiveness

ECTS credits: 6

EnvStud 675 – Using the market for cost-effective environmental policy Market-based instruments in Europe

ECTS credits: 6

EnvStud 680 – OECD Environmental Strategy for the First Decade of the 21st Century

ECTS credits: 6

EnvStud 683 – OECD Environmental Policy Briefs

ECTS credits: 6

EnvStud 690 – Climate Change 2007: Synthesis Report

ECTS credits: 6

EnvStud 712 – Colonization and Environment in Central America

ECTS credits: 6

EnvStud 715 – Ecology in Development Policy

ECTS credits: 6

EnvStud 722 – Global Greenhouse Regime

ECTS credits: 6

EnvStud 730 – European eco-management and audit scheme (EMAS)

ECTS credits: 6

EnvStud 741 – Conflicts Over Natural Resources in India

ECTS credits: 6

EnvStud 742 – Conflict over Natural Resources in South-East Asia and the Pacific

ECTS credits: 6

EnvStud 743 – Hydropolitics along the Jordan River

ECTS credits: 6

EnvStud 750 – Education, Conflict and International Development

ECTS credits: 6

EnvStud 780 – Assessment of information related to waste and material flows

ECTS credits: 6

EnvStud 781 – Key challenges for corporate environmental performance

ECTS credits: 6  
EnvStud 782 – Environmental Risk Assessment  
ECTS credits: 6  
EnvStud 783 – Environmental Management - Tools for SMEs  
ECTS credits: 6  
EnvStud 784 – Environmental Management Practices in USA  
ECTS credits: 6  
EnvStud 785 – Measuring Material Flows and Resource Productivity - Synthesis report  
Synthesis report  
ECTS credits: 6  
EnvStud 786 – Environmentally Sound Management (ESM) of Waste  
ECTS credits: 6  
EnvStud 787 – EPR Policies and Product Design  
ECTS credits: 6  
EnvStud 788 – ENVIRONMENTAL INNOVATION AND GLOBAL MARKETS  
ECTS credits: 6

Core Courses – Advanced Level – 18 ECTS credits out of the following:

EnvStud 801 – A Science for Sustainable Living  
ECTS credits: 6  
EnvStud 805 – Tools to Aid Environmental Decision Making  
ECTS credits: 6  
EnvStud 810 – Collapse or Survival of Societies  
ECTS credits: 6  
EnvStud 825 – The Earth ´s Climate Crisis  
ECTS credits: 6  
EnvStud 835 – The Meaning of the 21<sup>st</sup> Century. A Vital Blueprint for Ensuring Our Future.  
ECTS credits: 6

Doctoral Research Courses – Supervised – 30 ECTS credits: Research and methodology, tools and techniques, scientific writing, approaches to editing a thesis.

Thesis – Presentation and Defense – 30 ECTS credits: Doctoral Thesis

Option 1: Candidates with the Master of Science in Environmental Studies:

All core courses have already been taken during the taught Master of Science in Environmental Studies programme. Candidates can transfer all 30 ECTS credits from the core courses.

Candidates can also transfer up to 12 ECTS credits from the Master of Science in Environmental Studies programme in the elective courses. Therefore, candidates need 18 ECTS credits in elective courses at the doctoral courses-level.

Level 1 – doctoral course-work requirements are 30 ECTS credits from the core courses via transfer and 30 ECTS credits from the elective courses, again 12 credits via transfer and 18 additional credits via courses.

Option 2: Candidates without the Master of Science in Environmental Studies:

Candidates must take the basic core courses (12 ECTS credits), and the advanced core courses (18 ECTS credits). Candidates may choose 30 ECTS credits from the executive level free elective courses. Level 1 – doctoral course-work requirements are 30 ECTS credits from the core courses and 30 ECTS credits from the elective courses.

Level 2 – doctoral research

All candidates need to take the doctoral research methodology course with their designated doctoral supervisor – 30 ECTS credits.

Level 3 – doctoral dissertation

All candidates must write and submit a Doctoral Thesis of approx. 25.000 words – 60 ECTS credits.

## Doctoral Degrees

The doctoral degree is designed to train research scholars and, in many cases, future college and university faculty members. Receipt of a doctoral degree certifies that the student has demonstrated capacity as a trained research scholar in a specific discipline.

At the doctoral level, the Ph.D. (doctor of philosophy) is the most common degree awarded in academic disciplines at UCN International Programmes. Other doctoral degrees are awarded primarily in professional fields, such as education (Ed.D. or doctor of education) and business administration (D.B.A. or doctor of business administration). Doctoral programmes involve advanced coursework, research, and the writing of a dissertation that describes the student's own original research, completed under the supervision of a faculty adviser and Committee.

A comprehensive examination is given, usually after two to three years of study and completion of all coursework, and when the student and adviser agree that the student is ready. These exams are designed to test the student's ability to use knowledge gained through courses and independent study in a creative and original way. Students must demonstrate a comprehensive understanding of their chosen field of study. Successful completion of this examination marks the end of the student's coursework and the beginning of concentration on research.

The Ph.D. degree is awarded to those students who complete an original piece of significant research, write a dissertation describing that research, and successfully defend their work before a panel of faculty members who specialize in the discipline.

UCNPI offers a variety of nontraditional doctoral programmes; these programmes might have very different types:

Dr.PH

UCN offers an advanced programme leading to the Doctor of Public Health (Dr.PH) degree. The Dr.PH degree provides the student with the opportunity to obtain greater depth and breadth of knowledge in Public health. This degree is designed primarily for students whose purpose is to prepare for leadership roles in the professional practice of public health in governmental, private, or voluntary agencies. It is oriented toward the organization, direction, and evaluation of public health programmes, and operational research in those areas, rather than toward academic research and teaching like the traditional PhD

Study languages available: Spanish, English, German

## Research Degrees

Research involves the in-depth study of a specific field, normally over a period of two or three years. You will then report on your research by writing it up in the form of a thesis or dissertation. Following submission, you then have an oral examination usually conducted by three specialists in their field of research. Most research degrees involve working closely with one or more experienced researchers who supervise the study. The most well-known research qualification is the PhD, also known as the DPhil. Also possible are shorter Masters Programmes such as the MPhil, which is sometimes taken as a precursor to a PhD. Some research Masters Courses now include a taught element, eg in research methods. It may be possible to transfer onto a PhD programme at a later date.

## Doctoral degrees (PhD, DPhil)

Can be started immediately following a first degree, or after a Masters course (usually mandatory as a precursor for arts/humanities doctorates).

Recognized period of research is three years full time, plus up to one year to write up.

Some PhDs now include a taught element, eg in research methods.

Formal registration for the degree of PhD takes place after the initial year of research (when you are officially at MPhil level) and following the successful completion of a transfer report.

It may be possible to transfer from a PhD back to an MPhil degree that can be obtained in one or two years. An MPhil, however, does not confer 'Dr' status and would not enable you to teach at university level or do postdoctoral research.

Doctorates with a substantial taught core are now available in some vocational areas including engineering (EngD) and business (DBA).

Research opportunities other than in universities

The majority of research degrees are taken at UCN International. However, there are some opportunities for studying in partnership with government laboratories, hospital laboratories, research institutions, pharmaceutical laboratories and in industry.

Qualifications that signify completion of the third cycle are awarded to students who:

have demonstrated a systematic understanding of a field of study and mastery of the skills and methods of research associated with that field;

have demonstrated the ability to conceive, design, implement and adapt a substantial process of research with scholarly integrity;

have made a contribution through original research that extends the frontier of knowledge by developing a substantial body of work, some of which merits national or international refereed publication;

are capable of critical analysis, evaluation and synthesis of new and complex ideas;

can communicate with their peers, the larger scholarly community and with society in general about their areas of expertise;

can be expected to be able to promote, within academic and professional contexts, technological, social or cultural advancement in a knowledge based society;

(Dublin Descriptors)

Courses in Environmental Studies Area at the Postgraduate Level - Overview:

EnvStud 601 – Environmental Challenges – Environmental and Human Needs

Content:

Global Environmental Issues. Meeting Human Needs within the Environmental Envelope. Policies for Linking Human and Environmental Needs. Major Challenges for Development. A Synopsis of Eight Major Global Environmental Issues. International Conventions on Global Environmental Issues. International Conventions on Global Environmental Issues.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 4

EnvStud 605 – Strategies for Sustainability

Content: Global issues and response strategies: Overview. Past issues and new problems: A plea for action. Environment, energy, and economy: Strategies for sustainability Policy measures for global environmental problems: A Japanese perspective. Environment, economy, energy, and sustainable development. The status of the global environment. Climate changes due to the increase in greenhouse gases as predicted by climate models. Deforestation and desertification in developing countries. Energy-economy interactions in stabilizing CO<sub>2</sub> emissions. Modelling economically efficient abatement of greenhouse gases. Macroeconomic costs and other side-effects of reducing CO<sub>2</sub> emissions. The effects of CO<sub>2</sub> reduction policies on energy markets. Long-term strategies for mitigating global warming. Energy issues in developing countries. Long-term strategies of developing countries.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

EnvStud 608 – Business and Sustainability

Content:

Business activities are responsible, directly or indirectly, for most human impacts on the earth's ecosystems - and business operations today are conducted with too little thought as to their sustainability - that is, the satisfying of our own needs without diminishing the chances of future generations. The term "sustainability," which has both ecological and social components, poses business an inescapable challenge: without sustainability there will soon be no more profits. Hence, business people have a strong self-interest in minimizing the ecological damage of their operations. Executives must take responsibility themselves for reeducating themselves and their managers. Social change takes place within the interplay among media, corporations, and the public. Within the financial world, also, new ideas are stirring. Technology, which many take to be hostile to the environment, also has a new role to play in moving toward sustainability, greatly reduces environmental impacts, and produces consistent support for positive social and ecological goals.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

EnvStud 610 – Eco-restructuring for sustainable development

Content:

In brief, the underlying problem is that many current demographic, economic, and industrial trends currently seem to point unmistakably in the wrong direction, i.e. away from sustainability. To achieve sustainability, and to minimize ecological risk, it will be necessary to reverse most of these trends. Indeed, some aggregated measures of material and energy use may have to be reduced by large factors (four to ten). Such a reversal will entail very fundamental changes in the economic system. The directions and magnitudes of these changes are assessed briefly, and various approaches to their implementation are analysed.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 620 – International Environmental Law

##### Content:

Environmental changes have reached new levels of global complexity and a need exists to cope more comprehensively with the human interactions that are helping to shape these changes, to help further the development and application of international law in a changing global environment. Contents are to assess the impact of environmental changes on international law, proposals on how existing legal norms may be adapted to the changing conditions and what new ones are needed, as well as develop and analyse different possible scenarios and their likely impact.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 635 – Food and Energy

##### Content:

The Food-Energy Nexus Programme was launched in 1983 to fill the research gap that existed on the synergistic solutions to food and energy problems. The programme consisted of a two-pronged effort directed towards developing an analytical framework and planning methodology as well as stimulating the sharing of experiences between research teams working in Asia, Africa, and Latin America. It addressed such concrete issues as (i) a more efficient use of energy in the production, processing, and consumption of food; (ii) food-energy systems in diverse ecosystems; and (iii) household economy in both rural and urban settings and the role of women and children in the provision of food, fuel, and water. Food and Energy: Strategies for Sustainable Development sums up the research findings and their policy implications in comparative regional perspectives.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 2

#### EnvStud 650 – Environment and Trade

##### Content:

All around the world, the growth and liberalization of international trade is changing the way we live and work. At \$6 trillion a year, trade flows and the rules that govern them are a massive force for economic, environmental and social change. International trade is becoming an increasingly important driver of economic development, as it has been expanding at almost twice the pace of total global economic activity for the past 15 years. A growing number of developing countries look to trade and investment as a central part of their strategies for development, and trade considerations are increasingly important in shaping economic policy in all developed countries, too.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 662 – Energy and Poverty

##### Content:

Sustainable development will only happen if poverty is tackled and the environment is protected. It is a false dilemma to say that we either tackle poverty or we save the planet. Crucial to both is the rapid expansion of clean, sustainable and renewable energy. There is now a growing consensus amongst policy makers that energy is central to reducing poverty and hunger, improving health, increasing literacy and education and improving the lives of women and children. An action plan for sustainable energy for poverty reduction: Sustainable, clean energy can play a key role in reducing the huge burden of poverty and environmental degradation around the world. The action plan sets out a clear agenda for achieving the win-win goal of poverty reduction and action on climate change.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 670 – European Environment Action Plan – Environment 2010

##### Content:

Protecting the planet creates both challenges and opportunities. Through greater efficiency and better use of natural resources, we can break the old link between economic growth and environmental damage. We can be both more prosperous and greener. Overall, society must work to de-couple environmental impacts and degradation from economic growth.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 671 – Europe´s Environment

##### Content:

In the fourth assessment report, the EEA underlines the changes that have occurred in the environment and socio-economic context to help explain many of the environmental trends that have been observed; and identifies successes and improvements but also registers old legacies that need further effort such as, in particular, air pollution, water issues and contaminated sites. New threats, which challenge piecemeal solutions and call for integrated strategic measures at European and global levels, are described such as persistent chemicals in the environment, biodiversity loss, sustainable production and consumption and climate change.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 12

#### EnvStud 673 – ENVIRONMENTAL AGREEMENTS - Environmental Effectiveness

##### Content:

Environmental Agreements are relatively recent in the policy arena so the available literature on the subject is scarce and consists mainly of theoretical studies with very little on the practical application of these instruments. In order to fill this gap this course examines six Agreements covering various countries and environmental issues, and tries to evaluate their environmental effectiveness. Given the growing enthusiasm for this instrument, and in particular the support it has gained from industry, it is important to make a joint effort to improve the design and implementation of Environmental Agreements in order to make it possible to monitor and assess their effectiveness vis-à-vis other policy tools.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 675 – Using the market for cost-effective environmental policy Market-based instruments in Europe

##### Content:

Market-based instruments can be particularly effective tools for dealing with the four major areas of action of the EU 6th environmental action programme, namely: tackling climate change, preserving nature and biodiversity, protecting environment and human health, and through the sustainable use of resources and management of wastes. They do so by addressing the sources of environmental pollution

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

EnvStud 680 – OECD Environmental Strategy for the First Decade of the 21st Century  
Content:

This OECD Environmental Strategy for the First Decade of the 21st Century is intended to provide clear directions for environmentally sustainable policies in OECD Member countries, and will guide the future work of the OECD in the field of environment. The Strategy should be implemented before 2010. The OECD Environmental Performance Reviews and the environmental indicators programme will be used for the monitoring of progress. The Strategy is an important building block for the OECD-wide Sustainable Development Initiative. OECD Member countries have a special responsibility in the follow-up to the Rio Principles and to Agenda 21 agreed in Rio de Janeiro in 1992. Underlying the Strategy is a need to further develop environmental policy towards fostering sustainable development within and among OECD countries in a way that is responsive to nonmember countries in their search for sustainable development. The success of implementing this Strategy will therefore also depend on strengthened co-operation with non-member countries, including developing countries and countries with economies in transition.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

EnvStud 683 – OECD Environmental Policy Briefs

Content:

POLICY BRIEFS of the Organisation for Economic Co-operation and Development:

Advancing sustainable development. Assessing Environmental Policies. Health and the Environment. Improving Policy Coherence and Integration for Sustainable Development - A Checklist. Making Environmental Spending Count. The Political Economy of Environmentally Related Taxes. The Social Dimension of Environmental Policy.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

EnvStud 690 – Climate Change 2007: Synthesis Report

Content:

Topic 1 summarises observed changes in climate and their effects on natural and human systems, regardless of their causes, while Topic 2 assesses the causes of the observed changes. Topic 3 presents projections of future climate change and related impacts under different scenarios. Topic 4 discusses adaptation and mitigation options over the next few decades and their interactions with sustainable development Topic 5 assesses the relationship between adaptation and mitigation on a more conceptual basis and takes a longer-term perspective. Topic 6 summarises the major robust findings and remaining key uncertainties in this assessment

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

EnvStud 712 – Colonization and Environment in Central America

Content:

Lowland Settlement and Environmental Impacts in Central America. Dangers of Misdirected Policies in Land Settlement. Role of the Current Study. The Colonization Areas. The Process of Colonization in Central America. Land Settlement and Land Reform. The Dynamics of Land Settlement and Land Use. Patterns of Land Clearance. Ecological Regions of Central America. People and Land. Case studies: Colonization in Costa Rica, Panama, Nicaragua, Honduras, Guatemala.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 715 – Ecology in Development Policy

Content:

During the 1970s anxiety about the environment not only deepened but changed in quality and emphasis. More significantly, there is a growing tendency to make correlations between the quality of the environment and the quality of human life. Ecological, economic, and social decline are more often discussed as though they are inter-related (although the relationship is rarely well argued). Environmental problems now engage a greater mix of disciplines and professions than a decade ago, and in each group of specialists there is a greater awareness of other disciplinary orientations to similar problems and (dare we hope?) a new readiness to enter into genuine dialogue across disciplinary and professional boundaries. The fact that it is not yet possible to put a generally accepted name on it - though "human ecology" is often pressed into service, and for want of a better term is sometimes used in what follows - shows that its identity is barely formed and its independence scarcely viable. But there seems little doubt that it is gathering momentum and therefore warrants careful attention.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 722 – Global Greenhouse Regime

Content:

As the 1992 Rio UNCED ('the Earth Summit') made clear, the interrelated issues of the environment and development, and the search for sustainable development, are among the most urgent problems on the international political agenda. The global community must now face directly the problem of accommodating in the twenty-first century a likely doubling of population and a fivefold economic growth without destroying its global life support system. A key problem to be resolved is the limitation of the build-up of the greenhouse gases with their potential for altering global climate patterns. The needed greenhouse gas regime will require a contract between rich and poor nations, and will only follow arduous negotiations. A central issue in these negotiations will be the allocation of costs.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 730 – European eco-management and audit scheme (EMAS)

Content:

Application of the EMAS management system in accordance with applicable regulations and decisions on implementation. The programme 'Towards Sustainability' calls for broadening the range of instruments in the field of environmental protection and for using market-mechanisms to commit organisations to adopt a pro-active approach in this field beyond compliance with all relevant regulatory requirements regarding the environment. EMAS should be made available to all organisations having environmental impacts, providing a means for them to manage these impacts and to improve their overall environmental performance. Organisations should be encouraged to participate in EMAS on a voluntary basis and may gain added value in terms of regulatory control, cost savings and public image.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 741 – Conflicts Over Natural Resources in India

##### Content:

Ecology movements and conflicts over natural resources

The recent period in human history contrasts with all the earlier ones in its strikingly high rate of resource utilization. Through combination of resource intensity at the material level and resource indifference at the conceptual and political levels, conflicts over natural resources generated by the new pattern of resource utilisation are generally shrouded and overlooked. These conflicts become visible when resource and energy-intensive industrial technologies are challenged by communities whose survival depends on the conservation of resources threatened by destruction and overexploitation, or when the devastatingly destructive potential of some industrial technologies is demonstrated as in the Bhopal disaster. Colonial domination systematically transformed the common vital resources into commodities for generating profits and growth of revenues. The first industrial revolution was to a large extent supported by this transformation of commons into commodities which permitted European industries access to the resources of South Asia. However, resource use policies continued along the colonial pattern and, the most seriously threatened interest, in this conflict, appears to be that of the politically weak and socially disorganised group whose resource requirements are minimal and whose survival is primarily dependent directly on the products of nature outside the market system.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 742 – Conflict over Natural Resources in South-East Asia and the Pacific

##### Content:

Peace is elusive and cannot be imposed or guaranteed militarily. The complexity of the subject of peace implies that fresh concepts and innovative methods are necessary to supplement the knowledge and insights provided by conventional research into conflict, i.e. through disarmament and military studies and international relations. This analysis of conflict through a focus on natural resources uncovers the linkages between resources and the role of the state in facilitating or preventing access to them, and the implications that the conflict over resources holds for human rights and cultural survival in the two regions. At the same time, the exploration of these and other more general linkages, such as the role of science and technology in the organization of resource extraction, distribution and utilization, and the impact of the world economic crisis on resource use, is a step towards a more holistic and integrated analysis of the root causes of conflict.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 743 – Hydropolitics along the Jordan River

Content:

All of the countries and territories in and around the Jordan River watershed - Israel, Syria, Jordan, the West Bank, and Gaza - are currently using between 95 per cent and more than 100 per cent of their annual renewable freshwater supply. In recent dry years, water consumption has routinely exceeded annual supply, the difference usually being made up through overpumping of fragile groundwater systems. Superimposed on this regional water shortage are the political boundaries of countries that have been in a technical, when not actual, state of war since 1948. In fact, much of the political conflict has been either precipitated or exacerbated by conflicts over scarce water resources. In addition to a natural increase in demand for water due to growing populations and economies, the region can expect dramatic demographic changes from at least three sources. The absorption of any or all of these groups of immigrants would have profound impacts on regional water demands. Given the important role of water in the history of the Middle East conflict, and given imminent water shortages in this volatile region, the future can appear full of foreboding.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 750 – Education, Conflict and International Development

Content:

This course deals with significant issues related to education and conflict reduction. It is divided into four main sections. It examines the relationship between education and conflict. It looks at ways in which the education sector can respond to conflict. It explores the relationships between some of the key international agencies working in the field of conflict and education and focuses attention on three areas where education can respond to conflict: State education; Countries in conflict; Countries emerging from conflict. The final section summarises the policy implications that arise from their analysis.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 772 – Skeptical Environmentalists

Content:

Theories challenging widely held beliefs that the environmental situation is getting worse, concluding that there are more reasons for optimism than for pessimism. The key idea is not to let environmental organizations, business lobbyists and the media be alone in presenting truths and priorities.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 780 – Assessment of information related to waste and material flows

Content:

Integrated environmental assessment (IEA) is increasingly recognised as an important technique for managing the environmental impacts of human actions. It may be defined as the interdisciplinary process of identification, analysis and appraisal of all the relevant natural and human processes, which affect the quality of the environment and environmental resources. The objective of IEA is to facilitate the framing and implementation of optimal policies and strategies, accounting for both environmental effects and other priorities (e.g. cost constraints).

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 781 – Key challenges for corporate environmental performance

Content:

This course, aimed at both individual companies and organisations representing company stakeholders and policy-makers, summarises current trends, problems and developments in the areas of Environmental Performance Indicators (EPIs); Environmental Reporting; Environmental Performance Ranking; and their interconnections as a contribution to enhancing the eco-efficiency of companies.

There are interrelationships between the various environmental management tools that need to be acknowledged in strategic environmental management, even though they have all not yet been clearly identified. In many cases companies have launched projects involving environmental management systems, environmental auditing, environmental accounting, lifecycle assessment, environmental reporting, development of environmental performance indicators (EPIs) and environmental benchmarking etc., without reflecting on the interrelationships between them and the potential synergetic or counteractive effects they could have on each other.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 782 – Environmental Risk Assessment

Content:

Approaches and Experiences. Concepts, Principles and Uses. Introduction to risk assessment concepts. The use of risk assessment in environmental management. A typology of risk assessment and management methods. Overview of risk assessment methods.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 783 – Environmental Management - Tools for SMEs

Content:

ENVIRONMENTAL MANAGEMENT. ENVIRONMENTAL POLICY. ENVIRONMENTAL MANAGEMENT SYSTEMS. ENVIRONMENTAL AUDITING. ENVIRONMENTAL INDICATORS. ECOBALANCES. LIFE-CYCLE ASSESSMENT. ENVIRONMENTAL LABELLING SCHEMES. ENVIRONMENTAL REPORTING. ENVIRONMENTAL CHARTERS

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 784 – Environmental Management Practices in USA

##### Content:

This course provides practical policy advice concerning the effectiveness and efficiency of alternative environmental policy innovations that encourage greater environmental improvements, and especially those related to EMS adoption.

The purpose of this course is three-fold. First, it offers preliminary advice regarding different U.S. environmental policies and programs that encourage environmental innovation. Second, this is intended to help the U.S. manufacturing facilities that participated in our study to benchmark their environmental management against similar companies. Finally, to contribute to the dialogue about the different types of environmental innovations and how they might vary across OECD countries. The course addresses three broad research questions:

1. Why do facilities introduce environmental management systems and tools?
2. Why do facilities undertake specific types of environmental investments and innovations?
3. What are the links between facilities' financial performance and their environmental management practices?

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 785 – MEASURING MATERIAL FLOWS AND RESOURCE PRODUCTIVITY - Synthesis report

##### Content:

The purpose of the course on material flows (MF) and resource productivity (RP) is to improve the quantitative and analytical knowledge base about natural resource and material flows within and among countries, so as to better understand the importance of material resources in member countries' economies and to inform related policy debates. This is done by providing guidance on how to measure material flows and resource productivity, paying attention to the "supply side", i.e. how material flow accounts and related indicators can be constructed in a coherent framework that countries can easily implement and further adapt to their own needs, and the "demand side", i.e. how material flow indicators can be selected to suit policy needs and how they can be interpreted and used.

The guidance documents reflect the state of the art concerning experience with material flow analysis and related indicators in OECD member countries.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 786 – Environmentally Sound Management (ESM) of Waste

##### Content:

This course aims at facilitating the implementation of an environmentally sound waste management policy by governments on one hand, and by waste treatment facilities on the other hand.

Every element of the Recommendation C(2004)100 is explained in detail, as well as the different core performance criteria which characterise environmentally sound management of waste, through various types of information (such as technical, financial, regulatory). Waste management practices applied in certain member countries are presented as examples.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 787 – EPR Policies and Product Design

##### Content:

It discusses the Design for Environment impacts of Extended Producer Responsibility policies, and investigates further the extent to which EPR policies can be expected to contribute to Design for the Environment. improvements.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

## EnvStud 788 – ENVIRONMENTAL INNOVATION AND GLOBAL MARKETS

### Content:

This course examines the links between environmental innovation and globalisation from two perspectives. It explores, on the one hand, how firms are adapting their environmental innovation strategies to the challenges and opportunities of global markets, and on the other, ways in which governments are promoting environmentally-related innovation in the context of a globalising economy. The course draws on interviews with representatives from governments and companies. The case studies resulting from the interviews with company representatives provide insights into how firms' strategies are evolving in response to new opportunities and challenges in environmentally-related sectors, and global markets. The focus of the course and the case studies is on innovation in the fields of energy efficiency and renewable energy.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 801 – A Science for Sustainable Living

Content:

As the new century unfolds, there are two developments which will have a defining impact on the future of humanity. Both have to do with networks and both involve radically new technologies. Global capitalism is concerned with electronic networks of financial and informational flows. Creation of sustainable communities based on ecological literacy and the practice of ecodesign, concerned with ecological networks of energy and material flows. The goal of the global economy is to maximize the wealth and power of its elites; whilst the goal of ecodesign is to maximize the sustainability of the web of life.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 805 – Tools to Aid Environmental Decision Making

Content:

Environmental decisions are made every day in manufacturing plants, city council meetings, and corporate boardrooms. The tools described range from software to policy approaches, and from environmental databases to focus groups.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 810 – Collapse or Survival of Societies

Content:

From the ghostly stone heads of Easter Island to crumbling Mayan cities hidden deep in the jungle, the mysterious ruins of lost worlds and vanished civilizations continue to haunt us. How could such mighty societies fall? And could our skyscrapers one day stand derelict and overgrown like ancient temples?

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 825 – The Earth's Climate Crisis

Content:

The state of the earth. What is Gaia? The Life History of Gaia. Forecasts for the Twenty-first Century. Sources of energy. Chemicals, food and raw materials. Technology for a sustainable retreat. A personal view of environmentalism. Beyond the terminus.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

#### EnvStud 835 – The Meaning of the 21<sup>st</sup> Century. A Vital Blueprint for Ensuring Our Future.

Content:

We live at a turning point in human history. Ahead is a century of massive change. Either we learn to manage this change, or we allow it to control us and face devastating consequences. A pragmatic blueprint for action.

Course Lecturer: Gerhard Berchtold, PhD

ECTS credits: 6

## Coursebooks

EnvStud 601 – Environmental Challenges – Environmental and Human Needs

Coursebook:

<http://siteresources.worldbank.org/INTRANETENVIRONMENT/Resources/ProtectingOurPlanet.pdf>

Protecting Our Planet Securing Our Future  
LINKAGES AMONG GLOBAL ENVIRONMENTAL ISSUES AND HUMAN NEEDS  
Robert T. Watson  
John A. Dixon  
Steven P. Hamburg  
Anthony C. Janetos  
Richard H. Moss  
November 1998  
United Nations Environment Programme  
U.S. National Aeronautics and Space Administration  
The World Bank

UNITED NATIONS ENVIRONMENT PROGRAMME  
P.O. Box 30552  
UNEP Nairobi, Kenya  
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<http://www.unep.org>  
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<http://www.nasa.gov>  
THE WORLD BANK  
1818 H Street, N.W.  
Washington, D.C. 20433 USA  
<http://www.worldbank.org>

This report, *Protecting Our Planet: Securing Our Future*, is the result of a collaborative enterprise between the World Bank, U.S. National Aeronautics and Space Administration, and the United Nations Environment Programme, and depicts in a comprehensive manner the linkages- physical and biochemical - between a number of environmental issues. It also addresses the means by which interlinked global environmental issues can be confronted in an integrated manner.

## EnvStud 605 – Strategies for Sustainability

### Coursebook:

Environment, energy, and economy: strategies for sustainability

Edited by Yoichi Kaya and Keiichi Yokobori.

United Nations University Press

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This volume contains the major discussions presented at the United Nations University's Tokyo Conference on "Global Environment, Energy, and Economic Development" held at its Headquarters from 25 to 27 October 1993. The presentations are grouped into six parts of the main issues and conclusions.

## EnvStud 608 – Business and Sustainability

### Coursebook:

In this book, business people, economists, ecologists, and other thinkers outline new practical approaches that business and society, including media and educators, must take to move towards sustainability.

### Steering business toward sustainability

Edited by Fritjof Capra and Gunter Pauli (Eds.)

United Nations University Press

TOKYO • NEW YORK • PARIS

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UNUP-909

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## EnvStud 610 – Eco-restructuring for sustainable development

Coursebook:

Eco-restructuring: Implications for sustainable development

Robert U. Ayres, Editor

Paul M. Weaver, Assistant Editor

With the editorial support of Gilberto Gallopín, Walther Manshard, R. Socolow, Mikoto Usui

United Nations University Press

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UNUP-984

ISBN 92-808-0984-9

Following on from the critically acclaimed *Industrial Metabolism*, this study provides a significant contribution to the literature on sustainability by identifying, on a sectoral basis, the critical issues facing the world as a whole, and the technical feasibility of addressing them. A new paradigm of eco-restructuring for sustainable development is introduced, involving shifts in technology, economic activities and lifestyles needed to harmonize human activities with natural systems.

This volume analyses a number of sectors and technological fields that are involved in the search for sustainable patterns of industrialization. Each technology chapter presents, in a self-contained and comprehensive way, the state of the sector, the primary issues that concern the sector's sustainability and the technical means for achieving sustainable outcomes. Comprehensive coverage is given on the fields of material, various energy technological and futures, tropical land use, transport and industrial space use, ecological process engineering, and agro-engineering. The volume also contains chapters on systems views of the broader eco-restructuring concept, including its biophysical basis, global eco-restructuring and technological change, and national and international policy instruments and institutions.

Set forth in this way, the book breaks new ground in the understanding of sustainability as a multi-and interdisciplinary area.

## EnvStud 620 – International Environmental Law

### Coursebook:

Environmental change and international law: New challenges and dimensions

Edited by Edith Brown Weiss

United Nations University Press

© The United Nations University, 1992

United Nations University Press

The United Nations University

53-70, Jingumae 5-chome, Shibuya-ku,

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HDGC-1/UNUP-818

ISBN 92-808-0818-4

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04000 P

This book addresses issues relating to the changing role of international law and includes topics such as the emerging principles of prevention and mitigation, the implementation of environmental law and the third world, risk assessment, international organizational restructuring, state responsibilities, and quality. Particular focus is given to the need to anticipate approaches to international law for the prevention of environmental harm and the role scientific information can play in establishing cross-national agreements.

Modern international environmental law dates to approximately 1972, when countries gathered for the United Nations Stockholm Conference on the Human Environment and the United Nations Environment Programme was established. Many important legal developments took place in the period surrounding the Conference. Since then, there has been a rapid rise in international legal instruments concerned with the environment, to the point where we are concerned today with developing new means for coordinating the negotiation and implementation of related agreements, in particular their administrative, monitoring, and financial provisions. Ever since 1972, the scope of international agreements has expanded significantly. The duties have also become more comprehensive: from a focus on research and monitoring to provisions for reductions in pollutants. Most notably, there is not a single example in which the provisions of earlier conventions have been weakened; in all cases, they have been strengthened or their scope has been expanded.

## EnvStud 635 – Food and Energy

### Coursebook:

Food and Energy - Strategies for Sustainable Development  
Ignacy Sachs and Dana Silk  
UNITED NATIONS UNIVERSITY PRESS  
© The United Nations University, 1990  
United Nations University Press  
The United Nations University  
53-70 Jingumae 5-chome, Shibuya-ku  
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United Nations Sales No. E.90.III.A.12  
02500 P

This publication is based on the activities of the Food-Energy Nexus Programme (FEN) of the United Nations University (UNU) which took place between 1983 and 1988. As is the custom with the UNU, most of this research was done by researchers associated with various universities or research centres around the world. In this case, considerable work was done by researchers in third world countries in order to promote South-South co-operation in the fields studied.

For most people, the relation between food and energy problems first became evident as a result of the oil crisis in the early 1970s. While immediate attention was given by industrialized countries to ensuring adequate oil supplies to fuel their energy-intensive food systems, long-term concerns were raised about the plight of the rural and urban poor in third world countries with the realization that the high cost of energy and fertilizers would further limit the scope of the Green Revolution.

Beyond the oil price problem loomed the second energy crisis, with even greater social and ecological consequences for more than half of the world's population. In practically all third world countries the problems of getting food to eat began to be overshadowed by the problems of acquiring the energy needed to cook it. Apart from the financial sacrifices, there was a severe strain on time budgets, notably those of women and children, who spend increasingly long hours collecting fuelwood (Cecelski 1987). These problems are exacerbated by the seasonal imbalance in biomass supply and the vicious cycle of greater quantities of dung being used as fuel rather than as fertilizer for maintaining crop production.

Speaking at an intergovernmental meeting of development assistance coordinators in Asia and the Pacific, held in February 1981 in New Delhi, the Rector of the UNU, Soedjatmoko (1981), first made reference to what was to become FEN:

Rising fuel prices, boosting transportation and agricultural costs, will inevitably push food prices beyond the reach of hundreds of millions of already hungry people. Rising populations, despite the best efforts to reduce fertility rates, will continue to increase the demand for both food and energy. The developing countries will not be able to solve their food problem without solving their energy problem and, without a satisfactory solution to both, their economic growth will be severely constrained. The centrality of the food and energy nexus calls for a comprehensive policy approach. Only through a clear understanding of this food-energy pivot can the situation be turned around.

## EnvStud 650 – Environment and Trade

Coursebook:

Environment and Trade - A Handbook

The United Nations Environment Programme  
Division of Technology, Industry and Economics  
Economics and Trade Unit  
and the  
International Institute for Sustainable Development

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Institute for Sustainable Development

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Hartfordshire, England SG1 4TP

Tel.: +44 (1438) 748-111

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Environment and trade: a handbook

ISBN 1-895536-21-9

The handbook has been developed to highlight the relationship between environment and trade. The primary aim is to foster a broader understanding of these interlinkages to enable governments to develop practical approaches to integrating these policies. It is possible, but by no means automatic, that trade and environmental policies should support each other in achieving their objectives. Close integration of these policies is necessary to maximize the benefits that trade can bring to increase human welfare and economic development more sustainably.

The handbook is aimed mainly at those with some knowledge about trade, environment or development, but not expert on the intersection of the three. It is also a practical reference tool for policy-makers and practitioners. But the target audience is not just government policy-makers; the media and public may also find it useful. The handbook uses clear language and a minimum of jargon to foster a greater understanding by all elements of civil society.

This handbook should help us understand how trade can affect the environment, for better and for worse, and how environmental concern can work through the trading system to foster or frustrate development, in both rich and poor countries. It is critical to ensure that trade's potential for growth and development does, in fact, lead to environmentally sustainable

development. Broader understanding and awareness of these linkages will then be the foundation on which fair and environmentally sustainable policies and trade flows are built.

The handbook is also available in a continually updated Web version at both <http://www.unep.ch/etu> and <http://iisd.ca/trade/handbook>.

Here, readers can link to on-line articles and analyses that go into greater depth on the themes covered in the print version. The Web version will also have other resources, such as a compendium of trade and environment disputes and links to other sites of interest.

## EnvStud 662 – Energy and Poverty

Coursebook:

Sustainable Energy for Poverty Reduction: an Action Plan

Authors: ITDG, IT Consultants, IT Power and ITDG Latin America

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Some 1.6 billion people in the world, more than a quarter of humanity, have no access to electricity and 2.4 billion people rely on wood, charcoal or dung as their principal source of energy for cooking and heating. This fuel is literally killing people. Two and a half million women and children die each year from the indoor pollution from cooking fires.

The poor face another threat, paradoxically because of the over consumption of energy. Industrialised countries' excessive fossil fuel consumption is driving climate change, and the poor are bearing the brunt because poverty makes them the most vulnerable and least able to cope. Thousands have already died and millions more made homeless due to extreme weather events. The Intergovernmental Panel on Climate Change described Africa, the world's poorest region, as "the continent most vulnerable to the impacts of projected change because widespread poverty limits adaptation capabilities".

The rapid expansion of clean and sustainable energy offers a win-win for the poor and the environment. For the poor, particularly the rural poor, without basic energy services, renewable energy is often the cheapest option. For industrialised countries a massive uptake of renewable

energy will help to achieve the dramatic emissions cuts needed to avoid climate change. The growth of renewable energy is both necessary to provide energy services without choking the planet and to create the economies of scale necessary for a global expansion of renewable energy.

This report reviews some international actions taking place to provide sustainable energy services to some of the world's poor. Three countries, China, Peru and Mozambique, have been analysed to demonstrate how they are addressing access to energy. Examples are given of implementing energy initiatives, which demonstrate the clear role that sustainable and renewable energy technologies have in fulfilling the energy needs of poor people in these countries.

The cost of getting energy to the world's poor is not prohibitive. To light up the homes of 1.6 billion people with clean sustainable energy will cost in the region of US \$9 billion a year for ten years. This compares with between US \$250 and US \$300 billion a year spent on subsidising fossil fuels and nuclear power.

World leaders at the World Summit on Sustainable Development have a historic opportunity to face the greatest threat to our collective survival because of our unsustainable use of energy. They must decide to answer the needs of nearly two billion poor people who lack access to sustainable modern energy services and also to change the conventional energy development path of industrialised countries towards renewable technologies.

An action plan for sustainable energy for poverty reduction

Sustainable, clean energy can play a key role in reducing the huge burden of poverty and environmental degradation around the world. In order to maximise the role of clean and renewable energy in poverty reduction significant steps forward must be made to:

- implement strategies which will allow access to clean energy for the world's two billion poorest people in ten years
- greatly expand global renewable energy markets particularly in the North to create economies of scale
- stimulate clean and renewable energy markets in developing countries to increase energy options available for sustainable development.

Clean renewable energy is defined as modern biomass, geothermal, wind, solar, small scale hydropower and marine energy.

The action plan sets out a clear agenda for achieving the win-win goal of poverty reduction and action on climate change.

International declaration

An international declaration must produce a 'Sustainable Energy Action Plan' to both:

- massively expand the use of renewable energy North and South, and
- ensure access to sustainable and renewable sources of energy to the two billion of the world's poorest people who currently do not have access to basic, modern energy services, in ten years as a fundamental part of achieving the Millennium Development Goal of halving the people in poverty by 2015.

## EnvStud 670 – European Environment Action Plan – Environment 2010

Coursebook:

COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 24.1.2001

COM (2001) 31 final

2001/0029 (COD)

COMMUNICATION FROM THE COMMISSION TO THE COUNCIL, THE EUROPEAN PARLIAMENT, THE ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

On the sixth environment action programme of the European Community

'Environment 2010: Our future, Our choice'

- The Sixth Environment Action Programme -

Proposal for a

DECISION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

Laying down the Community Environment Action Programme 2001-2010

(Presented by the Commission)

A healthy environment is essential to long term prosperity and quality of life and citizens in Europe demand a high level of environmental protection. Future economic development and increasing prosperity will put pressure on the planet's capacity to sustain demands for resources or to absorb pollution. At the same time, high environmental standards are an engine for innovation and business opportunities. Overall, society must work to de-couple environmental impacts and degradation from economic growth. Business must operate in a more eco-efficient way, in other words producing the same or more products with less input and less waste, and consumption patterns have to become more sustainable.

Environment 2010:

European Commission

2001-2010

6th EU Environment Action Programme

Our Future, Our Choice

Luxembourg: Office for Official Publications of the European Communities, 2001

ISBN 92-894-0261-X

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What kind of environment do we want to live in? What kind of environment do we want our children and grandchildren to inherit? This is the starting point for the new Environment Action Programme: Environment 2010: Our Future, Our Choice, which the Commission has proposed to the Member States and the European Parliament.

All of us believe that the air we breathe, the water we drink and the food we eat should be free of harmful pollutants. We want to avoid the threat and uncertainty of climate change. A clean and healthy environment is vital to the quality of life we desire for ourselves now and for our children in the future.

Protecting the planet creates both challenges and opportunities. Through greater efficiency and better use of natural resources, we can break the old link between economic growth and environmental damage. We can be both more prosperous and greener.

Environment 2010: Our Future, Our Choice - the Sixth Environment Action Programme has been presented in two parts:

1. The European Commission's Policy Statement (referred to as a Communication);
2. The European Commission's proposed text for a legal decision by Environment Ministers and the European Parliament.

The main bulk of the Programme forms the Policy Statement, which is now European Commission policy. The Commission is committed to working towards the objectives set out in this statement and summarised in this booklet.

The proposed text for a legal decision now needs to be discussed and formally adopted by joint agreement by the Parliament and the Council of Ministers. This will be followed by more detailed proposals from the Commission on individual measures.

While Environment 2010: Our Future, Our Choice establishes our priorities for action over the next 10 years, the Commission will review progress after five years, updating the Programme as necessary to take account of new developments and information.

## EnvStud 671 – Europe´s Environment

Coursebook:

Europe´s Environment  
The 4th Assessment

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In this, the fourth assessment report, we underline the changes that have occurred in the environment and socio-economic context to help explain many of the environmental trends that have been observed.

We identify successes and improvements but also register old legacies that need further effort such as, in particular, air pollution, water issues and contaminated sites. New threats, which challenge piecemeal solutions and call for integrated strategic measures at European and global levels, are described such as persistent chemicals in the environment, biodiversity loss, sustainable production and consumption and climate change.

And a new overview is given of the state of European marine areas and inland seas.

We can recognise three types of challenge distinguished by the manner and difficulty of their control and management. First, there are those issues such as air and water pollution where, by and large, we know how to solve them and what implementation action is required. However, while progress has been made, problems of this type still persist largely due to the

difficulties with working out in practice and at local level how to implement the known solutions. Second, there are the more complex challenges, such as biodiversity loss and river basin management. Here progress is also being made, but because of the strong cross border, inter regional and international cooperation required to deal with them, and the need for a diversity of inter-linked actions, the progress is often not fast enough to keep pace with changes. Thirdly, there are the issues such as climate change and current patterns of production and consumption which are particularly complex to deal with, and progress is slow, since they necessitate changes now without immediate and obvious benefits. However, action is needed since these issues have the potential to seriously limit future options for meeting needs sustainably thereby posing significant threats to our health, environment and livelihoods and those of future generations. These issues require long-term, integrated cross-sectoral measures to be taken that need to be underpinned by strategic international agreements which encourage diverse, robust and innovative technologies and adaptive management practices.

## EnvStud 673 – ENVIRONMENTAL AGREEMENTS - Environmental Effectiveness

Coursebook:

### ENVIRONMENTAL AGREEMENTS

#### Environmental Effectiveness

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Environmental Agreements are relatively recent in the policy arena so the available literature on the subject is scarce and consists mainly of theoretical studies with very little on the practical application of these instruments. In order to fill this gap this report examines 6 Agreements covering various countries and environmental issues, and tries to evaluate their environmental effectiveness. The report also includes a synthesis of a survey on Environmental Agreements undertaken by the European Commission during 1996 which shows that over 300 Environmental Agreements, are currently recognised by national authorities of the countries of the European Union. Given the growing enthusiasm for this instrument, and in particular the support it has gained from industry, it is important to make a joint effort to improve the design and implementation of Environmental Agreements in order to make it possible to monitor and assess their effectiveness vis-à-vis other policy tools.

## EnvStud 675 – Using the market for cost-effective environmental policy Market-based instruments in Europe

Coursebook:

Using the market for cost-effective  
environmental policy  
Market-based instruments in Europe

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Market-based instruments can be particularly effective tools for dealing with the four major areas of action of the EU 6th environmental action programme, namely: tackling climate change, preserving nature and biodiversity, protecting environment and human health, and through the sustainable use of resources and management of wastes.

### Why market-based instruments?

Much environmental pollution and natural resource depletion comes from incorrect pricing of the goods and services we produce and consume. 'Market-based instruments' (MBIs) — such as taxes, charges, subsidies and tradable permits help to realise simultaneously environmental, economic and social policy objectives by taking account of the *hidden costs* of production and consumption to people's health and the environment, in a cost-effective way. These hidden costs include damage from air and water pollution, waste disposal, soils and species losses, climate change and the floods, heat waves and storms that it brings, and health costs. These costs are often paid by people who are not even benefiting from the use of these products, such as the next generation of children, the Arctic peoples who are on the receiving end of Europe's pollution, the poor living next to roads and factories, or pensioners without cars in big cities.

Market-based instruments can be particularly effective tools for dealing with the four major areas of action of the EU 6th environmental action programme, namely: tackling climate change, preserving nature and biodiversity, protecting environment and human health, and through the sustainable use of resources and management of wastes. They do so by addressing the sources of environmental pollution most relevant to these areas such as:

- emissions from power stations, industry, cars and aircraft (tradable emission permits, fuel taxes);

- increasing waste generation by households and other actors (waste disposal taxes, taxes on packaging, incentives for recycling);
- emissions resulting from houses and offices (incentives for improved insulation and energy efficient heating systems);
- emissions resulting from agricultural activities (fertiliser and pesticide taxes).

## EnvStud 680 – OECD Environmental Strategy for the First Decade of the 21st Century

Coursebook:

OECD Environmental Strategy  
for the First Decade  
of the 21st Century  
Adopted by OECD Environment Ministers  
16 May 2001  
ORGANISATION

OECD Environmental Strategy  
for the First Decade of the 21st Century  
TOWARDS ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT

What is the purpose of the Strategy?

This OECD Environmental Strategy for the First Decade of the 21st Century is intended to provide clear directions for environmentally sustainable policies in OECD Member countries, and will guide the future work of the OECD in the field of environment. It is a follow up to the 1998 OECD Environment Ministers' Shared Goals for Action which "invited the OECD to develop a new environmental strategy for the next decade and agreed to review it when they meet in 2001".

The Strategy should be implemented before 2010. The OECD Environmental Performance Reviews and the environmental indicators programme will be used for the monitoring of progress.

Future meetings of the OECD Environment Policy Committee (EPOC) at ministerial level will review the progress achieved in implementing the Strategy.

The Strategy is an important building block for the OECD-wide Sustainable Development Initiative. OECD Member countries have a special responsibility in the follow-up to the Rio Principles and to Agenda 21 agreed in Rio de Janeiro in 1992. The World Summit on Sustainable Development in South Africa in 2002 will serve as a unique opportunity for OECD Member countries to demonstrate leadership in implementing already agreed as well as new policies that will serve to achieve progress towards sustainable development. Implicit in this will be the integration of the economic, social and environmental pillars of sustainable development.

Underlying the Strategy is a need to further develop environmental policy towards fostering sustainable development within and among OECD countries in a way that is responsive to nonmember countries in their search for sustainable development. The success of implementing this Strategy will therefore also depend on strengthened co-operation with non-member countries, including developing countries and countries with economies in transition. OECD countries have an important role to play by building capacity in non-member countries and working with other countries to develop effective and equitable burden sharing arrangements for addressing global environmental problems, recognising their common but differentiated responsibilities.

In implementing the Strategy, governments and the OECD will seek active partnership with the private sector and civil society, and promote co-operation among stakeholders, for example in the workplace.

## EnvStud 683 – OECD Environmental Policy Briefs

Coursebook:

POLICY BRIEF  
Organisation for Economic Co-operation and Development

MARCH 2006  
Advancing sustainable development

FEBRUARY 2007  
Assessing Environmental Policies

FEBRUARY 2008  
Health and the Environment

October 2002  
Improving Policy Coherence and Integration for Sustainable Development - A Checklist

SEPTEMBER 2007  
Making Environmental Spending Count

FEBRUARY 2007  
The Political Economy of Environmentally Related Taxes

JUNE 2006  
The Social Dimension of Environmental Policy

## EnvStud 690 – Climate Change 2007: Synthesis Report

Coursebook:

Climate Change 2007: Synthesis Report

An Assessment of the Intergovernmental Panel on Climate Change  
This underlying report, adopted section by section at IPCC Plenary XXVII (Valencia, Spain, 12-17 November 2007),  
represents the formally agreed statement of the IPCC concerning key findings and uncertainties contained in the Working  
Group contributions to the Fourth Assessment Report.

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This Synthesis Report is based on the assessment carried out by the three Working Groups (WGs) of the Intergovernmental Panel on Climate Change (IPCC). It provides an integrated view of climate change as the final part of the IPCC's Fourth Assessment Report (AR4).

Topic 1 summarises observed changes in climate and their effects on natural and human systems, regardless of their causes, while Topic 2 assesses the causes of the observed changes. Topic 3 presents projections of future climate change and related impacts under different scenarios. Topic 4 discusses adaptation and mitigation options over the next few decades and their interactions with sustainable development. Topic 5 assesses the relationship between adaptation and mitigation on a more conceptual basis and takes a longer-term perspective. Topic 6 summarises the major robust findings and remaining key uncertainties in this assessment.

## EnvStud 712 – Colonization and Environment in Central America

Coursebook:

Colonization and Environment: Land Settlement Projects in Central America

Jeffrey R. Jones

© The United Nations University, 1990

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03000 P

This book is the result of a study carried out under the United Nations University Project on Resource Use of Frontiers and Pioneer Settlements. A major aim of the project was to determine the ecological impact of pioneer settlement; specifically, which settlement patterns minimize the destructive effects on the environment. The project included an appraisal of the economic, political, and cultural factors bearing on frontier settlement, and an examination of the different interdependent variables involved from biophysical parameters to government action and policies- to discover which combination of these factors are likely to result in successful settlements.

The project (1983-1987) included in its activities several international symposia and indepth case-studies of pioneer settlement areas in the humid tropics of Africa, Asia, Central and South America.

Colonization and Environment: Land Settlement Projects in Central America presents the findings of a study undertaken in Costa Rica, Guatemala, Honduras, Nicaragua, and Panama of patterns of tropical land colonization and government policies and management practices regarding land settlement.

## EnvStud 715 – Ecology in Development Policy

Coursebook:

Ecology in Development: A Rationale for Three-Dimensional Policy

Brian Spooner

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53-70 Jingumae 5-chome, Shibuya-ku

Tokyo 150, Japan

An ecological problem is not, in the first place, the same thing as a problem in ecology. A problem in ecology is a purely scientific problem, arising out of the fact that scientists do not understand some particular ecological phenomenon, how, for example, DDT finds its way into the fat of Antarctic birds. Its solution brings them understanding. An ecological problem, in contrast, is a special type of social problem. (We can easily be led to suppose otherwise because most books on ecological problems are written by scientists.) To speak of a phenomenon as a 'social problem' is not to suggest merely, or perhaps at all, that we do not

understand how it comes about; it is labeled a problem not because, like a scientific problem, it presents an obstacle to our understanding of the world but rather because - consider alcoholism. crime. deaths on the road - we believe that our society would be better off without it. Passmore (1974, p. 43)

## EnvStud 722 – Global Greenhouse Regime

### Coursebook:

The Global Greenhouse Regime • Who Pays?

Edited by Peter Hayes and Kirk Smith

United Nations University Press

Tokyo • NEW YORK • PARIS

Earthscan Publications Ltd. London

Science, economics and North-South politics in the Climate Change Convention

First published in 1993 by

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After the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, a central issue in the Climate Change Convention relates to the amounts and sources of the greenhouse gases emitted from the various countries and regions, both industrialized and developing, and their relation to international governance. To date, the lack of agreed principles has stalled agreement as to what concrete and practical steps should be taken to meet the needs for stabilizing climate change.

The present book is the outcome of the UNU international collaborative research carried out under the Human and Policy Dimensions of Global Change programme. It is aimed at presenting the state of the art in greenhouse indices, and related international policy making and governance, clarifying key technical issues relating to greenhouse gas emissions, and outlining the economic responsibilities of various countries based on the emissions. It makes an argument for the necessary North-South resource transfers.

A unique contribution of this book is its proposed composite index to determine who should pay for creating a global greenhouse gas regime, an index that incorporates both ability to pay - that is, economic realism - and historical contribution to climate change - that is, equity based on the polluter pays principle.

This, however, is only one of the contributions of the book to environmental diplomacy debates, which inevitably involve issues of science and technology, politics and economics, and, not the least, ethics. Environmental diplomacy must therefore be based on comprehensive interdisciplinary viewpoints as illustrated in this work. It must also be sensitive to varying regional approaches and views, as also reflected in this work, itself the product of a global network of scholars drawn from Australia, North America, India, Africa, South America, the Pacific Islands, and Europe.

This is a timely, important book. It deserves to be read by a wide audience of policy makers, academics and a public interested in the future of the earth.

#### EnvStud 730 – European eco-management and audit scheme (EMAS)

Coursebook:

REGULATION (EC) No 761/2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL  
of 19 March 2001

allowing voluntary participation by organisations in a Community eco-management and audit scheme (EMAS)

COMMISSION RECOMMENDATION

of 7 September 2001

on guidance for the implementation of Regulation (EC) No 761/2001 of the European Parliament and of the Council allowing voluntary participation by organisations in a Community ecomanagement and audit scheme (EMAS)

(notified under document number C(2001) 2503) (Text with EEA relevance)  
(2001/680/EC)

COMMISSION DECISION

of 7 September 2001

on guidance for the implementation of Regulation (EC) No 761/2001 of the European Parliament and of the Council allowing voluntary participation by organisations in a Community ecomanagement and audit scheme (EMAS)

(notified under document number C(2001) 2504) (Text with EEA relevance)  
(2001/681/EC)

#### EnvStud 741 – Conflicts Over Natural Resources in India

Coursebook:

Ecology and the Politics of Survival • Conflicts Over Natural Resources in India

VANDANA SHIVA

in association with J. Bandyopadhyay · Pandurang Hegde · B.V. Krishnamurthy John Kurien · G. Narendranath · Vanaja Ramprasad S.T.S. Reddy

United Nations University Press

Sage

Publications

New Delhi/Newbury Park/London

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81-7036-249-0 (India-hbk.)

The United Nations University's Programme on Peace and Global Transformation was a major world-wide project whose purpose was to develop new insights about the interlinkages between questions of peace, conflict resolution, and the process of transformation. The research in this project, under six major themes, was coordinated by a 12-member core group in different regions of the world: East Asia, South-East Asia (including the Pacific), South Asia, the Arab region, Africa, Western Europe, Eastern Europe, North America, and Latin America. The themes covered were: Conflicts over Natural Resources; Security, Vulnerability and Violence; Human Rights and Cultural Survival in a Changing Pluralistic World; The Role of Science and Technology in Peace and Transformation; The Role of the State in Peace and Global Transformation; and Global Economic Crisis. The project also included a special project on Peace and Regional Security.

This book analyses environmental conflicts in contemporary human society. In general it relates to societies all over the world, but in particular it addresses the most intense and emerging social contradictions in India related to conflicts over natural resources. Science and technology are central to these conflicts because while scientific knowledge has been used by contemporary societies to considerably enlarge man's access to natural resources, it has also allowed the utilisation natural resources at extremely high rates.

The ecology movements that have emerged as major social movements in many parts of India are making visible many invisible externalities and pressing for their internalisation in the economic evaluation of the elite-oriented development process. In the context of a limited resource base and unlimited development aspirations, ecology movements have initiated a new political struggle for safeguarding the interests and survival of the poor, the marginalised, including women, tribals and poor peasants.

The intensity and range of ecology movements in independent india have continuously widened as predatory exploitation of natural resources to feed the process of development has increased in extent and intensity. This process has been characterised by the massive expansion of energy and resource-intensive industrial activity and major development projects like large dams, forest exploitation, mining and energy-intensive agriculture. The resource demand of development has led to the narrowing of the natural resource base for the survival of the economically poor and powerless, either by direct transfer of resources away from basic needs or by destruction of the essential ecological process that ensure renewability of the life-supporting natural resources.

In the light of this background, ecology movements emerged as the people's response to this new threat to their survival and as a demand for the ecological conservation of vital life-support systems. The most significant life-support systems in addition to clean air are the common property resources of water, forests and land on which the majority of the poor people of India

depend for survival. It is the threat to these resources that has been the focus of ecology movements in the last few decades.

## EnvStud 742 – Conflict over Natural Resources in South-East Asia and the Pacific

Coursebook:

Conflict over Natural Resources in South-East Asia and the Pacific

Edited by Lim Teck Ghee and Mark J. Valencia

Natural Resources of South-East Asia

General Editor: OOI JIN BEE

UNITED NATIONS UNIVERSITY PRESS 1990 Singapore

OXFORD UNIVERSITY PRESS Oxford New York 1990

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United Nations University Press

The United Nations University

53-70 Jingumae 5-chome, Shibuya-ku

Tokyo 150, Japan

The papers presented in this volume form part of the output of a larger programme of the United Nations University on 'Peace and Global Transformation'. That programme seeks to understand in a comprehensive way the underlying causes of conflict and tension as well as the diverse forms of struggle for peace. The researchers engaged in the programme are trying to relate the issue of peace to the wide range of conflicts and various manifestations of violence at a number of different levels-local, national, and international. Thus conflict over natural resources has been selected as the focus of the South-East Asian and Pacific component of the 'Peace and Global Transformation' programme. The studies contained in the volume are the results of research carried out at three different levels-regional, national, and local. A major assumption is that the conflicts are not accidents brought about by simple greed or survival instincts, but rather are the logical conclusions of historical and economic developments set into motion by social forces. Among these forces are multinational corporations and state or bureaucratic corporations on the one side, and the victims of resource exploitation-tribal communities, peasants, and workers on the other.

There exists considerable documentation of the ways in which policy-makers in Asia and the Pacific are facing up to the politically sensitive and complex issues emanating from foreign exploitation of national natural resources, especially regarding the increasing sophistication of developing countries in negotiating the terms and conditions of oil and gas resource development. This, however, is often due not to any liberal government attitude or policy towards the release of information on national issues of importance but to a desire to mobilize local public opinion against foreign interests so as to enhance the local support base of ruling

elites. A study on the Pacific returns the reader to consideration of the involvement of outside powers in the present and future exploitation of Pacific marine resources, and assesses separately the consequences and ensuing dilemmas for small island states that do not have the strength-military, political, economic, or scientific-to contend with the outsiders, especially by themselves. As the study points out, there is much actual and potential conflict within and between island states over questions such as disputed ocean boundaries, rates and terms of resource exploitation, and the allocation of responsibility for the protection of the environment.

## EnvStud 743 – Hydropolitics along the Jordan River

Coursebook:

Hydropolitics along the Jordan River • Scarce Water and its Impact on the Arab-Israeli Conflict

•

Aaron T. Wolf

United Nations University Press

TOKYO · NEW YORK · PARIS

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United Nations University Press

The United Nations University

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The United Nations University's programme area on Sustaining Global Life-support Systems responds to the priorities identified in the Agenda 21 emanating from the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992. Within the programme area on Sustaining Global Life-support Systems, the UNU's programme on Integrated Studies of Ecosystems aggregates issues of environmentally sustainable development from the entry point of the capacity of ecosystems and their ability to support, resist, or recuperate from the long-term impact of major transformations. UNU's projects within this programme approach issues from three perspectives: one focus is on integrated studies of fragile ecosystems and other vulnerable regions in given geographic zones: mountains and lowlands, and fragile ecosystems in critical zones. A second set of projects covers improved methods of measuring and monitoring sustainability and environmental management. A third is sectoral studies of critical resources such as forests, oceans, biodiversity resources, and waters.

As part of its activities concerned with water as a critical resource, the UNU is continuing to organize a series of projects that work to harness the inextricable link between water and geopolitics in arid and volatile regions. The aim is to identify issues in disputes concerning water resources; to select alternative scenarios that could lead to the solution of the complex problems related to water issues; and to recommend processes through which the countries concerned are likely to agree to mutually satisfactory solutions to problems.

The Middle East Water Forum held in Cairo in 1993, organized by the UNU, produced an authoritative book on the subject entitled "International Waters of the Middle East: From Euphrates-Tigris to Nile." The Forum proved highly successful and contributed, informally but importantly, to the progress of the Middle East Peace Talks. This book emerged as a part of the UNU's continuing efforts in this field and is part of a series of books related to water issues and conflict resolution.

With only 1,400 MCM of usable flow annually flow 1992), the Jordan River is the smallest major watershed in the region, compared with the Nile with 74,000 MCM/yr or the Euphrates at 32,000 MCM/ yr. But, because of its geopolitical position, the Jordan has been described as "having witnessed more severe international conflict over water than any other river system in the Middle East ... and ... remains by far the most likely flashpoint for the future" (E. Anderson in Starr and Stoll 1988, 10).

## EnvStud 750 – Education, Conflict and International Development

Coursebook:

Education, Conflict and International Development

Department for International Development DFID

This paper was commissioned by DFID in order to review significant issues related to education and conflict reduction. The report is divided into four main sections. In the first section, the authors examine the relationship between education and conflict. In the second, they look at ways in which the education sector can respond to conflict. In the third, they explore the relationships between some of the key international agencies working in the field of conflict and education. The final section summarises the policy implications that arise from their analysis.

The authors of this report are Alan Smith, Professor of Education and UNESCO Chair at the University of Ulster, Northern Ireland and Tony Vaux, Director of Humanitarian Initiatives based in Oxford and former co-ordinator of humanitarian aid for OXFAM.

The report was commissioned by the Department for International Development (UK). The authors are extremely grateful to David Clarke (Senior Education Adviser), Debi Duncan (Conflict Adviser) and Sarah Lyons (Assistant Conflict Adviser) for their guidance and support; to the many DFID Education Advisers who attended the Education Advisers' Conference in Oxford in September 2001 and those who subsequently provided information for case studies; to the Bosnia country office for organising a field visit and to the numerous people working within UN, international and NGO organisations who provided information and examples of practice related to education and conflict in international development settings.

## EnvStud 772 – Skeptical Environmentalists

Coursebook:

The Skeptical Environmentalist. Measuring the Real State of the World.

Bjorn Lomborg.

Cambridge University Press, Cambridge (UK), 2001

ISBN 0 521 80447 7(hardback) – ISBN 0 521 01068 3 (paperback)

## EnvStud 780 – Assessment of information related to waste and material flows

Coursebook:

Assessment of information related to waste and material flows

A catalogue of methods and tools

Prepared by:

Despo Fatta and Stephan Moll

European Topic Centre on Waste and Material Flows

Project manager:

Dimitrios Tsotsos

European Environment Agency

A great deal of additional information on the European Union is available on the Internet. It can be accessed through the Europa server (<http://europa.eu.int>)

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ISBN: 92-9167-577-6

European Environment

Integrated environmental assessment (IEA) is increasingly recognised as an important technique for managing the environmental impacts of human actions. It may be defined as the interdisciplinary process of identification, analysis and appraisal of all the relevant natural and human processes, which affect the quality of the environment and environmental resources. The objective of IEA is to facilitate the framing and implementation of optimal policies and strategies, accounting for both environmental effects and other priorities (e.g. cost constraints). Two points worth emphasising about IEA are that it is:

- practical — the purpose is to facilitate making decisions;
- comprehensive — all relevant aspects, which might affect the decision, should be incorporated.

IEA can help managers and decision makers to:

- solve environmental planning and management problems;
- improve their understanding of environmental conditions;
- design protective or remedial strategies (EEA, 1998).

Integrated assessment tools are needed to assess policy-making.

## EnvStud 781 – Key challenges for corporate environmental performance

Coursebook:

Continuity, Credibility and Comparability

Key challenges for corporate environmental performance  
measurement and communication

by

Åsa Skillius and Ulrika Wennberg

The International Institute for Industrial Environmental Economics at  
Lund University

a report commissioned by the European Environment Agency

February 1998

This report, aimed at both individual companies and organisations representing company stakeholders and policy-makers, summarises current trends, problems and developments in the areas of Environmental Performance Indicators (EPIs); Environmental Reporting; Environmental Performance Ranking; and their interconnections as a contribution to enhancing the eco-efficiency of companies. There is also a supplementary report focusing on environmental reporting and small-and medium-sized-enterprises (SMEs).

### *Relationships between environmental management tools*

There are interrelationships between the various environmental management tools that need to be acknowledged in strategic environmental management, even though they have all not yet been clearly identified. In many cases companies have launched projects involving environmental management systems, environmental auditing, environmental accounting, lifecycle assessment, environmental reporting, development of environmental performance indicators (EPIs) and environmental benchmarking etc., without reflecting on the interrelationships between them and the potential synergetic or counteractive effects they could have on each other.

## EnvStud 782 – Environmental Risk Assessment

Coursebook:

<http://reports.eea.europa.eu/GH-07-97-595-EN-C2/en/riskindex.html>

Environmental Risk Assessment: Approaches, Experiences and Information Sources

EEA publication on "Environmental Risk Assessment - approaches, experiences and information sources" by Robyn Fairman, Carl D. Mead and W. Peter Williams at Monitoring and Assessment Research Centre, King's College, London

Projectleader at the EEA: Ingvar Andersson

Part I Approaches and Experiences

Section I Concepts, Principles and Uses

Introduction to risk assessment concepts

The use of risk assessment in environmental management

A typology of risk assessment and management methods

Overview of risk assessment methods

## EnvStud 783 – Environmental Management - Tools for SMEs

Coursebook:

Environmental Issues Series

Environmental Management

Tools for SMEs: A Handbook

Edited for the EEA by

Richard Starkey

The Centre for Corporate

Environmental Management (CCEM)

Ingvar Andersson, Project Manager

European Environment Agency

March 1998

European Environment Agency

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ENVIRONMENTAL MANAGEMENT. ENVIRONMENTAL POLICY. ENVIRONMENTAL MANAGEMENT SYSTEMS. ENVIRONMENTAL AUDITING. ENVIRONMENTAL INDICATORS. ECOBALANCES. LIFE-CYCLE ASSESSMENT. ENVIRONMENTAL LABELLING SCHEMES. ENVIRONMENTAL REPORTING. ENVIRONMENTAL CHARTERS

## EnvStud 784 – Environmental Management Practices in USA

Coursebook:

ENVIRONMENTAL POLICY TOOLS &  
FIRM-LEVEL MANAGEMENT PRACTICES IN THE  
UNITED STATES

Nicole Darnall, National Project Leader, North Carolina State University  
Alexei Pavlichev, Research Associate, North Carolina State University  
in cooperation with  
OECD Environment Directorate

This report provides practical policy advice concerning the effectiveness and efficiency of alternative environmental policy innovations that encourage greater environmental improvements, and especially those related to EMS adoption. The study is part of a larger OECD project involving the participation of researchers from seven different OECD countries (Canada, France, Germany, Hungary, Japan, Norway, and United States—see Annex 1). The goal of the broader research project is to understand how firms' environmental actions change in different regulatory and social settings. In total, approximately 4,200 facilities with more than 50 employees in all manufacturing sectors participated in the larger study, of which 489 operated in the U.S. (OECD, 2003).

During the first step of the OECD study, research teams from the seven participating countries collaborated to design a uniform survey. Mailed to manufacturing facilities in each country, the survey considered the internal factors, financial incentives, and external pressures that shape organizations' environmental behavior (see Annex 2). Once the data were collected, the research teams completed a preliminary analysis of their data. For consistency, each country used the same report structure to convey their results. This report summarizes the key findings from the U.S. data.

The purpose of this report is three-fold. First, it offers preliminary advice regarding different U.S. environmental policies and programs that encourage environmental innovation. Second, this report is intended to help the U.S. manufacturing facilities that participated in our study to benchmark their environmental management against similar companies. Finally, the U.S. study was created to contribute to the dialogue about the different types of environmental innovations and how they might vary across OECD countries. To fulfil its purpose, the report addresses three broad research questions:

1. Why do facilities introduce environmental management systems and tools?
2. Why do facilities undertake specific types of environmental investments and innovations?
3. What are the links between facilities' financial performance and their environmental management practices?

EnvStud 785 – MEASURING MATERIAL FLOWS AND RESOURCE PRODUCTIVITY -  
Synthesis report

Coursebook:

MEASURING  
MATERIAL FLOWS AND  
RESOURCE PRODUCTIVITY  
Synthesis report

OECD 2008

This report is part of the OECD work programme on material flows (MF) and resource productivity (RP) that supports the implementation of the OECD Council recommendation on MF and RP adopted in April 2004. It presents a synthesis of the work carried out by the OECD with its member countries and international partners since 2005, takes stock of progress made, and adds selected examples from applications of material flow analysis.

The purpose of the OECD work programme on material flows (MF) and resource productivity (RP) is to improve the quantitative and analytical knowledge base about natural resource and material flows within and among countries, so as to better understand the importance of material resources in member countries' economies and to inform related policy debates. This is done by providing guidance on how to measure material flows and resource productivity, paying attention to the "supply side", i.e. how material flow accounts and related indicators can be constructed in a coherent framework that countries can easily implement and further adapt to their own needs, and the "demand side", i.e. how material flow indicators can be selected to suit policy needs and how they can be interpreted and used.

The work has benefited from a sequence of workshops hosted by member countries (Helsinki, June 2004; Berlin, May 2005; Rome, May 2006; Tokyo, September 2007), that brought together environmental administrations, statistical services, material flow experts and researchers.

Main outputs include a series of guidance documents on Measuring material flows and resource productivity that have been drafted in a joint effort by a group of experts from OECD countries led by the OECD Secretariat. They have benefited from contributions by members of the OECD Working Group on Environmental Information and Outlooks and the Working Group on Waste Prevention and Recycling, the Eurostat Task Force on Material Flows, and the London Group on Environmental Accounting. In developing them, the co-operation of environmental administrations, statistical services and material flow experts in countries has been invaluable. Our sincere thanks are therefore extended to all concerned.

The guidance documents reflect the state of the art concerning experience with material flow analysis and related indicators in member countries. They are expected to help achieve greater convergence of already existing initiatives and to facilitate wider dissemination and uptake of existing experience and guidance. The documents may evolve in future as ongoing efforts on methodologies and measurement systems will show results and as more feedback from policy uses will become available.

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Center (CCC), 222 Rosewood Drive, Danvers, MA 01923, USA, fax 1 978 646 8600, [info@copyright.com](mailto:info@copyright.com).

## EnvStud 786 – Environmentally Sound Management (ESM) of Waste

Coursebook:

Guidance Manual for  
the Implementation of the  
OECD Recommendation C(2004)100  
on  
Environmentally Sound Management  
(ESM) of Waste

Following the adoption of Council Recommendation C(2004)100 in 2004 on Environmentally Sound Management of Waste, member countries wished to reinforce the implementation of this legal Act by issuing a practical Guidance Manual.

This publication aims at facilitating the implementation of an environmentally sound waste management policy by governments on one hand, and by waste treatment facilities on the other hand.

Every element of the Recommendation C(2004)100 is explained in detail, as well as the different core performance criteria which characterise environmentally sound management of waste, through various types of information (such as technical, financial, regulatory). Waste management practices applied in certain member countries are presented as examples.

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## EnvStud 787 – EPR Policies and Product Design

Coursebook:

ENV/EPOC/WGWPR(2005)9/FINAL

Organisation de Coopération et de Développement Economiques

Organisation for Economic Co-operation and Development 28-Feb-2006

English - Or. English

ENVIRONMENT DIRECTORATE

ENVIRONMENT POLICY COMMITTEE

Working Group on Waste Prevention and Recycling

EPR Policies and Product Design: Economic Theory and Selected Case Studies

This document, prepared by Margaret Walls of Resources for the Future, Washington DC, discusses possible 'Design for Environment' impacts of Extended Producer Responsibility schemes.

Nils Axel Braathen, Tel: +33 (0) 1 45 24 76 97, [Nils-Axel.Braathen@oecd.org](mailto:Nils-Axel.Braathen@oecd.org)  
JT03204660

Document complet disponible sur OLIS dans son format d'origine

Complete document available on OLIS in its original format

ENV/EPOC/

This document has been prepared by Margaret Walls of Resources for the Future, Washington DC. It discusses the Design for Environment impacts of Extended Producer Responsibility policies. It is underlined that the mandate of the present study was not to undertake a fully-fledged analysis of the social costs and benefits of such policies. For an analytical framework for cost-benefit analyses, the reader is referred to the Analytical Framework for Evaluating the Costs and Benefits of Extended Producer Responsibility Programmes, prepared by Prof. Stephen Smith of University College London. That framework is available at [www.oecd.org/env/waste](http://www.oecd.org/env/waste). The present document investigates further one of the issues raised in that paper, namely the extent to which EPR policies can be expected to contribute to .Design for the Environment. improvements. It has been financed through voluntary contributions from Japan, Switzerland and United States.

## EnvStud 788 – ENVIRONMENTAL INNOVATION AND GLOBAL MARKETS

Coursebook:

ENV/EPOC/GSP(2007)2/FINAL

Organisation de Coopération et de Développement Economiques

Organisation for Economic Co-operation and Development 22-Feb-2008

English - Or. English

ENVIRONMENT DIRECTORATE

ENVIRONMENT POLICY COMMITTEE

Working Party on Global and Structural Policies

ENVIRONMENTAL INNOVATION AND GLOBAL MARKETS

JT03241008

Document complet disponible sur OLIS dans son format d'origine

Complete document available on OLIS in its original format

ENV/EPOC

## EnvStud 801 – A Science for Sustainable Living

Coursebook:

The Hidden Connections – A Science for Sustainable Living  
Fritjof Capra  
Harper Collings Publishers, London, 2002  
ISBN 0 00 257047 5

Demonstrating conclusively how closely humans are connected with the fabric of life, Capra makes it clear that it is imperative to organize the world according to a set of values and beliefs not solely driven by the economic imperative, not merely for the wellbeing of human organizations, but to ensure the survival and sustainability of humanity itself.

## EnvStud 805 – Tools to Aid Environmental Decision Making

Coursebook:

Tools to Aid Environmental Decision Making  
Virginia H. Dale, Mary R. English (eds)  
Springer Verlag, New York Inc., NY, NY, 1999  
ISBN 0-387-98556-5 (softcover), ISBN 0-387-98556-7 (hardcover)

Tools to Aid Environmental Decision Making will be of value to decision makers and their staffs, environmental managers, and students in environmental risk, policy, economics, and law.

## EnvStud 810 – Collapse or Survival of Societies

Coursebook:

Collapse. How Societies Choose to Fail or Survive.  
Jared Diamond  
Penguin Books, London, 2005  
ISBN 13 978-0-140-27951-1  
ISBN 10 0-140-27951-2

Jared Diamond takes us on an epic journey around the globe, through the history of humanity and on to the future, to discover how – when tomorrow comes – we can be survivors.

## EnvStud 825 – The Earth's Climate Crisis

Coursebook:

The Revenge of Gaia. Earth's Climate Crisis & the Fate of Humanity.  
James Lovelock  
Basic Books, 2006, Member of Perseus Group, Member of Penguin Group  
Paperback published 2007 by Basic Books  
ISBN-13: 978-0-465-04169-5  
ISBN-10: 978-0-465-04169-8

One of the hardest tasks we face in life is to be the bearer of seriously bad news. Without our realising it we have poisoned the earth by our emissions of greenhouse gases and weakened it by taking farmland and housing the land that once was the home of ecosystems that sustained the environment. We have driven the earth to a crisis state from which it may never, on a human time scale, return to the lush and comfortable world we love and in which we grew up.

The great party of the twentieth century is coming to an end, and unless we now start preparing our survival kit we will soon be just another species eking out an existence in the few remaining habitable regions. We should be the heart and mind of the Earth, not its malady. We should remember that we are part of Gaia, and she is indeed our home.

EnvStud 835 – The Meaning of the 21<sup>st</sup> Century. A Vital Blueprint for Ensuring Our Future.

Coursebook:

The Meaning of the 21<sup>st</sup> Century. A Vital Blueprint for Ensuring Our Future.

James Martin

Eden Project Books

Transworld Publishers, London, 2006

ISBN 9781903919866

James Martin explains with clarity and precision the nature of the challenges we face, from global warming to famine, religious extremism and technological advance, and then defines the thinking that will provide us with solutions for the future.

## Issues to consider

### Are you sufficiently motivated?

Studying for a research degree is very different to studying for an undergraduate degree. Consider carefully whether or not you would enjoy the basic research techniques you are going to use. Can you imagine counting black dots down a microscope for weeks on end? Or spending a year, or two, building equipment before generating a single result? Will you be happy working alone in a library for days on end? Talk to postgraduate students about the reality of research - go into it with your eyes open!

### Have you identified a supportive research supervisor?

The quality of the working relationship between a supervisor and student can make or break a research degree. A good working relationship is essential as postgraduate study is basically about working alone (especially in the arts/humanities). Make sure that you have met and feel comfortable with your supervisor before accepting a place. Do you understand each other? If possible, talk to their current research students. Find out about the research group you would be joining. Are there active programmes of seminars you can attend? How isolated are you likely to be?

### Have you got the right academic background?

You will normally require an upper second or first class degree in a relevant subject. Some funding bodies may set higher criteria (eg relevant work experience or mandatory undertaking of a master's degree prior to a doctoral degree). Discuss your plans with your tutors - do they think you would enjoy a research degree?

### Future prospects

Opportunities vary according to the field of study. You can expect opportunities to exist in academia, in industry and in the public sector but competition can be fierce. A common aim following a PhD, DBA or Dr.PH is to remain in academia but this is by no means assured.. There are many careers for which a research degree is desirable or essential, eg work as a scientific researcher for a pharmaceutical company, or commissioning editor for a specialist academic journal. For other areas you will be able to emphasize the transferable skills you have gained whilst undertaking your research. Think about activities (eg with university societies or through work experience) you might undertake whilst pursuing your research that could counter these concerns if you are considering a career outside your specialist field.

## UCN International Programs

The Division of International Programs is directed by professionals with ample international experience, in projects such as the United Nations, UNESCO, in addition, some of them manage Transnational Companies, and other members and advisers of NGOs, all this translates into an endorsement of a global vision to their activities and curricula, as well as one that activates interaction between cultures and nations. UCN PI members have worked with numerous programmes and departments of the United Nations.

## Universidad Central de Nicaragua

The idea of the University is born of a group of academics with ample practice and experience in the educative field that took the step to found the UCN, retaking the trajectory of the old Nicaraguan Central University that in the years 40's opened its classrooms to receive students who later were important personalities in the political, academic and social fabric of the country. The updated history of the university is, it has made a campaign of international development making agreements with universities of different parts of the world, simultaneously to have official representatives in countries and regions, for instance in the United States of America, Mexico, Bolivia, Central America, Asia, and Europe.

Universidad Central de Nicaragua is among the leading Central American universities, and is the outstanding private Nicaraguan university.

Bona fide internationally recognised higher education standards and the profile of the studies have supported the national and international status and reputation of UCN as the outstanding higher education provider in Nicaragua and among the best in Latin America in the study languages Spanish and English.

The Central University of Nicaragua (UCN), and its Division of International Programs, is a multidisciplinary academic institution, humanist, ethical, efficient and competitive; promoting the intercultural exchange between nations and cultures, the defense of the environment, science, technology, democracy, freedom and social justice. The quality and competitiveness of UCN graduate professionals, contribute to the economic, social and cultural development. The Central University of Nicaragua – UCN is a nonprofit Institution and it is accredited by the Federal Ministry of Education of the Republic.

UCN definitive accreditation was decided in session 10-98 and approved by the National Legislative Congress of the Republic Decree N° 2822 according to law, confirmed via the Office of the President of the Republic by Presidential decree. On the international level, UCN is listed with the United Nations Educational, Scientific and Cultural Organization (UNESCO), International Association of Universities under the list of universities of Nicaragua and the International Handbook of official directory Universities of accredited universities published by the United Nations.

The UCN PI School of Environmental and Waste Management is the universities body for delivering the environmental management and waste management programmes of long-distance and blended education provided by UCN International Programs worldwide.

The School of Environmental and Waste Management of the Universidad Central de Nicaragua International Programs is bound to offer a variety of specific programmes in the study areas of Environmental Auditing and Management, Eco-Management, Waste Management and Waste Water Management, Clean Technologies, Remediation Technologies, and Energy Management.

The Board of Directors of UCN International Programs - in an extraordinary session held on June 3, 2008 – appointed Gerhard Berchtold as head of the School of Environmental and Waste Management and empowered him to make effective programmes decisions - including with course providers - in line with all good practices of the bona-fide higher education standards.

#### Vision

To promote and disseminate the practice and science of sustainable waste management globally.

#### Mission

The vision will be accomplished by providing the practical, technical and scientific skills and higher degree qualifications in the areas of waste management and sustainable development for the protection of the environment.

The objective of the UCN PI School of Environmental and Waste Management is to offer flexible, country- and company-specific individualised degree-opportunities to busy professionals by means of e-learning and long-distance education.

The UCN PI School of Environmental and Waste Management is the professional and scientific education provider for environmental and waste management professionals globally. The UCN PI School of Environmental and Waste Management provides the professional educational degree programmes for individuals working in the environmental and waste management sectors.



## Exactly the Same Degree Online as On-Campus

At Universidad Central de Nicaragua International online degree programmes, you'll learn from award winning faculty professors who teach on campus and at international universities.

You'll follow the same curriculum, use the same textbooks as traditional campus-based students and earn the same degree as on campus.

You'll just do it all online. It's easy! We'll help you through your online experience every step of the way.

And you can even walk through your Commencement ceremony alongside your on-campus graduating class!

1. History & Government Accreditation: The university is accredited and recognized by the Ministry of Education of the Republic of Nicaragua via the Consejo Nacional de Universidades (The National Council of Universities (CNU) of the Republic of Nicaragua (see position 25 of this web page)) in official government session No. 10-1998 operating under the law No. 89 of the Republic of Nicaragua with full autonomy in designing, delivering and granting degree programmes at undergraduate, graduate and postgraduate level.

2. International Accreditation: As fully recognized by the government of the Republic of Nicaragua, the university is listed in United Nations Educational, Scientific and Cultural Organization (UNESCO) International Association of Universities under the country of Nicaragua and International Handbook of Universities, an official guide/directory of international accredited universities published by United Nations.

3. Academics: The university is offering degree programmes both undergraduate and postgraduate level at its campus under faculties/schools of Medicine, Business Administration, Accounting, Computer Science and Engineering, Tourism, Sciences & Humanities, Legal Studies and Political & Economic Studies.

The university is offering professional degree programmes with world wide recognition. Doctor of Medicine & Surgery Programme (M.D.), a six year programme, delivering on campus is recognized by the Government of the Republic of Nicaragua and is accredited for full Medical Licensure once all objectives have been completed; medical licensure is granted by the Ministry of Health of Nicaragua. Also the Medical School is listed with the (ECFMG) Educational Commission of Foreign Medical Graduates / FAIMER. Being listed with the ECFMG allows medical graduates the opportunity to sit for the USMLE STEPS 1, 2, & 3 and eventually may obtain Medical Licensure in their countries of origin (make sure you check with the Licensure laws of your home Country to make sure a degree awarded by Universidad Central de Nicaragua is eligible for state Licensure). Doctor of Veterinary Medicine Programme (DMV) is recognized by the Government of the Republic of Nicaragua and is accredited for full licensure once all objectives have been completed. DMV licensure is granted by the Ministry of Health of Nicaragua. All of the Nursing programmes, i.e. Associate Degree in Nursing (ADN), Bachelor Degree in Nursing (BScN), Master Degree in Nursing (MScN) and Doctor of Nursing (PhDN), are recognized by the Government of the Republic of Nicaragua and are accredited for full Licensure once all objectives have been completed.