Innovation in the teaching
of Sustainable Development
in the Life Sciences in Europe

I.S.L.E.

Sustainable Development in Higher Education in Europe

Good Practices Compendium

Erasmus Networks project
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Sustainable Development in Higher Education in Europe
Good Practices Compendium

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Final report of Work Package 3 – Deliverable 3.7

The report corresponds to the activities of Work Package 3 entitled “Identifying sustainable and user-friendly Good Practices” which has been carried out within the frame of the ISLE Erasmus Thematic Network (Innovation in the teaching of Sustainable Development in Life Sciences in Europe) and is co-financed by the European Community in the framework of the Lifelong Learning Programme.
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Abstract

The ISLE project (Innovation in the teaching of Sustainable Development in Life Sciences in Europe) objective is to implement the concept of Sustainable Development in Higher Education. Higher Education Institutions among all educational structures are vested with significant responsibility, both to incorporate this concept within their activities (teaching, research, operations) and to widespread Sustainable Development in the society and business world.
This report is the final product of Work Package 3 (WP3) entitled "Identifying sustainable and user-friendly Good Practices". The objective is the identification and diffusion of Good Practices concerned with Education for Sustainable Development (ESD) in Higher Education Institutions. The topic is analysed in a broader sense, on one side considering the characterisation of the political and institutional framework, and on the other side describing formal and informal learning experiences in Higher Education Institutions.
36 Good Practices are discussed and presented in systematic forms, that have been categorised according to the following topics related to the implementation of Sustainable Development education: policies, institutional activities, teaching and practical experiences. The Good Practices represent a wide range of situations concerning different European countries, institutions, typologies of the initiatives and geographical levels of implementation. However in this diversity some characterising aspects emerge: the holistic and interdisciplinary approaches to ESD, the attention in achieving tangible results, the involvement of local communities and the bottom-up approaches, the importance of partnerships and networking, the capacity building, the innovation of the initiatives, and the attention in building a framework favorable to Sustainable Development.
The Good Practices were selected from a wider range of case studies, emerging from a "State of the Art" analysis in the field of Sustainable Development in the University Studies of Life Sciences in Europe, carried out within the ISLE project, and from the research of the project partners.
The selection has been done in accordance with the criteria of transferability, pertinence, capacity building, user friendless, innovation, networking capacity and interdisciplinarity.

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1 Introduction

This report is the final product of Work Package 3 (WP3) entitled "Identifying sustainable and user-friendly Good Practices" which has been carried out within the frame of the **ISLE** Erasmus Thematic Network (**I**nnovation in the teaching of **S**ustainable Development in **L**ife Sciences in **E**urope) which is financed by the European Community in the framework of the Lifelong Learning Programme.

ISLE is a 36-month project, which started in October 2010. Its consortium consists of 39 partners from 30 European countries representing Higher Education Institutions (HEIs), Research institutes and Enterprises that have a focus in the life sciences.

The project objective is to implement the concept of Sustainable Development in Higher Education. The challenge of Sustainable Development is of the essence today. Higher Education Institutions among all educational structures are vested with significant responsibility and should ensure that they incorporate this concept in a transverse and structured way.

The project approaches the topic in a comprehensive way, analysing the different aspects concerning the implementation of Sustainable Development in Higher Education and developing both research activities and specific tools and devices that can be utilised by the wider sector to facilitate ESD.

The project activities are addressed to:

- bring together stakeholders from Europe that have already introduced the concept of Sustainable Development in their curricula and wish to transfer their knowledge to the other partners of the network, or wish to introduce the concept of Sustainable Development in the curricula of their institutions;
- build, starting from these experiences, new knowledge on ESD and develop the necessary tools for knowledge transfer;
- increase awareness in European HEIs of the urgency of ESD, and provide the instruments to facilitate and support ESD.

The objective of this Report is the identification and diffusion of Good Practices connected with Sustainable Development education in Higher Education Institutions (HESD).

The topic of HESD is considered in a broader sense, on one side considering the characterisation of the political and institutional framework, and on the other side describing formal and informal learning

experiences in HE Institutions. In the opinion of the authors, to maximise the effectiveness of HESD requires all these elements to be taken into account. Good Practices are classified into 4 areas:

- ***Policies:*** Good Practices that concern the creation of the institutional framework for HESD at National or Regional Authorities level with the objective of facilitating and strengthening education for SD;
- ***Institutional activities:*** Good Practices that concern the management and other non teaching activities of the Higher Education institutions directed to SD;
- ***Teaching:*** Good Practices concerning formal learning at different levels: integration of SD in disciplinary lessons; modules about SD definition and concepts; holistic teaching in relation to sustainable development activities; promotion of a SD mindset; improving the framework for teaching SD;
- ***Practical experiences:*** Good Practices concerning non-formal and informal learning, extracurricular activities and practices that involves HE students or is promoted by HE institutions, often in relation with civil society.

Different project activities were used to identify Good Practices. In Work Package 2 (WP2) "State of the art: information collection concerning sustainable development in life sciences in Europe" information on Good Practices was collected trough the redaction of Country Reports and the fulfilment of direct surveys in the member Institutions. The Country Reports described the status of sustainable development in the university studies of life sciences in each European country. Surveys were completed by students, academic staff and individual institutions for each partner of the ISLE network.

In WP3 all the ISLE partners were involved in identifying and describing the Good Practices considered most representative of each country, and in integrating the State of the art results with personal knowledge and direct surveys.

The Good Practices have been evaluated and the most suitable have been selected for publication. The criteria used for evaluation take in consideration different aspects: Transferability, Pertinence, Capacity Building, User Friendless, Innovation, Partial/Global Approach, Networking and Interdisciplinarity.

The selected Good Practices cover a wide range of activities and geographical origin, with the aim of maximising replication of these practices by other institutions, both within and outside the ISLE consortium.

The Report is structured as follow.

Chapter 2 provides a summary of the results of WP2, which was concerned with the identification of Good Practices and developed the links between WP2 and WP3.

Chapter 3 presents the general methodology of the research developed by the WP3 research team.

Chapter 4 provides a general overview of the selected Good Practices and comments on their contents.

In **Chapter 5** the single forms of the selected Good Practices are presented, divided into the 4 areas of Policies, Institutional activities, Teaching and Practical experiences.

Chapter 6 presents the conclusions and further developments.

2 State of the Art

2.1 State of the Art: objectives and results presentation

2.2 Comments on Good Practices emerging from the Country Reports

2.3 SWOT analysis of the Questionnaires' answers

2

2.1 State of the Art: objectives and results presentation

The main objective of Work Package 2 (WP2) "State of the Art" was to collect information about the current situation of sustainable development in the University Studies of Life Sciences in Europe. The activities of this work package had two main stages: the Country Reports developed by ISLE partners and the Questionnaires for students, professors and institutions. The first were developed from November 2010 to January 2011 and the second from February to June 2011. In this chapter WP2 results specifically related to Good Practices are presented.

The Country Reports described the status of sustainable development in the university studies of life sciences in each country. With this information a report of the situation in Europe was developed (1). In order to ensure uniformity the information presented in the different papers, templates were developed that consisted of the sections:

1- Sustainable Development (SD) policies in the country.
2- SD Study Programmes in Higher Education Institutions in the country.
3- Relevant Institutions related to SD in the country.
4- International cooperation in ESD (Education in SD) in the country.
5- Good Practices and relevant experiences in the Higher Education Institutions in the country.
6- Possible future actions in the country.
7- References.

Section 5 was concerned with identification of good practices, with numerous Good Practices identified by the members of the ISLE network for each country. These practices were finally classified and grouped in the paper about the situation in Europe.

In the second step questionnaires were targeted at students, academic staff and individual institutions of each partner of the ISLE network. In the questionnaires two open questions relating to Good Practices were included. These questions were the following:

- could you describe some interesting Sustainability Good Practices of your Institution?
- could you indicate other possible Sustainability Good Practices?

(1) The WP2 "State of the Art" results are fully presented in the report "Proceedings of the State of the Art information. Follow-up and evaluation meeting", available on CD. In this section only the results concerning Good Practices are analysed.

The questionnaires were implemented using online survey software and were translated when necessary to the language of the country. The responses about good practices were classified and grouped and a summary for the partnership was developed [2].

The Country Reports were elaborated in 28 countries, covering almost all the ISLE members and most of the European countries (Table 1). Summarising the results of the Reports it emerged that most members of ISLE partnership (80 %) presented information about good practices in their papers.

TABLE 1 ➤ List of countries completing the Country Report

- Austria
- Bulgaria
- Cyprus
- Czech Republic
- Germany
- Denmark
- Estonia
- Spain
- France
- Greece
- Hungary
- Ireland
- Iceland
- Italy
- Lithuania
- Luxembourg
- Latvia
- Malta
- Netherlands
- Norway
- Poland
- Portugal
- Romania
- Sweden
- Slovenia
- Slovak Republic
- Turkey
- United Kingdom

The majority of the identified good practices and relevant experiences concerned the involvement of students with the aim of increasing awareness of sustainability, using both formal learning (seminars, courses, manuals, etc.) and informal learning (voluntary work, practical activities, study visits, associations, etc.). Another group of initiatives focused on the sustainable management of resources (energy, mobility, consumption, water, waste). Only a few concerned political and institutional aspects. Table 2 summarises the topics of the identified good practices.

(2) The general results of the survey are presented in the report "Work Group 2: State of the art (Information collection concerning sustainable development in life sciences in Europe). Intermediate report". April 2012

TABLE 2 ➤ List of the topics of good practices emerging from the Country Reports

- Environmental management systems and certifications
- DHO (Dutch Foundation and Network for sustainable higher education) have developed an audit instrument called AISHE
- Methodology for material and energy flow accounting (MEFA) (Czech Rep.)
- Governmental programmes for promoting and increasing awareness of sustainability
- Students associations and their activities
- Voluntary activities
- Research and educational innovation projects
- Courses and training activities about SD
- Conferences, seminars and meetings
- Subventions, competitions and awards for different sustainability aspects
- Responsible consumption policies and activities
- Waste management and pollution control policies and activities
- Energy saving and efficiency policies and activities
- Water saving policies and activities
- Sustainable Mobility initiatives
- Use of sustainable criteria in purchase decisions
- Multimedia projects
- Networks about ESD
- Agenda 21 implementation
- Websites, books and manuals about sustainable development
- Associations and institutions to promote good practices
- Tours to visit good experiences examples
- Exhibitions and open days
- Define and publish indicators
- Observatories about SD
- Learning scenarios
- Involvement of students in the teaching methods

The online survey questionnaires were completed by 2,988 students, 879 academic staff and 83 institutions. For a confidence level of 95% confidence intervals of 2 for student questionnaires and 4 for academic staff questionnaires were assumed. The survey was completed mainly by institutional partners of the ISLE project. The information was collected from 28 countries. The list of countries is presented in Table 3.

TABLE 3 ➤ List of countries completing the online survey

- Austria
- Bulgaria
- Cyprus
- Czech Republic
- Germany
- Denmark
- Estonia
- Spain
- France
- Finland
- Greece
- Hungary
- Ireland
- Iceland
- Italy
- Lithuania
- Luxembourg
- Latvia
- Malta
- Netherlands
- Norway
- Poland
- Portugal
- Romania
- Sweden
- Slovenia
- Turkey
- United Kingdom

Around 16% of students and 20% of academic staff and institution Managers provided information about interesting sustainability Good Practices present in their own Institution. The identified Good Practices described in the questionnaires could be grouped as indicated in Table 4.

TABLE 4 ➤ List of Good Practices emerging from the online survey

Good Practices	Students	Academic staff	Institution responsibles
Agreements with the public institutions for public transport usage	✗		
Biofuels in public transports		✗	
Reduction of public transport expenses			✗
Carpooling promotion			✗
Use of bikes, bicycle days	✗		
Promote the use of bikes and the reduction of the individual car		✗	
Building with ecological value	✗		
Sustainable buildings and building insulation	✗	✗	✗
Naturally ventilated buildings		✗	
Green roofs	✗		
Heat exchangers	✗		
Rainwater collection and water recycling	✗		
Use of renewable energies (biofuels, biomass, ethanol, solar, solar thermal panels, wind, photovoltaic panels)	✗	✗	
Compost systems	✗		
Gardens and plants		✗	
Smaller public spaces	✗		

Good Practices	Students	Academic staff	Institution responsibles
Heating control	✗		
Reduction of water usage	✗		
Consumption reduction: electricity, water, control of lights		✗	
Use of biodegradable and recycled products	✗	✗	✗
Control of lights usage	✗		
Lift sharing	✗		
Use of networking printers	✗		
Reduce plastic consumption	✗		
Reduction of paper usage (e-books, emails, print in the two sides...)	✗	✗	
Promote the use of electronic messages and information instead of paper		✗	
Separate waste collection	✗	✗	✗
Compost systems	✗		
Collection of old papers and ink cartridges	✗		
Fair trade products	✗		
Use of local agricultural products	✗		
Flea markets or usage second hand things	✗		
Organic farms for students visits and practices			✗
Protection of plants and soils		✗	
Pilot farms/facilities		✗	
International courses		✗	
Staff training			✗
Home works		✗	
Educational centers		✗	
Sustainability departments and responsibles		✗	
Practices in research centers related to SD	✗		
Research works and facilities	✗		
Develop and/or publish SD indicators		✗	

Good Practices	Students	Academic staff	Institution responsibles
Open days		✗	
Sticks, posters and surveys in facilities used by the students	✗		
Sustainable or green image of the university	✗		
University facilities for practices and promotion about SD	✗		
Websites and blogs, publications, manuals	✗	✗	
Conferences, seminars, workshops, round tables, films, exhibitions	✗	✗	✗
Art with recycled materials	✗		
Associations and clubs	✗		
Awareness campaigns and green days	✗		
Collaborations with NGO`s and Associations	✗		
Competitions: between campus, for the best project, etc.	✗		

In the following paragraphs some specific comments are presented about the identified good practices.

2

2.2 Comments on Good Practices emerging from the Country Reports

This section presents the status of National Sustainable Development Strategies (NSDS) and other activities related to Sustainable Development (SD) that are being undertaken by institutions in the countries that are participating in the ISLE project.

Compilation of each of the individual Country Reports involved conducting an extensive analysis of the status of each represented country in order to present a holistic picture of the current situation related to SD. This included gathering information from official governments' sites and all other institutions either directly related to SD or else in some way related to the teaching of SD. Most of the information gathered was from websites of institutions directly related to SD and from websites of Higher Education Institutions.

Most of the countries (about 63 %) do have a National Strategy for Sustainable Development (NSSD), based on the guidelines defined in the EU Sustainable Development Strategy (SDS). However there are a number of countries (about a third) which do not yet have a National SD Strategy, however they do have institutions that are in the process of developing this strategy in the near future.

Common SD priority areas identified were: climate change and clean energy, sustainable transport, sustainable consumption and production and management of natural resources. The adaptation of NSSD in most cases seems to be a recent development. However those countries that have a long established NSSD have now managed also to adapt indicators for SD that allows monitoring of the actions and policies undertaken. Some countries have institutions which regularly prepare reports based on these indicators.

In most cases the political responsibility for SD resides on a national commission which is represented by the various departments involved in SD. These commissions coordinate the management and decision making oriented to political or legislative actions. Commonly one finds a High Council or Board which acts as an adviser of the national or regional government for SD affairs. Rarely is it the case that political responsibility for SD rests in only one ministry. Also, local government policy always follows the national sustainable development strategies.

Grants which are directly related to SD are uncommon. Nevertheless there are grants available which cover other economic sectors that have implications on SD, such as energy, transport and production processes. These grants are offered by the state or regional governments and in certain cases are financed through the European Cohesion Fund.

In the area of Higher Education policies related to SD, several countries have policies of Education for Sustainable Development, which focus on sustainability at all the levels of education. Nevertheless in the majority of cases this item is included in the field of environmental education. Unfortunately specific legislation in Education for Sustainable Development has not been found, but may be implicit indirectly in environmental policies.

There appears to be some experiences about the introduction of SD concepts as a basic compulsory content in at least one academic year, however, this is found in those degrees related to the environment studies and territorial planning. Nevertheless, there seems to be some proposals to assess or certificate studies with SD content. Also, specific grants for education in Sustainable Development seem to be lacking, although grants for environmental education do consider SD.

In the vast majority of the countries, universities have implemented institutional policies of sustainability. Universities lacking any form of policies related to SD are the exceptional cases. However, departments in universities specifically devoted to the study, teaching or research on SD are not that common. Where specific studies of SD exist they are postgraduate studies or specialised studies and not as a first degree. However many universities have departments that include the SD principles in their areas of activities. The disciplines where SD content is high are: Environmental Sciences, Agronomy, Agricultural Engineering and Health Sciences.

Some universities have achieved a very high level by adopting a comprehensive policy on university education based on the principles of SD. Some examples include universities that have adopted sustainability principles to join the International Sustainable Campus Network (ISCN).

Research policies related to SD are found in almost all countries. Many universities have research programmes for SD. Funding for these research projects originates mainly from national or regional institutions.

The Reports do mention a number of barriers for integration of SD in Life Sciences Education. The frequent ones mentioned include: no cooperation between the different departments involved; absence of specialists; lack of academic staff training; funding and support is more oriented to specialised fields than to SD.

All the countries seem to have institutions related to SD. These institutions include: research centres, governmental institutions and Non Government Organisations (NGOs). These institutions are either specifically related to SD or indirectly related to SD. In certain countries there are companies or private institutions which are involved in the field of SD.

International cooperation in Education for SD (ESD) seems to be active in more than half of the participating countries. There seems to be an international cooperation with regard to linked programmes, participation of foreign professors or students and exchange programmes.

In the area of "Good Practices and relevant experiences in the Higher Education Institutions" there is a long list of examples (Table 2). The outstanding example is the one originating from The Netherlands by The Dutch Foundation and Network for sustainable higher education (DHO). They have developed an audit instrument called AISHE that it is based on the European Foundation for Quality Management (EFQM). AISHE scans complete studies and courses on sustainability and gives a ranking scale to measure the degree to which sustainable development has been incorporated into the curriculum. Another very good example is the one from the Czech Republic called Methodology for material and Energy Flow Accounting (MEFA). This is a tool that is used to study the sustainability of development. MEFA links socioeconomic processes with ecosystems.

The Reports mention a long list of possible future actions that can be undertaken to improve education and research in SD. Increasing cooperation between universities and even between departments within the same university seems to be the recurrent theme. Consideration of SD as a cross topic in research and curriculum will impart its importance to students. Also including SD in primary and secondary level schools is a valid point to instil the concept of SD.

The data presented can be utilised to further improve the situation of SD in Higher Education through increased cooperation between Universities. Most of the ISLE members think Life Studies can contribute to the development of SD, however there are still important barriers to overcome to fully integrate SD in Life Studies.

2

2.3 SWOT analysis of the Questionnaires' answers

As indicated in paragraph 2.1 the questionnaires were targeted at students, academic staff and institutions from each partner of the ISLE network.

In the subject areas of the Life Sciences the majority of the answers were collected from biological, agricultural or environmental programmes in all three categories of interviewees and only half of these were aware at some level of the meaning of SD.

It seems that academic staff and institutions have a different perception on educational programmes in their own universities. Generally academic staff stated their teaching areas are mostly not related to SD but somehow relevant, whilst institutions Senior Managers stated that teaching activities are generally related to SD. This lack of awareness and communication is harmful for the students but can be easily improved. Another example of misinformation can be found comparing the answers of students and academic staff/institution. Generally students don't know if there is an office/department dedicated to the promotion of SD, whilst staff/institution demonstrate a better understanding of the internal organisation. In relation to specific policies or strategies on SD there is a higher level of awareness due to information campaigns carried out at the university but not as a result of internal investigation, for example surveys.

In the universities there are no indicators on SD for the majority of the interviewees inside the institution category, or at least that they know of, and even when they are aware of the indicators there is no recollection about publication of these. In general there is a low level of knowledge on external funding to improve SD and the information institutions have are fragmented.

It appears that several subjects taught at the universities are related to SD, and few more subjects contain content related to SD. However with regards to practical activities the majority of subjects are not connected with SD or at least students seem to have difficulty identifying the connection. Also from the point of view of staff and institutions there is a lack of awareness about the connection of practical activities with SD. In general the level of satisfaction on the teaching of SD is not high. It's also common to detect a lack of training for academic staff with regards to teaching SD in life sciences and no information is provided about training programmes. Furthermore, in the teaching area, there is a general perception of undervaluation of the importance of teaching SD.

The majority of institutions Managers were not aware of policies promoting research in sustainable development in their university/higher education institution, and also the academic staff demonstrate a lack of information about it although to a lesser extent. At a national level the trend appears different with a higher awareness on initiatives promoting research in SD. Also the presence of internal research / academic groups specialising in SD is not frequently mentioned.

In general the interviews show that, at the universities, public awareness campaigns take place on several topics (biodiversity issues, energy saving, water consumption, mobility schemes, waste management, consumer behavior, SD policies), even though the knowledge of these campaigns is higher for the institutions than for the students. Around fifty percent of institutions Managers have knowledge of documented initiatives about sustainability criteria included in construction and maintenance works, while they are mostly not aware on sustainability criteria for universities purchase or contracts. Moreover they have no recollection of procedures to keep track of energy or water consumption.

In the typology of identified Good Practices (Table 4), students identified a wide range of current and potential initiatives, concerning public transports, sustainable management of the structures, personal sustainable behavior, informed consumption, university initiatives for improving awareness in sustainability. Less creativity emerges from the academic staff and institutional representatives.

In the following Tables (5-7), a synthetic SWOT analysis concerning the introduction of Good Practices in HESD is presented, referring to the whole sample of respondents and to the different categories (students on one side and teaching staff / institutional representatives on the other).

TABLE 5 ➤ General SWOT analysis

Strengths	Opportunities
• Existence of strategies and policies for SD promotion (even if related also to other subject areas) • Existence of external funding • Awareness of the need of changes in existing curricula • Awareness of the presence of national initiatives to promote research in SD	• Teaching not directly related but relevant to SD • Existence of department/office for the promotion of SD (even if not exclusively) • Many thought subjects related to SD • Presence of sustainability criteria in building maintenance and construction
Weaknesses	**Threats**
• No internal indicators to address SD or published ones • Low awareness of external funding for improvement • Lack of national and university policies • Job opportunity not related to SD • Lack of awareness of institutional policies promoting research in SD	• Only half of the students and staff interviewed is aware at some level of the meaning of SD • Teaching mostly not related to SD • Good Practices not related to SD • Dissatisfaction on the teaching of SD • Undervaluation of importance in the teaching of SD

TABLE 6 ➤ Students SWOT analysis

Strengths	Opportunities
• Many Subjects related to SD • Differentiation of practical activities identified	• Awareness of the connections between different practical activities and SD
Weaknesses	**Threats**
• Good Practices not related to SD • Lack of training/knowledge of academic staff • Few practical activities and lack of specific courses	• Half of the interviewed not aware of the definition of SD • Mostly not aware of the existence of office/department dedicated to the SD promotion • Dissatisfaction on the teaching of SD

TABLE 7 ➤ Academic Staff / Institutions SWOT analysis

Strengths	Opportunities
• Existence of external funding • Awareness of national initiatives to promote research in SD	• Existence of department/office for the promotion of SD (even if related also to other subject areas) • Many Subjects related, even partially, to SD • Presence of specialised research / academic group on SD • Presence of sustainability criteria in maintenance and construction works
Weaknesses	**Threats**
• Lack of a common definition of SD • No internal indicators to address SD or published ones • Low awareness of external funding for improvement • Lack of cooperation between the different departments • Cost / lack of financial support • Lack of awareness of institutional policies promoting research in SD	• Only half of the staff interviewed is aware at some level of the meaning of SD • Dissatisfaction on the teaching of SD • Lack of knowledge/training on SD • Undervaluation of importance in the teaching of SD • Lack of information on specialised research / academic group on SD • Lack of awareness for sustainable criteria in contracts or purchase

3 Methodological approach

3

3.1 Areas of interest of the case studies

The study carried out in Work Package 3 (WP3) "Identifying sustainable and user-friendly Good Practices" focused on Good Practices in education for Sustainable Development in Higher Education (HESD).
The topic of HESD is considered in a broader sense, on one side considering the characterisation of the political and institutional framework, and on the other side describing formal and informal learning experiences in HE Institutions. In the opinion of the authors, to maximise the effectiveness of HESD requires all of these elements to be taken into account.
Good Practices were classified into 4 areas.

Policies Good Practices that concern the creation of the institutional framework for HESD at National or Regional Authorities level with the objective of facilitating and strengthening education for SD; examples are National Agencies or Awards, Public Guidelines, Action Plans, Consortia for improving the SD.

Institutional activities Good Practices that concern the management and other non teaching activities of the Higher Education institutions directed to SD; examples are initiatives like Sustainable Campus, Sustainable Food Procurement, SD education activities for the administrative staff, Environmental and CSR certifications, institutional networking and research in SD.

Teaching Good Practices concerning "formal learning", *i.e.* learning that occurs in an organised and structured context and follows a particular structured design [3]. We can identify different levels of SD Teaching: integration of SD in disciplinary lessons; modules about SD definition and concepts; holistic teaching in relation to sustainable development activities; promotion of a SD mindset; improving the framework for teaching SD.

(3) Using the definition of formal, non formal and informal learning provided by GHK *et al.* (2008) for DG Education and Culture

Practical experiences Good Practices concerning "non-formal" (planned activities that are not explicitly designated as formal learning, but which contain an important learning element) and "in-formal" or experiential learning (learning about SD as a result of daily life activities) that involves HE students or is promoted by HE institutions. Examples are: student involvement in protected areas or urban gardens management, rural and traditional villages management, and sustainable agriculture.

In some instances, the complexity of the Good Practices identified meant that the practice was relevant to more than one area ofinterest; in these cases comments relating to the particular case of interest appear in different paragraphs of this Report. However, the Good Practice form is presented only once, according with their prior interest.

3

3.2 The collection of Good Practices

The geographical area of reference of the collected Good Practices was the 30 European countries represented in the ISLE project.

The information was collected by the ISLE project partners, starting from a desk review and a direct collection of information at national level. Any Good Practices were described using a "case study form".

A specific working group worked on the methodology first, and then on the revision, elaboration and selection of the collected Good Practices.

The working group integrated the information provided by the partners elaborating the results of WP2 "State of the Art", namely:

- the Country Reports "State of the art in the field of sustainable development" elaborated for each country by the project partners;
- the open answers to specific questions about Good Practices on SD in the questionnaires submitted to students, teachers and institutions of each country.

In this way a large range of Good Practices were collected concerning all the previously described areas and ensuring a broad geographical coverage among European countries.

Finally 45 Good Practices was collected from 19 European countries: The Netherlands (6 Good Practices), France and Italy (5), Germany and Portugal (4), United Kingdom and Sweden (3), Bulgaria, Greece and Slovakia (2), Austria, Czech Republic, Estonia, Hungary, Malta, Norway, Poland, Slovenia and Romania (1).

The areas of interest of the Good Practices were Teaching (21), Institutional activities (15), Practical experiences (13) and Policies (5). (4)

Descriptions of the case studies collected are presented in Tables 8 and 9.

(4) Each case study can cover more areas.

The Case study form was structured to collect the following information:

- leading organisation,
- general information about the case study,
- the case description,
- the thematic focus on the different SD pillars and on Life sciences field,
- the information useful for the evaluation,
- conclusions concerning results, impacts and success factors,
- where to find further information.

General information Description of the Leading Organisation; information about Funding Organisation, the Level of Implementation (local; regional; national; international), the Time Frame, the main topic of the activity, the Area of Interest (Policy, Institutional activity, Teaching, Practical experience).

Case description Presentation of the case study, divided into objectives and implementation of the activity / project.

Thematic focus Information on the topics covered by the activity, with reference to the three SD pillars (environmental, social, economic); description of the field of the Life Sciences involved (*i.e.* agronomy; anatomy; animal science...).

Criteria of Evaluation Judgment and information on the established criteria of evaluation, capacity of networking, interdisciplinarity of the activity (see Paragraph 3.3).

Conclusions Final considerations concerning the results of the activity / project, the impacts, the success factors, with the indication of external prizes and awards.

Further information Website, publications concerning the activity, contacts, other sources of information useful for in-depth examination of the case study.

TABLE 8 ➤ List of collected Good Practices for Country and Area of interest

Title	Country	Teaching	Institutional activities	National policies	Practical experiences
Green Pedagogy	AUSTRIA	✗			
Sunny Garden	BULGARIA				✗
Faculty of Ecology and Landscape Architecture	BULGARIA	✗			
Czech University of Life Sciences Prague	CZECH REP.	✗	✗		
Talveakadeemia (WinterAcademy)	ESTONIA	✗			
The accreditation document in France	FRANCE		✗		
SD Institution and Policies	FRANCE			✗	
SD Policies in Higher Education	FRANCE			✗	
Specific universities policies about sustainable development	FRANCE		✗	✗	
Tutored Project	FRANCE	✗			
Bachelor and Master Ecological Agriculture	GERMANY	✗	✗		
E-Learning Academic Network (ELAN III)	GERMANY	✗			
GIZ Initiative 'Between Lecture Room and Project'	GERMANY	✗			✗
German policy on Education for Sustainable Development	GERMANY			✗	
ARCTUROS Environmental Centre	GREECE				✗
Hellenic Wildlife Hospital	GREECE				✗
Pangea Cultural and Environmental Association	HUNGARY	✗			✗
CIRPS (Interuniversity Research Centre on SD)	ITALY		✗		
OPERA – European Observatory on Pesticide and Risk Analysis	ITALY		✗		
Sustainable Campus	ITALY		✗		
Master Culture of Innovation and Sustainable Development	ITALY	✗			
Master GESLOPAN	ITALY	✗			

Title	Country	Teaching	Institutional activities	National policies	Practical experiences
The Wied Ghollieqa Nature Reserve	MALTA				✗
Project "AOC-Van Hall Zonneboot"	NETHERLANDS				✗
Organisation for sustainable Higher Education (DHO)/ AISHE tool	NETHERLANDS		✗	✗	
Skills training of teaching staff	NETHERLANDS		✗		
International module "Integrated Biodiversity management"	NETHERLANDS	✗			
Sustainability Memorandum and Implementation process	NETHERLANDS		✗		
Fair Trade Management	NETHERLANDS	✗			✗
Teaching in SD at the Norvegian University of Life Science	NORWAY	✗			
Master of Science in Agriculture	POLAND	✗	✗		
BioenergISA. Opportunities to Recover Energy from Organic Materials	PORTUGAL	✗			✗
« De Sol a Sol" – a sustainable day	PORTUGAL				✗
Botanical Gardens, Special Places to Involve Special People	PORTUGAL		✗		✗
SolidarISA	PORTUGAL				✗
Master program Environmental Protection in Agriculture	ROMANIA	✗			
Association of the Carpathian Region Universities (ACRU)	SLOVAKIA	✗	✗		
Friends of the Earth – CEPA	SLOVAKIA				✗
Learning regions in Slovenia with polygons in nature	SLOVENIA				✗
Agroecology Basics	SWEDEN	✗			
Management of pests diseases and weeds	SWEDEN	✗			
Master program Sustainable Urban Development	SWEDEN	✗			
The National Policy on Sustainable Development	UK		✗	✗	
Development of an Environmental Sustainability Strategy	UK		✗		
Implementation of Institutional Sustainable Development Policy	UK		✗		

TABLE 8 ▸ (continued)

TABLE 9 ➤ Main characteristics of the collected Good Practices

Title	Country	Level of implementation	Leading organisation	Main topic
Green Pedagogy	AT	National / Internat.	University	Environmental Pedagogy
Sunny Garden	BG	National	University Farm	Organic Agriculture
Faculty of Ecology and Landscape Architecture	BG	National	University	Ecology
Czech University of Life Sciences Prague	CZ	All	University	Research & Teaching in Life Sciences
Talveakadeemia (WinterAcademy)	EE	National	NGO	Conference on SD
The accreditation document in France	FR	National	National Agency	SD Framework
SD Institution and Policies	FR	National	Ministry	Sustainability Strategy
SD Policies in Higher Education	FR	National	Ministry	SD Framework
Specific universities policies about sustainable development	FR	Regional	University	Sustainability Strategy
Tutored Project	FR	Regional	University	Student training
Bachelor and Master Ecological Agriculture	DE	All	University	Ecological Agriculture
E-Learning Academic Network (ELAN III)	DE	Regional	University	E.learning on SD
GIZ Initiative 'Between Lecture Room and Project'	DE	International	Consortium	International Cooperation
German policy on Education for Sustainable Development	DE	National	National Committee	SD Framework
ARCTUROS Environmental Centre	EL	National	NGO	Environmental Education
Hellenic Wildlife Hospital	EL	National	NGO	Environmental Education
Pangea Cultural and Environmental Association	HU	Regional / National	NGO	Environmental education
CIRPS (Interuniversity Research Centre on SD)	IT	All	Univ. Consortium	Research on SD / Int. Coop.
OPERA – European Observatory on Pesticide and Risk Analysis	IT	National	Research centre	Agriculture
Sustainable Campus	IT	Local	University	Sustainability Strategy
Master Culture of Innovation and Sustainable Development	IT	National	Univ. Consortium	Sustainability in Business
Master GESLOPAN	IT	National	University	Protected areas
The Wied Ghollieqa Nature Reserve	MT	National	Environmental NGO	Environmental management

Title	Country	Level of implementation	Leading organisation	Main topic
Project “AOC-Van Hall Zonneboot”	NL	National	University	Renewable Energy Innovation
Organisation for sustainable Higher Education (DHO) / AISHE tool	NL	National / Internat.	Network	Sustainability Strategy
Skills training of teaching staff	NL	Local	University	Teaching training in SD
International module "Integrated Biodiversity management"	NL	International	University	Nature and Wildlife Management
Sustainability Memorandum and Implementation process	NL	Local / National	Univ. Consortium	Sustainability Strategy
Fair Trade Management	NL	Local	University	Agriculture
Teaching in SD at the Norvegian University of Life Science	NO	National / Internat.	University	Life sciences
Master of Science in Agriculture	PL	National / Internat.	University	Study programs (Agroecology)
BioenergISA. Opportunities to Recover Energy from Organic Materials	PT	Local	University	Energy / Waste management
"De Sol a Sol” - a sustainable day	PT	Local	Students association	Cultural event
Botanical Gardens, Special Places to Involve Special People	PT	National	University	Social Environmental Management
SolidarISA	PT	Local	University	Social activities
Master program Environmental Protection in Agriculture	RO	National	University	Sustainable Agriculture
Association of the Carpathian Region Universities (ACRU)	SK	International	Univ. Consortium	Scientific cooperation
Friends of the Earth – CEPA	SK	All	NGO	SD awareness
Learning regions in Slovenia with polygons in nature	SI	National	University	Environmental Pedagogy
Agroecology Basics	SE	National / Internat.	University	Study programs (Agroecology)
Management of pests diseases and weeds	SE	National / Internat.	University	Teaching (Agriculture)
Master program Sustainable Urban Development	SE	International	University	Sustainable Urban Development
The National Policy on Sustainable Development	UK	National	National Agency	Sustainability Strategy
Development of an Environmental Sustainability Strategy	UK	Local	University	Sustainability Strategy
Implementation of Institutional SD Policy	UK	Local	University	Sustainable Campus

TABLE 9 ➤ (continued)

3

3.3 The process of selection of Good Practices

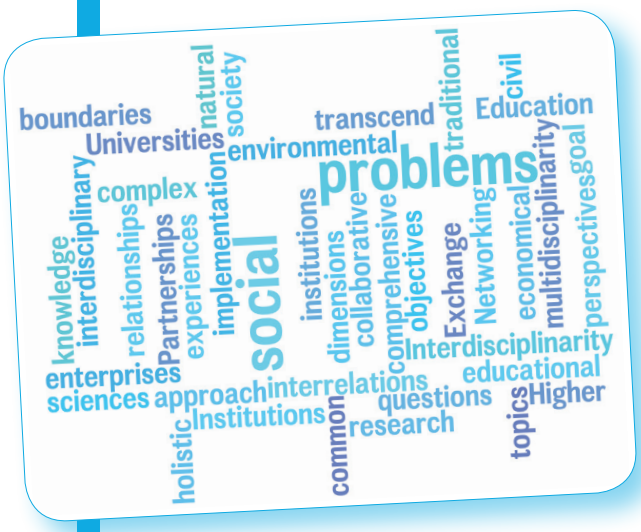
The process of evaluation and selection of Good Practices was defined during the first ISLE Project summer school, that was held in June 2011 in Malta, and was completed during the following ISLE meetings in Lisbon (November 2011) and Harper Adams University College, England (April 2012).

A voting tool was chosen to support the evaluation of the collected Good Practices. According to this framework the case studies had to meet the following criteria:

- **transferability:** capacity to be transferred to other contexts and countries; the topic addressed by the Good Practices case study must be of interest and relevant to other institutions in order to encourage replication of good practice;
- **pertinence:** the project has to address the topic of Education in Sustainable Development, with a specific reference to Higher Education Institutions;
- **capacity building:** the activity must have tangible applications, fostering the capacity of the actors to implement sustainable development. Only research or theoretical projects have not been considered;
- **user friendly:** the Good Practices can be easily realised in other institutions of the same level and characteristics;
- **innovation:** an activity can be innovative in the contents (innovative topics), in the methods (innovative ways in delivering educational processes, use of new technologies), or in building the institutional framework towards ESD;
- **partial / global approach:** the criterion is aimed to evaluate if the approach is mainly concentrated on one dimension or gives the same importance to the three dimensions of sustainable development. To evaluate if the activity deals with a specific question with a single approach or moves towards a holistic dimension of SD.

The Good Practices were evaluated against these criteria with a score from 1 to 5 (1 = very low level, 5 = very high; concerning partial / global approach: 1 = partial and 5 = global). Two more criteria were used for a qualitative evaluation: Networking and the Interdisciplinarity.

Networking: is the capacity of create collaborative relationships finalised at the implementation of SD education. "If the world could only become one team, striving for the same goals and for a better life for all, and excluding no one, what a difference it would make" (UNESCO Associated Schools, 2009). Partnerships and networks can be realised among Higher Education Institutions, between educational institutions and civil society, between Universities and enterprises. Exchange of experiences, sharing knowledge or better realising a common goal can be the purpose.



Interdisciplinarity: the topics related to ESD are typically interdisciplinary. Just the interrelations among social, economical and environmental dimensions require an interdisciplinary approach. The objectives of multiple disciplinary approaches are to resolve real word or complex problems, to provide different perspectives on problems, to create comprehensive research questions (Choi & Pak, 2006). In this sense, if multidisciplinarity draws in knowledge from different disciplines (staying within their boundaries), interdisciplinarity analyses, synthesises and harmonises links among disciplines into a coordinated and coherent whole. Even more, SD requires a trans-disciplinary approach, namely the capacity of disciplines to transcend their traditional boundaries integrating natural and social sciences. So we move from an additive to an interactive to a holistic approach.

The 45 collected Good Practices were presented and discussed in the working group. Among the WP3 participants 4 groups of Referees were selected to analyse and vote on the proposed Good Practices. This vote was based on the approved selection and evaluation criteria and on a general evaluation of the importance of each good practice in the overall contest (area of interest, country, etc.). Each group worked on the evaluation of the Good Practices belonging to a specific thematic area (teaching, institutional activities, policies, practical experiences).

After the overall process of evaluation the Good Practices were classified by the referees on a 4 level scale:

A: highly relevant and interesting practice, absolutely worthy of spreading;
B: highly relevant and interesting practice, worthy of spreading following some improvement;
C: quite relevant and interesting, still worthy of spreading – to be inserted if possible;
D: less relevant or interesting, or a local version of an international network without any particular added value. Do not include.

The results of the evaluation and the selection proposed by the referees were discussed amongst WP3 participants and the final selection of the Good Practices case studies to include in the Compendium was defined.

Finally 36 Good Practices were selected, 13 belonging primarily to the area “teaching”, 10 to the area “institutional activities”, 8 to the area “practical experiences” and 5 to the are “policies”.

4 Presentation of the case studies

4

4.1 Policies

In this section, Good Practices that are concerned with the creation of the institutional framework for HESD at National or Regional Authorities level with the objective of facilitating and strengthening education for SD are presented.

Until now a great variety of initiatives in SD education have been realised in various institutions (*i.e.* new teaching programs, practical experiences for students on SD, sustainable management of the Universities, etc.). Furthermore the development of numerous initiatives, often out of touch with each other, has been the characteristic of the introduction of ESD in higher education. On the other side the political will may be insufficient for developing HESD if not supported by tangible initiatives.

For this reason, in the section "policies", initiatives are presented that aim to build an institutional framework for SD education. This is considered a necessary – but not sufficient - condition to create an educational system that in its majority is oriented towards SD.

Different approaches can be identified in the construction of an institutional framework for ESD. On one side a compulsory approach, where the aspects connected with SD in higher education are inserted into the evaluation system of the HE institutions, conditioning accreditation or funding of these institutions. On the other side a non-prescriptive and enabling approach, finalised to supply services to HE institutions, to communicate and encourage widespread adoption of Good Practices, to assign awards and special funding to integrate SD in the education system.

The two approaches are not in contrast and can be applied together; to build an education system oriented to SD a bottom-up or a top-down approach can be used, or both. In any case an institutional framework is necessary to create, sustain and spread a HE system oriented to SD.

The objective is to make SD a central part of the strategy of development of the HE sector. At the same time the hypothesis for a strong political choice in this direction is that the HE sector is recognised as a major contributor to society's efforts to achieve sustainability.

Examples of initiatives at this political / institutional level can be identified in the action of National Agencies, the settlement of Accreditation Systems, the definition of Action Plans, the creation of Awards, and the production of Guidelines. From a bottom-up point of view the creation of University Consortia for improving SD education or sustainable management can be considered.

A number of Good Practices examples were identified. It should be noted that an exhaustive compilation of Good Practices is not presented, rather a select few are described with the aim of illustrating different approaches.

In United Kingdom, the activity of the Higher Education Funding Council for England (HEFCE) is considered. With the "2008 update to strategic statement and action plan", HEFCE defines its role as a catalyst and facilitator to support progress towards HESD, using a non-prescriptive and enabling approach and integrating sustainability within its existing special funding programmes in order to build and disseminate Good Practices in SD. The identified support roles of HEFCE are (HEFCE, 2009):

- engaging with stakeholders to bring about policy synergies on SD,
- building capacity to manage SD,
- sharing Good Practices and supporting the development of Good Practices where none exists,
- rewarding more sustainable behaviour.

National strategies highlight the significant role of Higher Education Institutions (HEIs) in improving sustainable development. The policies of UK Government and the action of HEFCE, together with the Strategy for Sustainable Farming and Food, published by the Department for Environment, Food and Rural Affairs (DEFRA), inform and influence the environmental sustainability strategies in HEIs operating in the agricultural sector. The case of Harper Adams University College is presented.

In France, the NSSD (National Strategy of Sustainable Development) 2010-2013 "Towards a Green Economy and fair" aims to develop a low-resource and carbon-free economy while pursuing an objective of social justice and equity, providing a common architecture for all players in the nation, public and private. The Ministry of Higher Education and Research is committed to the implementation of the NSSD, which includes a section on the exemplary nature of the state in the operation of its services (Exemplary Plan for the Administration – EPA - for central and decentralised services of the ministry, including local public institutions involved in higher education and research) and an educational component by education to SD (the Virtual University Environment and Sustainable Development – UVED – a thematic digital University with the mission is to produce, develop and diffuse digital learning resources scientifically validated in all fields linked to sustainable development).

In the French experience for accreditation, independent agencies are responsible for making periodic assessments of French universities, which can allow (or not allow) each university to issue a diploma. The accreditation document written on this occasion takes into account factors favourable to the development of SD practices.

In Germany the policy on Education for Sustainable Development is organised within the framework of the United Nations Decade of Education for Sustainable Development 2005 – 2014. The German Commission for UNESCO coordinates the implementation of the Decade in Germany on behalf of the Federal government. The involvement of different actors and the links between different levels of governance is assured by a National Committee, which includes representatives from the relevant Ministries, parliament, the Federal states, municipalities, the private sector, the media, non-governmental organisations, academia, and individual experts. The education sectors – from the primary sector to vocational education and university education – are also represented, along with the full spectrum of content that is taught in Education for Sustainable Development.

A bottom-up example is provided by the Duurzaam Hoger Onderwijs (DHO) – Organisation for Sustainable Higher Education – in the Netherlands. The DHO is basically a network organisation financed by the Ministry of Education (50 %), by NGOs (30 %), and by higher education institutions (20 %), and connected to all Dutch universities. DHO has established a number of networks involved in sustainability including the Network on Sustainability in Building and the Network on Sustainable Development in Water Management. However the most interesting is that DHO has developed an Auditing Instrument for Sustainability in Higher Education (AISHE), which consists of a (self) evaluation tool that can be used to strengthen the integration of sustainable development in policy and education. It is also used to obtain the Sustainable Development Quality Mark by DHO and the Special Sustainable Development Quality Mark, issued by the NVAO (Dutch-Flanders accreditation organisation). AISHE should be recommended throughout the European higher education institutions for the evaluation of their sustainability policies in their courses curriculum.

4

4.2 Institutional activities

Institutions, such as educational institutions and policys agencies, can be a catalyst for further promoting the concept of Sustainable Development in Europe. The concept of sustainability should be the principle goal for institutions at the national, regional and international levels. However, few studies have been conducted to measure how institutions practices and activities are achieving sustainability in their operative and dissemination roles. To further address the challenges of sustainable development some examples of institutional activities in SD were gathered from a number of countries to aid in disseminating knowledge.

Europe's higher academic institutions and other institutional agencies vary considerably in how they approach the concept of sustainability:

- a few emphasise educational outreach,
- some higher educational institutions have integrated sustainable development principles in their overall course curriculums,
- while some institutions have changed their operative means in innovative ways to minimise their ecological impact.

The cases presented after these comments are some innovative ways how certain higher education institutions are addressing the issue of sustainability. These cases can serve as useful tools to institutions involved in education and environmental issues to re-orient their activities to respond to the environmental and development challenges.

In Italy a number of universities have developed the Interuniversity Research Centre on Sustainable Development known as CIRPS. Its activities are aimed at conducting research, developing and disseminating scientific knowledge, technological solutions and working methods, including organisation or social life that can allow sustainable development. The concept of collaboration between many universities on sustainable development will surely further stimulate the importance of sustainability. Each university may have specific expertise in certain areas while may be lacking in certain other areas. Thus collaboration can achieve goals for sustainable development research and most of all stimulated students to specific areas of research which may be lacking in that particular area.

Also in Italy the Università Cattolica del Sacro Cuore has developed the organisation OPERA - European Observatory on Pesticide and Risk Analysis. This is a young, growing independent research centre and think tank, which is providing simple pragmatic solutions to support EU and national decision making. Their interesting approach is to bridge science and policy through a transparent platform by debating the right approaches for sustainable and intensive agriculture. This organisation is developing clear and pragmatic approaches for impro-

ving intensive and biological agriculture. Through collaboration, OPERA exploits current research with its partners to support the on-going sustainability of the European agriculture.

The University of Milan has recently developed Citta Studi - Campus Sostenibile. The project aims to transform the whole campus neighbourhood into an urban area being exemplar in Milan with respect to life quality and environmental sustainability. The project is open to the participation and support of researchers, students and all campus citizens. Some of the main goals are: life style transformation and more liveable spaces, life style rethinking, involvement in international network of sustainable campuses and showcase for sustainable concepts.

In France, the universities are largely autonomous in designing their courses. Nevertheless, French universities have to follow the National Strategy of Sustainable Development set by an inter-ministerial committee for sustainable development. In France, universities are thus encouraged to establish research units specifically related to sustainable development. The case of the University of Southern Brittany is an example among others. The university has created a "mission for sustainable development" led by an adviser. The role of the special adviser is to monitor that all the actions within the university are within the context of sustainable development and to engage effectively in establishing a policy of long-term development.

Also French universities have to undergo an assessment which is carried out by two independent agencies. In the case of university assessment this is done by the reporting agency for research and higher education (AERES), whilst in the case of engineering schools this is done by "the Commission des Titres d'Ingénieur" (CTI). The accreditation document written by these reporting agencies takes into account factors favourable to the teaching and development of SD practices. Thus, legislation that encourages and prizes sustainability seems vital in achieving the goals of SD. Although many of us involved in higher education and other institutions are aware of the concept of sustainability and its importance in certain cases it might only be the enforcement of law that makes us change our unsustainable practices.

In the UK, Harper Adams University College Environmental Sustainability Strategy (2008-2013) provides the strategic context to current and planned initiatives at the College and defines an Action Plan, which presents and prioritises environmental improvements that the College intends to implement between 2008 and 2013. These improvements are categorised according to Environmental Sustainability Indicators, which will enable the College to benchmark current and future performance.

Moreover, Harper Adams University College has developed the concept of the Sustainable Campus in a holistic approach. To disseminate the concept of sustainability to its students, Harper Adams has developed an innovative model for the teaching of sustainable development to students. The concept is not to focus mainly on lecturing the concept of SD but to integrate SD in the student's everyday lives. Students are encouraged to recycle, conserve electricity, share cars, travel on college minibuses, eat food with fewer air miles and/or sourced from Fairtrade. Also Harper Adams has constructed buildings which have won awards for their green credentials. An awarding example is the generation of heat and electricity from anaerobic digestion, sourced from slurry from the College farm and food waste. Thus students are experiencing the concept of SD and not only lectured on the concept. Concepts taught by practical experiences are much more outreaching and far more interesting than the sole approach of lecturing. Also to be praise by Harper Adams University College is their development of their study programmes which can be a reference for a model for the teaching of sustainable development to students.

In the Netherlands, besides the (DHO) – Organisation for Sustainable Higher Education experiences, described in the previous paragraph, some initiatives of Wageningen University and Research Centre have been considered. The Sustainability Memorandum has the ambition of reaching a leading level in sustainability in operations and improving education and research in relation to operations; it considers the management of different operative areas: construction, energy, mobility, procurement, waste and catering. Member of the Wageningen consortium, Van Hall Larenstein (VHL), University of Applied Sciences, proposes skills training of teaching staff in dealing with ethical sustainability dilemmas.

In conclusion various universities have developed many interesting programmes and activities in the sphere of sustainable development. Universities through their research work can contribute to securing a safer and more sustainable future against recognised threats such as climate change, pollution and other environmental threats. However further collaboration between the various universities should be the next step. The exploitation of the innovative ideas and programmes from the individual universities by other universities will further improve the original idea and programme to the benefit of all.

4

4.3 Teaching

The objective of this work was not to make an exhaustive compilation of all the Good Practices in SD, but to provide examples of some general principles related to teaching SD. The principles described below are based on activities and discussions within the framework of the ISLE programme.

SD has many features and it is the same for its teaching. For a student an application in SD means both a good level of knowledge and expertise in a scientific reference, specific knowledge of what the SD is, the skills to thrive in a multidisciplinary field but also in essence a state of mind consistent with the goals of SD.

However, we hypothesise that Good Practices in education for sustainable development are organised according to the following levels.

Integration of SD in disciplinary lessons

The integration of SD in disciplinary lessons requires that sustainability is integrated with the knowledge that any teacher gives his/her students. For example in crop production, it seems logical that the risks associated with excessive use of chemicals are exposed to students and that teaching about organic agriculture is included in the curriculum. Similar reasoning can be applied to all disciplines and for the three pillars of sustainable development. At this level we talk about teaching in relation to one of the three pillars of sustainable development rather than cross teachings. This is to integrate knowledge and skills within a discipline data.

Module about SD definition and concepts

Specific instruction on the definition and concepts of sustainable development is an other aspect of SD teaching. This element is not explicitly described in the summaries we received, but this type of specific module is probably included in larger modules of students training. This is the time for teaching sustainable development which is taken as a specific educational theme. It is rather to transmit knowledge on SD.

Holistic teaching in relation to sustainable development activities

It deals with lessons to acquire working methods and skills clearly finalised to the professionalisation of students, particularly related to the possibility for them to hold positions associated to sustainable development function in a business or organisation. It can deal also with lessons related to academic multidisciplinary activities such as research activities. It is methodological lessons (project management, multidisciplinary work...) and lessons related to specific tools used in the SD (standards, labels, risk management tools, communication tools...). In the first case (training methodology) is often noted the presence of an inductive teaching approach (accompanied by theoretical contributions) with the work done by small group of students. This is to integrate knowledge and skills in a holistic frame (trans-disciplinary) with specific objectives in terms of professionalism or applied research.

Promotion of a SD mindset

We are talking about activities or networks to develop a mindset and a way of cooperation compatible with sustainable development. It may be teaching a good example or associations for students to help advance the cause of SD. If we talk about the training of students, it's more that they can develop a "state of mind" that gives them knowledge or skills.

Framework for teaching SD - institutional and international level

It deals with structures for achieving sustainable development training. This is for example to have universities or university networks and actors of the socio-economic development to create an environment conducive to teaching SD. It is also to create synergy between the training of students and their integration into society in activities related to SD. Finally in building a framework for the teaching of SD, we find educational tools, devices research and teaching innovation dedicated to the teaching of SD. These include also virtual universities.

Framework for teaching SD - study programme level

It deals with initiatives to design study programmes at BSc, MSc, PhD. levels, for achieving SD training and awarding degrees with clear links to SD. Study programmes focus on interdisciplinary approaches, linking theory with practice, motivating of students to assume professional responsibility, and increasing students capability to bridge the gap between theoretical knowledge and necessary practical activities related to SD.

ISLE network members provided 21 examples of Good Practices in teaching SD. These examples come from 15 different countries : Sweden – 3 examples, Germany – 3 examples, Austria, Czech Rep., Slovakia, Bulgaria, The Netherlands, Italy – 2 examples, Poland, Romania, Portugal, Hungary, Estonia, Norway, France – 1 example.

Received examples of Good Practices of SD in Teaching were grouped into 6 different levels of training for SD.

Framework for teaching SD – institutional and international level :

- Green pedagogy, Austria
- CULS – Prague, Czech Republic
- GIZ Initiative, Germany
- Teaching in SD at the Norwegian University of Life Sciences
- Faculty of Ecology and Landscape Architecture, Bulgaria

Framework for teaching SD – study programme level:

- Master programme – Environmental protection in Agriculture, Romania
- Master – Culture of Innovation and SD, Italy
- Master in Agriculture – special. Agroecology and Renewable Energy, Poland
- Bachelor and master – Ecological Agriculture, Germany
- Master program – Sustainable Urban Development, Sweden
- Master – Management of Local Development in Parks and Natural Areas, Italy

Promotion of a SD mindset:

- Talveakadeemia, Estonia
- Pangea Cultural and Environmental Association, Hungary
- ACRU, Slovakia

Holistic teaching in relation to SD activities:

- BioenergISA. Opportunities to Recover energy from org. Materials, Portugal
- The place of the Tutored Project in the conception of curriculum of a bachelor in Water and Waste treatment, France
- Tropical Value Chain Management, the Netherlands

Integration of SD in a disciplinary lessons:

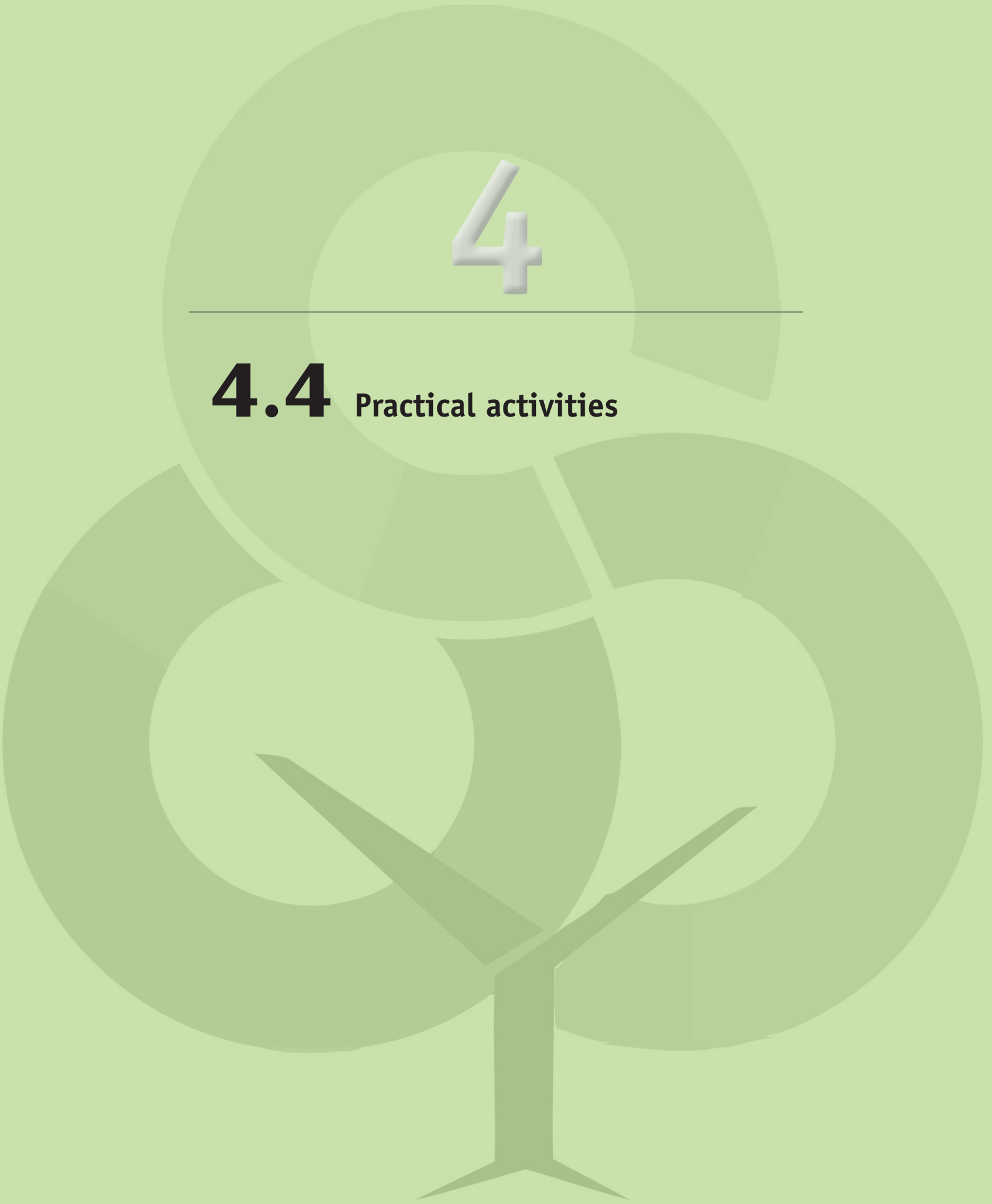
- Management of pests, diseases and weeds, Sweden
- Agroecology Basics, Sweden
- International module – Integrated Biodiversity Management, the Netherlands

Module about SD:

- E–learning Academic Network – ELAN III – Introduction into Sustainability, Germany

Finally 13 Good Practices, representing the different levels of training for SD were selected and are extensively presented in the Compendium [5].

(5) The Good Practices not included in the compendium are briefly summarised in Annex 1. An extended version is available in the project website www.isle-project.eu



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4.4 Practical activities

The compiled examples show the ability of applying theoretical knowledge gained at the university into practice – *i.e.* policy making, environmental, learning, economic and social aspects of sustainable development.

Although some of the case studies refer to practical training of students as a compulsory element of their formal education, the aims are targeted at a diverse scope of daily life activities. Students are provided the opportunity to work in synergies with partners outside their universities. The experience of business, NGO experts, financial and social institutions is combined with creativity and initiatives of the young people in favour of local community sustainable development.

The published examples of Good Practices have been selected according to their compliance with the aims set and their larger scale applicability.

Thirteen Good Practices were presented in the section of Practical Experience, showing examples from the following countries: Portugal – 4, Netherlands – 2, Greece – 2, Slovakia, Hungary, Malta, Germany and Bulgaria.

Although the 4 examples from Portugal refer to practical training at the University, they comprise quite diverse areas of sustainability – protection of biodiversity and the environment, energy saving, sustainable village development, and charity. The examples are interdisciplinary and the target groups are varied – students, alumni, teachers, sponsors, representatives of business, etc.

The Dutch examples are oriented basically to student training, but facing important social and economic issues.

The two examples of Greece focus on knowledge and awareness of environmental issues. They combine the efforts of different experts with the aim of educating children and citizens, promoting the richness of wildlife and putting a pressure on governmental institutions for proper decision-making.

The example of Slovakia is quite close to the Greek examples referring to the aims and the target groups but the methods and tools for implementing the activities are varied and the presented case study offers really good ideas for sustainability.

Hungary presents a challenging model of a cultural and educational approach for environmental protection and conservation, realised by NGO.

Malta presents another good practice of different activities related to sustainable development, realised by NGO and targeted at different age groups.

Germany gives an example of exploiting the experience gained by different institutions with the aim of linking young scientists all over the world for creating intersection between traditions and innovation, between science and sustainable development practices. The Good Practices are to be included in the curricular and practical training of German students.

The Bulgarian case study is aimed at ecological education of children but there are also other issues faced: practical training of university students, promoting organic farming, raising consumers' awareness of food safety, etc.

Slovenia presents an innovative approach to education through experiential learning based on the "ecoremediation", *i.e.* the application of natural systems and processes for environmental protection and restoration.

Finally 8 Good Practices were selected and are extensively presented in the Compendium.

5 Case studies forms

5

5.1 Policies

FICHE 1

German policy on Education for Sustainable Development (ESD) within the United Nations World Decade 2005–2014

General Information

Leading Organisation

German Commission for UNESCO, Federal Ministry of Education and Research (BMBF), National Committee (NC)

The **German Commission for UNESCO** coordinates the implementation of the Decade in Germany on behalf of the Federal government. Within the government the BMBF is responsible.

The 30 members of the **National Committee (NC)** appointed by the BMBF include representatives from the relevant Ministries, parliament, the Federal states, municipalities, the private sector, the media, non-governmental organisations, academia, and individual experts. The education sectors – from the primary sector to vocational education and university education – are also represented, along with the full spectrum of content that is taught in Education for Sustainable Development (ESD).

The **Federal states** play an important role in the implementation of the Decade, not least because of Germany's federalist education system. They each have a representative at the Round Table, and are represented on the NC with one or two representatives from the Environmental Ministers Conference and the Standing Conference of Ministers of Education and Cultural Affairs.

A **coordination centre** is established for the UN Decade consisting of a secretariat in Bonn and an office with the National Committee Chairman in Berlin.

Country : Germany

Funding Organisation	Federal German government via Ministry of Education and Research (BMBF)
Level of Implementation	National
Time Frame	From 2005 to 2014
Main topic of the Activity	Steering and promoting Education for Sustainable Development on a nation-wide level
Area of Interest	❑ Teaching ❑ Institutional activities ☒ National policies ❑ Practical experiences

Case description

Objectives

Targets of the national policy on Education for Sustainable Development

1. Further develop and pool activities, and ensure the transfer of good practices to a broad base

In Germany there is a broad spectrum of ESD initiatives and good practices. A lot of innovative and successful activities are in place all over the country and in all sectors of education, but not always at the same level of intensity and – still – not with the necessary degree of proliferation and anchoring. The task for the next few years is therefore to ensure that these activities are further developed, interrelated more amongst each other, and made available to the entire educational landscape. It is crucial to take the step from temporary project towards a permanent anchoring in the structure. The idea is to reach all educational institutions from children's day-care centres, schools, universities and vocational education facilities to continuing education centres, as well as the broad spectrum of informal learning places, and establish sustainability as an object of lifelong learning.

2. Create a network of ESD protagonists

All protagonists are called on to focus especially on working towards sub-goals in the next few years, e.g.

- Deepen the involvement of protagonists in the various educational fields that make significant contributions to ESD (such as global learning, environmental education, intercultural education, consumer education, civic education, health education).
- Support protagonists through central specialised service agencies and trained 'multipliers', including in the areas of vocational education and training, universities, extracurricular education and informal learning.
- Student enterprises are a particularly promising tool for reaching less scholastically inclined teens. Here, the task is to continue developing existing student enterprises for the purposes of ESD and to establish new, sustainable student enterprises.
- Expand local networks by involving local authorities, businesses, non-school youth and adult education facilities, clubs, foundations, and social and cultural institutions. The 'Lernende Regionen' (Learning Regions), local educational landscapes, and community education networks provide good models for this.
- Establish a network between Decade Projects to enable knowledge transfer and mutual motivation.
- Expand the academic research on ESD and link it more closely with the practical implementation of ESD.

Provide impetus in terms of content and ideas: evolve the techniques and concepts of ESD as a whole or in parts – e. g. regarding the annual themes. Incentives for innovative developments will be created for ESD protagonists, in particular by awarding recognition for Decade Projects.

Create visibility for ESD, information management: ESD activities will be made visible among the professional public and beyond. High-profile public relations for ESD protagonists, positions and developments are to increase demand for ESD.

3. Improve public awareness of Education for Sustainable Development

Sub goals are

- Ensure that, as citizens become more aware of the importance of sustainable development, they begin to recognise the personal options available to them for promoting sustainability and start demanding more ESD offers proactively.
- Familiarise professionals in all educational sectors with the essential elements of ESD. Make sure they see ESD not as one educational approach among many, but as a comprehensive new approach to teaching and learning and interacting with the world.
- Increase media coverage of how people can acquire awareness for acting in the spirit of sustainable development.
- Make the ESD achievements of high-quality projects and communities visible by recognising them as official UN Decade of ESD projects/communities.

4. Strengthen international cooperation

Sub goals are among others

- Introduce examples of Good Practices from other countries into the German education sector.
- Increase the integration of 'Sustainable Development' as a focus topic in educational projects and programmes at European level, and have the EU Commission define relevant thematic emphases Further expand the focus on 'education', 'the environment', and 'sustainable use of resources' in Germany's bilateral and multilateral development cooperation with partner countries in Africa, Asia and the Americas, and with 'threshold countries', especially with regard to the Millennium Development Goals.

Target group

All institutions in Education within Germany including Federal States and municipalities.

Implementation

Organisation of conferences, awards, round tables, networking, working groups, etc.

There are specific working groups on different educational levels including groups on higher education as well as thematic groups for example on "Biological Diversity" and "Economics and Consumption". They are in principle open to all interested parties.

The groups work on various projects such as policy recommendations, conferences and handouts. For example, the joint 'Universities for Sustainable Development' declaration (2010) by the German Rectors' Conference (HRK).

In March 2011 the Extracurricular Learning and Continuing Education
Working Group organised a professional discourse on 'Good ESD – Can it be measured? Quality criteria for multipliers'.

In 2010 the Biodiversity Working Group published a detailed handout on the topic of 'Biological Diversity and Education for Sustainable Development: Key Topics and Starting Points for Educational Programmes.'

Most of the German states have published State Action Plans on ESD.

Since the beginning of the Decade, several times a year the German UNESCO Commission recognises initiatives that put the concept of Education for Sustainable Development into practice in an exemplary way. These 'Official German Projects of the UN Decade of Education for Sustainable Development' are active all over Germany. They introduce children, adolescents and adults to ways of thinking and acting that reflect the philosophy of sustainable development.

Since 2005 more than 1,300 projects have been recognised as 'Official German Projects of the UN Decade A complete overview of all Decade Projects can be found on the ESD website at www.bne-portal.de/datenbank

Thematic Focus

Environmental Pillar

All aspects involved, especially active on biological diversity (see above).

Economic Pillar

Specific working group on consumption and economics (see above).

Social Pillar

All aspects involved.

Life Science Field

Any field, especially biodiversity.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence					✗
Capacity Building					✗
User Friendly					✗
Innovation					✗
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking

As the participation in the awards shows networking in the sense of mobilising people to work together seems to be rather high.

Interdisciplinarity

By definition no field is excluded.

Conclusions

Results

Policy recommendations, conferences, handouts, working papers, ESD tools etc.
(See section implementation and project database for examples.)

Impacts

It seems that especially the award of the so called "Decade Projects" has a high impact in motivating institutions and German citizens for sustainability in Education.

Success Factors / Awards

Joint effort of all interested parties and institutions. The participants in the awards include kindergarten, school, universities, municipalities and others.

Further Information

Website	http://www.bne-portal.de
Publications	Nationaler Aktionsplan (engl.) 2011 http://www.bne-portal.de/index.php?id=4391&linklisted=1
Contacts	UN Decade Secretariat - German Commission for UNESCO - Langwartweg 72 53172 Bonn Phone: +49 228-688444-0 Fax: +49 228-688444-79 E-mail: sekretariat@esd.unesco.de
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FICHE 2

The UK National Policy and the development of Environmental Sustainability Strategies in Higher Education institutions

5.1

General Information

Leading Organisation

HEFCE

The Higher Education Funding Council for England (HEFCE) distributes public money for higher education to universities and colleges in England. HEFCE also monitors that higher education institutions in England are financially healthy, that their courses are good quality, and that everyone who is qualified to enter into higher education is provided with a fair opportunity to do so. In 2009, HEFCE released an updated strategic statement and action plan for sustainable development in higher education.

DEFRA

The Department for Environment, Food and Rural Affairs (DEFRA) is a government department in the UK that makes policy and legislation, and that works with other organisations to deliver these policies. Two areas within the remit of DERFA are sustainability and the green economy, and farming, food and fisheries. The remit of DEFRA is directly relevant to the courses delivered by Harper Adams University, in addition to the institutions commercial farm.

Harper Adams University (HAU)

HAU is the premier UK Higher Education (HE) institution focused on the land-based and food supply-chain sectors. Over 2,500 HE students attend HAU, primarily on sandwich courses which include a year-long industrial placement. There is a growing number of postgraduate students at both diploma and masters level.

The University estate includes amenity areas, woodland, and a commercial farm of 205 ha (plus 303 ha rented land) that includes cereals, potatoes, forage maize and grassland carrying a dairy herd, sheep, beef, pig and poultry units.

HAU offers a wide range of courses including Foundation and Honors degrees, in addition to shorter awards that meet the continuing professional development needs of those already in the workplace. The subjects covered are Agriculture, Animal Welfare and Managements, Business, Countryside, Engineering, Food, Leisure and Tourism and Land & Property Management.

HAU has been listed as the UK's Best University College in the Sunday Times University Guide for the last five years. In the 2012 guide HAU was placed 6th for teaching excellence (from 122 higher education institutions), 6th for student satisfaction, with the institutions graduate unemployment statistic one of the lowest in the UK.

Country : United Kingdom

Funding Organisation	Higher Education Funding Council for England (HEFCE)
Level of Implementation	National - Local
Time Frame	2002 - 2015
Main topic of the Activity	Strategy development
Area of Interest	❑ Teaching ☒ Institutional activities ☒ National policies ❑ Practical experiences

Case description

Objectives

National strategies highlight the significant role of Higher Education Institutions (HEIs) in improving sustainable development. This form analyses the policies of UK Government and the Higher Education Funding Council for England (HEFCE) and their role in influencing and informing the environmental sustainability strategies in HEIs. The case of Harper Adams University is presented.

Implementation

In 2002, a major shift in the agricultural industry towards more sustainable farming practices and stewardship of the environment was signaled with the publication of the Report of the Policy Commission on the Future of Farming and Food (The Curry Report). This was followed by a fundamental Government-commissioned review of the way in which rural services are to be delivered and support for the farming industry is to be provided. The Rural Strategy was the Governments response to both reports. The strategy set out an overarching aim of creating sustainable rural development and sustainable rural communities. The mission and vision of HAU are not only to be able to secure high quality academic services, but also to lead this national agenda for change.

In March 2005 the UK Government published its sustainable development strategy 'Securing the Future', which contained four priorities – sustainable consumption and production, climate change and energy, natural resource protection and sustainable communities. The strategy reflected on the need to educate the UK population to enable them to make more sustainable choices.

In 2005 and updated in 2009, The Higher Education Funding Council for England (HEFCE) published 'Sustainable Development in Higher Education', which provided a vision in which the higher education sector in England is seen as a major contributor to society efforts to achieve sustainability, within the next ten years. The strategy aims to encourage the higher education sector to:

- embed the principals of sustainable development in its values and activities;

- develop curricula and pedagogy to enable students to develop the values, knowledge and skills to contribute to sustainable development;
- strengthen links to business, the community, civil society, government and others in pursuit of sustainable development;
- build the new skills, knowledge, and tools needed for sustainable development through research and knowledge exchange;
- continuously improve its own impact on the environment, society and the economy;
- work with student organisations to promote behavioural change among students and support initiatives that seek to harness the student resource at the campus level.

HEFCE's strategy provided clear direction to HAU and consequently the University's Environmental Sustainability Strategy clearly addresses each of HEFCE's aims as detailed above.

The Strategy for Sustainable Farming and Food, published by the Department for Environment, Food and Rural Affairs (DEFRA), recognises that whilst agriculture generates significant environmental benefits it is also has a significant negative impact on the environment (e.g. water pollution, emissions to atmosphere). The Strategy for Sustainable Farming and Food identifies key principals for sustainable farming and food, which include:

- supporting the diversity and viability of rural and urban economies;
- enabling viable livelihoods to be made from sustainable land management;
- respecting and operating within the biological limits of natural resources (especially soil, water and biodiversity);
- achieving consistently high standards of environmental performance by reducing energy consumption, by minimising resource inputs, and by using renewable energy.

The Strategy for Sustainable Farming and Food provides direction to the University and the University Farm with respect to enhancing environmental sustainability within the land based sector.

The strategies mentioned highlight the significant role Higher Education Institutions have in improving the environment, preserving natural resources and making an economic and social impact. Graduates are entering a volatile world and higher education needs to respond to challenging, rapidly changing socioeconomic and environmental conditions. Through their role as educators and researchers, institutions can contribute to securing a safer and more sustainable future against recognised threats such as climate change and global poverty. Higher education can help promote new and sustainable ways of living, working, producing and travelling that will help achieve wider benefits of human health and wellbeing. The Government has made it clear that it wants the public sector to take a lead in sustainable development, by promoting and delivering sustainable development through all its policies and through its own operations.

Sustainable development can also do much for higher education. Raising public interest provides opportunities for institutions to use their sustainability commitments to aid staff and student recruitment and public relations. Efforts will also lead to cost efficiencies and could open doors for further funding.

Thematic Focus

Environmental Pillar

To reduce the consumption of energy (electricity and gas) on the campus and therefore to become more energy efficient and save money. Once this was initiated work began on recycling, biodiversity, development of clean technology, sustainable transport, water management, and reduction of carbon emissions.

Economic Pillar

Sustainable consumption and integration of environmental concerns in business decision making.

Social Pillar

Development of human capital and skills, community cohesion, social equity, and health and quality of life.

Life Science Field

Development of the Environmental Sustainability Strategy at HAU affects all subjects that are taught at the institution, namely Agriculture, Animal Welfare and Managements, Business, Countryside, Engineering, Food, Leisure and Tourism and Land & Property Management.

Criteria of Evaluation

	1	2	3	4	5
Transferability		✗			
Pertinence					✗
Capacity Building				✗	
User Friendly				✗	
Innovation				✗	
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking & Interdisciplinarity

Development of the Environmental Sustainability Strategy at HAU was interdisciplinary in relation to policy drivers because it was influenced by higher education, rural and national policy. Essentially this ensures linkage between national and institutional policy.

Conclusions

Results & Impacts

The Environmental Sustainability Strategy developed by HAU aligned with national strategy set by HEFCE, Defra and the Government.

Success Factors / Awards

2011 Winner ▸ Times Higher Education Award for Outstanding Contribution to Sustainable Development
2011 Winner ▸ Renewable Energy Infrastructure Awards – Renewable Electricity Facility Award
2011 Winner ▸ The Energy Institute's Environment and Energy Award – Estates Manager of the Year
2010 Finalist ▸ Green Gown Award for Sustainable Construction
2010 ▸ Awarded Carbon Trust Standard
2008 Winner ▸ Times Higher Education Award for Outstanding Contribution to Sustainable Development

Further Information

Websites

http://www.harper-adams.ac.uk/sustainability/
http://archive.defra.gov.uk/foodfarm/policy/sustainfarmfood/index.htm
http://www.gov.uk/government/policies/making-sustainable-development-a-part-of-all-government-policy-and-operations

Publications

http://www.hefce.ac.uk/pubs/year/2009/200903/

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Fig. 1 ➤ Key UK strategies influencing Harper Adams University College's Environmental Sustainability Strategy

FICHE 3

Organisation for sustainable Higher Education in The Netherlands (DHO) / AISHE tool

General Information

Leading Organisation

Duurzaam Hoger Onderwijs (DHO) - Organisation for Sustainable Higher Education

DHO is basically a network organisation financed by the Ministry of Education (50 per cent), by NGOs (30 per cent), and by Higher Education institutions (20 per cent), and connected to all Dutch universities.

Country : The Netherlands

Funding Organisation	Ministry of Education, NGO's, HE institutions
Level of Implementation	National - International
Time Frame	From 2007, ongoing
Main topic of the Activity	SD Network organisation for Higher Education
Area of Interest	❑ Teaching ☒ Institutional activities ☒ National policies ❑ Practical experiences

Case description

Objectives

Network Organisation for Sustainable development in Higher Education

Implementation

In 2007, DHO had 1,500 associated members.
Three sub-networks have been established within the network: (i) the Duurzame Pabo network (now independent), (ii) the Network on Sustainability in Building (supporting initiatives of energy efficiency, sustainable materials, sustainable energy, and so on); and (iii) the Network on Sustainable Development in Water Management (linking water management professionals with teachers and students on the issue of water management).
DHO has lobbied at all levels and has achieved many of the proposed objectives regarding higher education.

DHO has also developed an Auditing Instrument for Sustainability in Higher Education (AISHE), which consists of a (self)evaluation tool that can be used to strengthen the integration of sustainable development in policy and education.
It is also used to obtain the Sustainable Development Quality Mark by DHO (when performed by a certified auditor) and the Special Sustainable Development Quality Mark, issued by the NVAO (Dutch-Flanders accreditation organisation).

Thematic Focus

Environmental Pillar

The network aimed at integrating and encompassing all pillars.

Economic Pillar

The network aimed at integrating and encompassing all pillars.

Social Pillar

The network aimed at integrating and encompassing all pillars.

Life Science Field

All.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence					✗
Capacity Building					✗
User Friendly					✗
Innovation					✗
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking

As follow up of the DHO network on SD, several initiatives were taken.
As of 2012 the here under mentioned network organisations are operating.

DUPLHO the sustainability platform for higher education. The DUPLHO network consists (currently) of **18 Universities of applied sciences** (*i.e.* ca. 75% coverage). Our goal is the process of sustainable development to accelerate through concerted effort and knowledge. We focus on education, research, operations.

The Network Sustainable MBO (DMBO) aims for introduction of sustainable development (SD) in the curricula, in the teaching and in operations of **secondary vocational education.**
www.duurzaammbo.nl

Morgen (which means 'tomorrow' in Dutch) is the national Dutch **student network** for a sustainable future. It is a non-profit organisation, with 14 members organisations in 10 Dutch cities.
The Morgen vision is to provide information, and to inspire and activate students towards sustainability, within the three pillars: Lifestyle, study, career, and to make higher education more sustainable in both: Operational management & curriculum.
Morgen is the only student network in the Netherlands specifically focused on sustainability. Morgen aims to stimulate universities to implement sustainability in all forms (courses, policy, and technology) and to stimulate students to sustainable 'behaviour' in their lives.
Websites: www.studentenvoormorgen.nl ; www.duurzamestudent.nl
Contact: Lisa Olsthoorn (Chair) voorzitter@studentenvoormorgen.nl

Interdisciplinarity

The network aimed at integrating and encompassing all disciplines and collaboration between disciplines.

Conclusions

Results

DHO has lobbied at all levels and has achieved many of the proposed objectives regarding higher education.
DHO has also developed an Auditing Instrument for Sustainability in Higher Education (AISHE), which consists of a (self)evaluation tool that can be used to strengthen the integration of sustainable development in policy and education.
It is also used to obtain the Sustainable Development Quality Mark by DHO (when performed by a certified auditor) and the Special Sustainable Development Quality Mark, issued by the NVAO (Dutch-Flanders accreditation organisation).

duurzaam hoger onderwijs

In the area of certification offers Hobéon now the AISHE method (Auditing Instrument for Sustainability in Higher Education), leading to the SD Quality mark DHO. www.hobeon.nl
DHO has evolved. Most of the targets have been achieved, now DHO is officially terminated and a network community has been established as a meeting place for staff and others in HE on issues of SD: http://www.plado.nl/

Impacts

AISHE has been implemented at a great number of Dutch HE institutions.

Success Factors / Awards

AISHE is also used as the Special Sustainable Development Quality Mark, issued by the NVAO (Dutch-Flanders accreditation organisation).

Further Information

Website http://www.plado.nl

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FICHE 4

SD Policies in Higher Education in France

General Information

Leading Organisation

The Ministry of Higher Education and Research

The Ministry of Higher Education and Research conducts a policy of sustainable development that is part of the National Strategy for Sustainable Development (NSSD). The Interministerial Committee for Sustainable Development has adopted the latest revision of this strategy July 27, 2010 for the period 2010-2013.

Country : France

Funding Organisation	State
Level of Implementation	National
Time Frame	From 2002 to 2013
Main topic of the Activity	Implementation of the National Strategy for Sustainable Development
Area of Interest	❑ Teaching ☒ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

In France, under the leadership of the state, all departments and devolved services, local authorities and civil society contribute to the sustainable development strategy. Strategy implementation is set in the context of the NSDS (National Strategy of Sustainable Development), set by an interministerial committee for sustainable development. Moreover, many actions for sustainable development are achieved by the various departments. The specific case of the Ministry of Higher Education and Research will be discussed in this paper.

Implementation

NSSD 2010-2013 was entitled "Towards a Green Economy and fair" and aims to develop a low-resource and carbon-free economy while pursuing an objective of social justice and equity. It was developed in consultation with representatives of national and local representatives, employers, workers and civil society. By providing a common architecture for all players in the nation, public and private, NSSD allows structuring projects around sustainable development indicators and policy choices that have been a broad consensus. The three pillars of sustainable development are concerned: economic, environmental and social.

The NSSD is built around nine challenges consistent with international and European commitments of France, especially in the case of the Ministry of Higher Education and Research.

Challenge 2 is concerned with the knowledge society (education, training, research and development), Challenge 4 is concerned with climate change and energy (the reduction of emissions of greenhouse gases must be sought, and public actors must be good examples in this field), Challenge 8 is concerned with demography, immigration and social inclusion (continued fight against all exclusions, including those related to disability).

The implementation of the NSSD action plan also includes a section on the exemplary nature of the state in the operation of its services and an educational component by education to SD.

The Ministry of Higher Education and Research is committed to the implementation of the circular of the Prime Minister (circular of the 3 December 2008) on the exemplary nature of the State regarding sustainable development in the operation of its services. The Exemplarity Plan for the Administration (EPA) for central and decentralised services of the ministry was established in March 2009 to contribute to sustainable development of the French economy. This plan is a guidance document. It specifies the actions to be undertaken or continued in the field of sustainable development and of eco-responsibility in our administration in relation to:

- building energy management,
- introduction of products from organic farming in catering,
- waste management,
- buying SD furniture in public procurement,
- integration of disabled people.

This EPA was also declined in each region. The local public institutions involved in higher education and research have to develop their own plan.

The evaluation of the implementation of departmental EPA is based on annual performance indicators. These criteria are made to improve the results of administrations in the field of eco-responsibility and in the field of social responsibility.

Regarding the educational component of the NSSD in sustainable development, the Ministry of Education set up a Virtual University dedicated to the issue of sustainable development. Founded in June 2005, the Virtual University Environment and Sustainable Development (UVED) is one of seven Thematic Digital Universities supported by the Ministry of Higher Education and Research. The UVED mission is to produce, develop and diffuse digital learning resources scientifically validated in all fields linked to sustainable development.

While relying on the universities, the UVED affirms the need for a strong link between research and teaching. Thus, the UVED aims to facilitate dissemination of research results in order to increase transfer of expertise toward companies. The UVED aims to respond business needs or professional needs in the field of SD. This thematic digital university is based on interdisciplinarity. The courses offered are the result of cooperation of experts from different disciplines that aim to tackle issues in an integrated approach. The UVED decided to develop its training around the following areas:

- Global changes,
- Ecosystems and biodiversity,
- Dynamics of natural environments,
- Natural resource management,
- Waste management,
- Assessment and risk management,
- Management and land management,
- Eco-design and eco-technology,
- Institutions, stakeholders and society.

The concept of sustainable development is treated as a major theme; transverse and not as a particular area.

The evaluation of the implementation of departmental EPA will be monitored and discussed in order to improve the efficiency of the NSSD and the efficiency of its implementation in the French higher educational system.

Thematic Focus

Environmental Pillar

Exemplarity of the state, low-resource and carbon free activities, environment preservation, SD supplies, Pollution treatment, conservation of natural resources. Development of clean technology.

Economic Pillar

Valuable diplomas for companies in SD activities.

Social Pillar

General knowledge relative to SD, long distance learning, integration of specific populations, employment, innovation in teaching methods, development of human capital and skills.

Life Science Field

More accurate programmes in general and vocational diplomas.

Criteria of Evaluation

	1	2	3	4	5
Transferability		✗			
Pertinence					✗
Capacity Building				✗	
User Friendly		✗			
Innovation				✗	
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking

Networking is organised between ministries and administrations.

Interdisciplinarity

Interdisciplinarity is a main subject of the NSSD and for its application in higher education policy.

Conclusions

Results

A real change in the way administration acts. A new organisation with an annual system of efficiency monitoring.

Impacts

Creation of new contents for education purposes, SD is a criteria to buy or not to buy equipments or furniture.

Success Factors / Awards

Evaluation of the achievements of the challenges (annual performance indicators).

Further Information

Website

Further reports by the inter-ministerial committee for sustainable development (www.gouv.fr)

Publications

The General Commissionership for Sustainable Development, April 2011, « Le point sur la Stratégie Nationale de Développement Durable 2010-2013 - Vers une économie verte et équitable », n° 80, 6 p.
The General Commissionership for Sustainable Development, November 8 2011, « Premier rapport au Parlement sur la mise en œuvre de la stratégie nationale de développement durable 2010-2013 (SNDD) », 140 p.

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FICHE 5

The accreditation document in France: a tool for measuring the efficiency and the quality of studies in higher education system

General Information

Leading Organisation

AERES and CTI are two independent agencies responsible for making periodic assessments of French universities. The Independent Administrative Authority (AAI) launched in 2007, AERES is responsible for the evaluation of higher education institutions and research institutions, research organisations, research units, training and higher education diplomas. The CTI (Commission des Titres d'Ingénieur) is an independent body, mandated by French law since 1934 to empower all engineering courses, to develop the quality of training, to promote the title and the engineering profession.

Country : France

Funding Organisation	State
Level of Implementation	National
Time Frame	From 2002, ongoing
Main topic of the Activity	Universities' assessment
Area of Interest	❑ Teaching ☒ Institutional activities ☒ National policies ❑ Practical experiences

Case description

Objectives

In France the universities are largely autonomous in designing their courses. However the state decides to allow (or not to allow) each university to issue a diploma. The accreditation document written on this occasion takes into account factors favorable to the development of SD practices.

Implementation

Each institution of higher education must periodically make a document of accreditation. This document presents its teaching and research activity. This document is considered by the reporting agency for research and higher education (AERES) in the case of universities and by "the Commission des Titres d'Ingénieur" (CTI) in the case of engineering schools. Each agency has to send the specifications on the drafting of the accreditation package. The assessment of universities is conducted on a number of criteria and evaluation (expertise) is transmitted to the ministry. Each institution may respond in writing to criticisms that are made by the agency that has appraised. In some cases a meeting is organised between the university and the ministry which it depends. The department then decides to authorise (or not allow) the university to award degrees that the University wishes to deliver. This authorisation is valid for a limited time and may be accompanied by specific recommendations to ensure suitable education.

The accreditation document already has a number of data compatible with the enhancement of the teaching of Sustainable Development. Some diplomas (engineering degrees) for example are required to guarantee a level of foreign language education by passing an international test (TOEIC, TOEFL...). In these courses it is also requested that students receive education in the field of ethics.

In addition all training-oriented business must establish a number of specific measures. A survey on employability should be performed regularly to ensure that the training achieved its goal. If this is not the case the training is not continued. The professional skills of graduates should be listed in the NPCQ (National Repertory of Professional Qualifications). This requires consultation with the professional world and a reflection on the design and use of training. Finally the presence of professionals in the steering committee of the training is welcome.

In the case of any institution of higher education it is asked how the students are involved in the governance of the institution and training. Students are represented in the councils of the institution and the steering committees of diplomas.

In addition the University or the School of Engineering is invited to demonstrate that it has a number of structures to promote a sustainable operation. The facility must demonstrate that they have a system of quality management. This implies that students can give their opinion (through an anonymous survey) on the evaluation of teaching. The University must also explain how the exchange of students is organised (ERASMUS...). Finally it is possible to explain how the development is valued in the sustainable operation of the establishment (creation of a service to coordinate the SD policy of the university, creation of a charter, setting up of a device for distance learning...).

These provisions are consistent with achieving the challenges set by the European agreement

concerning the implementation of SD in education. The Ministry of Higher Education and Research conducts a policy of sustainable development that is part of the National Strategy for Sustainable Development (NSSD). The NSSD is built around nine challenges consistent with international and European commitments of France. These challenges are reflected in the NSDS and partially taken into account in the evaluation of universities in the accreditation package.

Thematic Focus

Environmental Pillar

Integration of environmental concerns in teaching activities.

Economic Pillar

Valuable diplomas for companies in SD activities.

Social Pillar

General knowledge relative to SD, long distance learning, integration of specific populations, employment, innovation in teaching methods, development of human capital and skills. Student participation in the governance of the University.

Life Science Field

More accurate programs in general and vocational diplomas.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence					✗
Capacity Building			✗		
User Friendly			✗		
Innovation				✗	
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking

Networking is organised to write the accreditation document.

Interdisciplinarity

Construction of curricula, pedagogy by objectives, survey of employability, definition of interdisciplinary skills.

Conclusions

Results

An evaluation procedure that takes into account good practices in SD.

Impacts

Higher employability, harmonisation of teaching quality in HEIs.

Success Factors / Awards

Evaluation of the quality of diplomas.

Further Information

Websites http://www.aeres-evaluation.fr/ ; http://www.cti-commission.fr/

Publications AERES, October 2011, *Rapport d'évaluation de l'Institut National Supérieur des sciences agronomiques, de l'alimentation et de l'environnement*, AgroSup Dijon, 39 p.

Contacts CTI, 34 avenue Charles De Gaulle, 92200 Neuilly-sur-Seine, France
AERES, 20 rue Vivienne, 75002 Paris

Author Jean-Pierre Lemière, AgroSup Dijon
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26 bd Dr Petitjean, BP 87999, 21079 Dijon, France

5

5.2 Institutional activities

FICHE 1

Bridging the knowledge-to-action gap for coping with sustainability challenges. The experience of CIRPS

5.2

General Information

Leading Organisation

CIRPS is a Consortium of eleven Italian Universities, founded in April 1988. Sapienza University of Rome, where CIRPS is administratively located with the *status* of a *Non-conventional Interuniversity Department*, is the leading partner of the Consortium. About 300 researchers, technologists and administrative staff- work at CIRPS.

CIRPS (www.cirps.it) carries out research, educational, capacity building and outreach activities aimed at promoting sustainable technological, economic and social development in co-operation with Italian and foreign Universities, Institutions, private partners and International Organisations.

Like any modern academic Institution since the Humboldt reform, CIRPS has three **missions:** research, higher education and providing consultancy support to society. **Sustainability** is the basic paradigm and the pre-requisite of any CIRPS initiative.

CIRPS Sections expertise is broad: from Humanities, Cultural and Social Sciences, to Medical (sanitary and sanitation) ones, as well as Media and Communication, International Cooperation for Development, Economic, Demographic, Juridical, Epistemological Sciences. In particular, Sustainable Technology Innovation and Transfer (mainly in energy and environmental domain) are **priorities** of CIRPS.

Any CIRPS activity is carried out by its **Scientific** (dealing with special research topics) and/or **Geographic** (located in different Universities) **Sections** consisting of **Operational Units** (O.U.s).

To introduce some innovative results of CIRPS activity, selected examples are presented below.

Country : Italy

Funding Organisation	Universities participating at INFSS network and ISSS International society
Level of Implementation	Local - Regional - National - International
Time Frame	From 1988, ongoing
Main topic of the Activity	Research
Area of Interest	❑ Teaching ☒ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

Bridging the knowledge-to-action gap for coping with sustainability challenges: the role of Sustainability Science (SS)

The transition towards sustainability has become an urgent global, political concern. The reconciliation of human development goals with the environmental limits of our planet is increasingly dependent on policy decisions and on different stakeholders. Linking knowledge and action is vital in order to implement a transition towards sustainability.

CIRPS is aware of the fundamental responsibilities Universities have in providing high education and research to address sustainability problems, and of the need to work in partnership with policy makers, industry and civil society to develop sustainability-related policies "based in science" and providing effective solutions.

Implementation

CIRPS joined the Forum launched by the IR3S of Tokyo University at the First International Conference on Sustainability Science (http://www.adm.u-tokyo.ac.jp/res/res5/ICSS2009.html) for a global network of scholars concerned with addressing the complex environmental problems that threaten the future viability of the planet and the well being of its inhabitants.

ICSS 2009 resulted in the creation of a framework for an International Network for Sustainability Science (INFSS) to facilitate the coherent and rapid implementation of the new paradigms.

In June 2010, the Second International Conference on Sustainability Science was held in Rome (www.icss2010.net), hosted and coordinated by CIRPS in collaboration with IR3S, Arizona State University and United Nations University. More than 250 scholars from 63 universities and several scientific and project-oriented Networks worldwide attended the conference with the aim to facilitate development of the academic agenda in sustainability science and elaborating and promoting innovation in education and research policies, to address the sustainability crisis. ICSS 2010 aimed to begin structuring the knowledge generated through sustainability science to be applied in ways that will contribute to the transformational changes that sustainability science scientists regard as necessary.

In five plenary Sessions (Methods, Case Studies On Trans-Disciplinary Research, Innovation, Governance, Education) concrete examples of ongoing work and open discussions led to the identification of major challenges and opportunities to address them. In addition two open Forums were organised to urge contributions from industry and civil society to map and structure the existing knowledge, methodologies and research priorities.

In the framework of the Network created, and together with other scientists, partners from industry and civil society world, CIRPS is engaged to assess and implement joint and coordinated strategies for how to solve sustainability problems.

The third edition of ICSS (www.icss2012.net), hosted by Arizona State University in 2012 has deepened high-level interactions between the sustainability science community and policy and decision-makers, so to look towards concrete actions. ICSS 2012 aim was to advance the field of sustainability science, to that purpose the conference was organised around the in-depth presentation and analysis of three case studies that functioned as the platform for exchange, transfer, and learning among participants about the current state and future directions of the field.

Thematic Focus

Environmental Pillar

Renewable energies, climate change, treatment of biowaste, sustainable mobility.

Economic Pillar

Cooperation and planning for development.

Social Pillar

Education to environmental sustainability, women empowerment, development of human capital and skills, regional integration.

Life Science Field

Ecosystems, agro-food.

Criteria of Evaluation

	1	2	3	4	5
Transferability				✗	
Pertinence			✗		
Capacity Building			✗		
User Friendly			✗		
Innovation				✗	
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking

Networking promoted within the Network of Universities joining CIRPS.
CIRPS is partner of the International Network for Sustainability Science (INFSS) and founding member of ISSS (www.sussci.org).
CIRPS promotes and coordinates the creation of the Italian Network on Sustainability Science.

Interdisciplinarity

The evolution of the INFSS clearly shows how the debate and the focus moved from a deeper understanding of diverse disciplinary approaches to Sustainability Science towards **1)** multi and trans-disciplinary approaches, **2)** the consolidation of the field in terms of concepts, tools and methodologies, **3)** a critical reflection about actual achievement and contribution to solve sustainability problems, as well as about how to improve the practice and outcome of SS.

Results

CIRPS co-founded the International Society for Sustainability Science (ISSS) (www.sussci.org), aiming to integrate, structure and deploy knowledge generated on and through the practice of SS and to promote integration and cooperation among diverse academic fields and across geographic and national borders with a particular focus on developing and enhancing top-flight academic programmes in SS. ISSS organises annually the International Conference on Sustainability Science (ICSS). CIRPS hosted the 2nd edition of ICSS (http://icss2010.net) and organised the workshop "A Roadmap for Industry-Academia Collaboration towards Sustainability" (http://www.ony.unu.edu/events-forums/new/WWNY/2010/sustainability-science-worksho.php) held in NY at UN Headquarters as a follow-up of ICSS2010. Among accomplishments of ICSS process: promotion of educational programmes in SS, students and faculty exchanges, examination of the current practice of implementing interdisciplinarity into academic programmes, promotion of new experiential-based pedagogical approaches, collaborative partnership for sustainability, research and education between University and local stakeholders.

From 2011 CIRPS is coordinating the constitution of the Italian Network of SS (www.ssitalia2011.it), aimed to provide a platform for inter and multidisciplinary debate on sustainability in Italy and to facilitate the promotion and institutionalisation of SS within the Italian academic context. Since the first meeting, a strong attention was directed to the role of education in the global process toward sustainability and the need of new training paths, structured in a trans-disciplinary perspective, aimed at the creation of a civil society increasingly aware about the sustainability problems and their possible solutions.

Impacts

Multiplier effect and cross fertilisation has been produced through the Sustainability Science initiative that CIRPS promoted at Italian level. In fact, through this initiative, the INFSS debate and ICSS process have been transferred into the Italian academic context, promoting and facilitating the debate and advancement of SS field into the Italian context where several scattered and not connected efforts of addressing sustainability challenges were acting in isolation.

Further Information

Website

www.cirps.it

Publications

ICSS2012 Conference report (http://www.icss2012.net)
ICSS2010 book of abstracts (http://icss2010.net/download/documents/book%20of%20abstract.pdf)
Wiek A., Farioli F., Fukushi K., Yarime M., *Bridging the Gap between Science and Society*, 2012 editorial Special Feature Sustainability Science Journal 7 (Supplement 1) 2012 Springer

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FICHE 2

Bachelor and Master Ecological Agriculture

General Information

Leading Organisation

University of Kassel, faculty of organic agricultural sciences

The Faculty of Organic Agricultural Sciences holds a prominent position in the university landscape in Germany and internationally with its definitive organic profile. Questions of ecology are central to all research and teaching, forming the theoretical framework in all disciplines. This is a clear profile oriented towards the future. This focus is not in discord with conventional agriculture and agricultural sciences, but represents an important supplement and enhancement.

Agricultural education has a long tradition in Witzenhausen. In 1898 a School for Tropical and Subtropical Agriculture was founded to train agricultural experts in German colonies before World War I. Since 1971 when the Kassel University was founded Witzenhausen has hosted the Faculty of Agronomy, International Rural Development and Environmental Protection. For 30 years Organic Agriculture has been part of the curriculum. Since 1996 the main focus is on organic agricultural sciences and the Faculty has changed its name to "Faculty of Organic Agricultural Sciences", new professorships were established to further develop our organic profile in teaching and research; a unique situation worldwide. In 2005 all study programmes were accredited and transfered to Bachelor and Master system.

The University of Kassel in 1981 was the first German University to establish a professorship for Organic Agriculture, which shows its long lasting commitment and tradition in this area. Today, the Faculty of Organic Agricultural Sciences offers a consecutive Bachelor and Master programme in Organic Agriculture (German Programme "BSc./MSc. Ökologische Landwirtschaft"). Futher more the faculty offer a "Dual Education Programme" for combined vocational and higher agricultural education.

Country : Germany

Funding Organisation	State of Hessen
Level of Implementation	Regional - National - International
Time Frame	From 2005, onward
Main topic of the Activity	Ecological Agriculture
Area of Interest	☒ Teaching ☒ Institutional activities ☐ National policies ☐ Practical experiences

Case description

Objectives

The main focus of the study is to impart extensive expert knowledge, which is an essential pre-requisite of sustainable agriculture with regard to different agro-ecological and economical conditions. The general objective is the development of site-specific solutions with minimal use of non-renewable resources for the sustainable protection of the food basis of a rapidly expanding world population. These are the main topics we focus on:

- maintenance of nutrient cycles,
- the reflected use of means in organic agriculture and food production,
- balanced relation between productive and 'non-productive' areas such as landscape protection,
- and the link between agricultural practice, regional market and rural development.

Teaching and research are directed towards these topics through elaboration of cause-effect-relationships in system approaches.

The objective is that students perceive nature and human activities in a holistic and systemic manner. The approach should motivate students to assume professional responsibility and to increase student's capability to bridge the gap between environmental knowledge and necessary activities to tackle environmental challenges.

Implementation

In order to gain a broad understanding of the field of organic agriculture, an interdisciplinary approach in teaching is very important. Students learn to work in a case-specific and methodical manner. An important component of the international master programmes is working in projects in interdisciplinary and multinational teams. In addition to the academic education students acquire key qualifications, such as team work ability, interdisciplinary thinking, intercultural competencies and responsibility, enabling them to develop modern and practical solutions to prevailing problems.

A further profile characteristic is the international orientation of the Faculty which has a long tradition in Witzenhausen. Foreign guest scientist and students enrich daily university life and give the university location Witzenhausen a multicultural face. A special commitment to the international dimensions of scientific work can be seen in the variety of international research co-operations and university partnerships, the regular international training programmes and co-operations with alumni activities of German universities and summer schools. Since 2002 master programmes taught in English such as MSc "International Food Business and Consumer Studies" and MSc "Sustainable International Agriculture". 80 % of the students attending those programmes are from abroad.

The Faculty of Organic Agricultural Sciences realises that important aspects of social justice need to be considered and protected to ensure sustainable food security. This has been the basis of our long-lasting international commitment. Therefore, all graduates will, through their course of study, be able to make socially responsible contributions with regard to sustainable agriculture, land use, food production and trade.

The study programme provides interdisciplinary modules, excursions, exercises, internships before and during the studies, national and international networking. Topics of recent projects deal with the environmentally sound production of renewable resources and sane food production for nourishing African megacities. Assistance is provided to universities in other countries for introducing comparable study programmes (e.g. Poland, Slovenia, USA, Mexico) and for improving their web pages, to encourage fairs and conferences, publications, etc.

Thematic Focus

Environmental Pillar

Biological diversity, landscape diversity, resources and resource management, technology, ecology, forest water.

Economic Pillar

Rural and urban development, economic sustainability and corporate responsibility.

Social Pillar

Health, International justice, cultural education and diversity.

Life Science Field

Agriculture.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence					✗
Capacity Building					✗
User Friendly					
Innovation				✗	
Partial / Global Approach				✗	

Scale from 1 - 5
1 very low
5 very high

Networking

Universities in Poland, Slovenia, USA, Mexico.

Interdisciplinarity

The study programme is centered around agricultural subjects, but contains also social and environmental components.

Conclusions

Results

Approximately 135 Bachelor and 25 Master beginners per year.

Impacts

The study programme has a high reputation, in Germany and abroad.

Success Factors / Awards

Awarded in the years 2007/2008 and 2009/2010 as official UN Decade project "Education for Sustainable Development in Germany"

Further Information

Website http://www.uni-kassel.de/agrar/?c=63&language=en

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FICHE 3

Development of an Environmental Sustainability Strategy at Harper Adams University College

General Information

Leading Organisation

Harper Adams University (HAU)

HAU is the premier UK Higher Education (HE) institution focused on the land-based and food supply-chain sectors. Over 2,500 HE students attend HAU, primarily on sandwich courses which include a year-long industrial placement. There is a growing number of postgraduate students at both diploma and masters level.

The University estate includes amenity areas, woodland, and a commercial farm of 205 ha (plus 303 ha rented land) that includes cereals, potatoes, forage maize and grassland carrying a dairy herd, sheep, beef, pig and poultry units.

HAU offers a wide range of courses including Foundation and Honours degrees, in addition to shorter awards that meet the continuing professional development needs of those already in the workplace. The subjects covered are Agriculture, Animal Welfare and Managements, Business, Countryside, Engineering, Food, Leisure and Tourism and Land & Property Management.

HAU has been listed as the UK's Best University in the Sunday Times University Guide for the last five years. In the 2012 guide HAU was placed 6th for teaching excellence (from 122 higher education institutions), 6th for student satisfaction, with the institutions graduate unemployment statistic one of the lowest in the UK.

Country : United Kingdom

Funding Organisation	Higher Education Funding Council for England (HEFCE)
Level of Implementation	Local
Time Frame	2002 - 2015
Main topic of the Activity	Strategy Development
Area of Interest	❑ Teaching ☒ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

Development of an Environmental Sustainability Strategy at Harper Adams University (HAU).

Implementation

In 2002 the first Environmental Sustainability Strategy was developed for HAU, which has since been updated in 2008 and 2010. The latest strategy details the University's strategic plans for taking forward its Environmental Sustainability Strategy to 2015. An Environmental Sustainability Strategy was developed to ensure the University's environmental aims and objectives are clearly defined and effectively implemented and managed. The Environmental Sustainability Strategy aims to address the following broad principles:

- where is the University currently with regard to environmental sustainability?
- where does the University want to be?
- how will the University achieve its environmental sustainability aims and objectives?

The Environmental Sustainability Strategy broaches the environmental sustainability aspirations of the University in a structured manner, defining the University's commitment and providing an overview of the main external drivers and an explanation of the link to the Strategic Plan and component strategies. The Environmental Sustainability Strategy includes a project plan, which documents and prioritises key environmental sustainability indicators, and includes definition of key milestones, attributing their implementation and responsibility to members of University staff.

The Environmental Sustainability Strategy is closely linked to the University 's vision, which states the institution will maintain a high quality university made distinctive by:

- activities closely related to the needs of the rural economy and industries reliant on that economy, with a specific commitment to farming for sustainable environments and knowledge transfer to support the rural economy;
- activities contributing to sustainable consumption and production, renewable energy generation, protection of natural resources, and human and animal welfare;
- the development of new markets for students from a wider range of backgrounds supported by appropriate course and pedagogic developments;
- the provision of a learning environment and promotion of a student culture that enhance employability;
- strong industry links that add business relevance to the University's role in higher education and encourage lifelong learning;
- a central role for the University in the provision of higher education for the rural economy, during and beyond the planning period.

Further to the mission of the University , the Environmental Strategy specifically states the University is committed to:

- ensure compliance with environmental legislative requirements;
- follow codes of best practice where possible;
- wherever practical and possible minimise energy usage and waste, reduce emissions, recycle materials and incorporate renewable energy generation;
- enhance biodiversity and minimise activities that reduce biodiversity;
- minimise release of Greenhouse gases to the atmosphere.

A set of core values are employed to guide the University's efforts with regards to sustainable development. These core values are to:

- train and educate staff and students with regards to sustainable best practice, particularly in the areas of resource efficiency, recycling, energy efficiency, renewable energy production, and conservation of natural resources, sustainable travel and welfare;
- develop a set of sustainable indicators to monitor the University's performance;
- communicate environmental and sustainable development policy and practices to staff, students, and the public;
- Review relevant policy and practices on a regular basis and ensure that they support the strategic objectives of the University;
- Ensure relationships are correctly aligned.

In addressing HAUs commitments and delivering the institutions intentions, the University focuses on particular areas of expertise. These are:

- sustainable technologies (rural);
- working with rural businesses;
- training and educating students;
- natural resource conservation and management;
- finding ways to link the rural and urban environmental agendas.

Thematic Focus

Environmental Pillar

One of the key drivers for the development of an environmental sustainability strategy was to reduce the consumption of energy (electricity and gas) on the campus and therefore to become more energy efficient and save money. Once this was initiated work began on recycling, biodiversity, development of clean technology, sustainable transport, water management, and reduction of carbon emissions.

Economic Pillar

Sustainable consumption and integration of environmental concerns in business decision making.

Social Pillar

Development of human capital and skills, community cohesion, social equity, and health and quality of life.

Life Science Field

Development of the Environmental Sustainability Strategy at HAU affects all subjects that are taught at the institution, namely Agriculture, Animal Welfare and Managements, Business, Countryside, Engineering, Food, Leisure and Tourism and Land & Property Management.

Criteria of Evaluation

	1	2	3	4	5
Transferability				✗	
Pertinence					✗
Capacity Building				✗	
User Friendly				✗	
Innovation				✗	
Partial / Global Approach				✗	

Scale from 1 - 5
1 very low
5 very high

Networking & Interdisciplinarity

Development of the Environmental Sustainability Strategy at HAU was interdisciplinary because its development involved, and continues to involve, staff from across the institution. This includes academic staff from five departments, estates staff, farm staff, members of the senior management team, students union, and support staff.

Conclusions

Results & Impacts

The Environmental Sustainability Strategy developed by HAU has resulted in cost and carbon savings to the institution through the projects that have been implemented as a consequence. This includes for example implementation of a commercial scale anaerobic digester that meets approximately 70% of the institutions electricity requirement.

Success Factors / Awards

2011 Winner ▸ Times Higher Education Award for Outstanding Contribution to Sustainable Development
2011 Winner ▸ Renewable Energy Infrastructure Awards - Renewable Electricity Facility Award
2011 Winner ▸ The Energy Institute's Environment and Energy Award - Estates Manager of the Year
2010 Finalist ▸ Green Gown Award for Sustainable Construction
2010 ▸ Awarded Carbon Trust Standard
2008 Winner ▸ Times Higher Education Award for Outstanding Contribution to Sustainable Development

Further Information

Websites

http://www.harper-adams.ac.uk/sustainability/
http://www.harper-adams.ac.uk/about/governance/files/strategic/SustainabilityStrategy2010-2015.pdf

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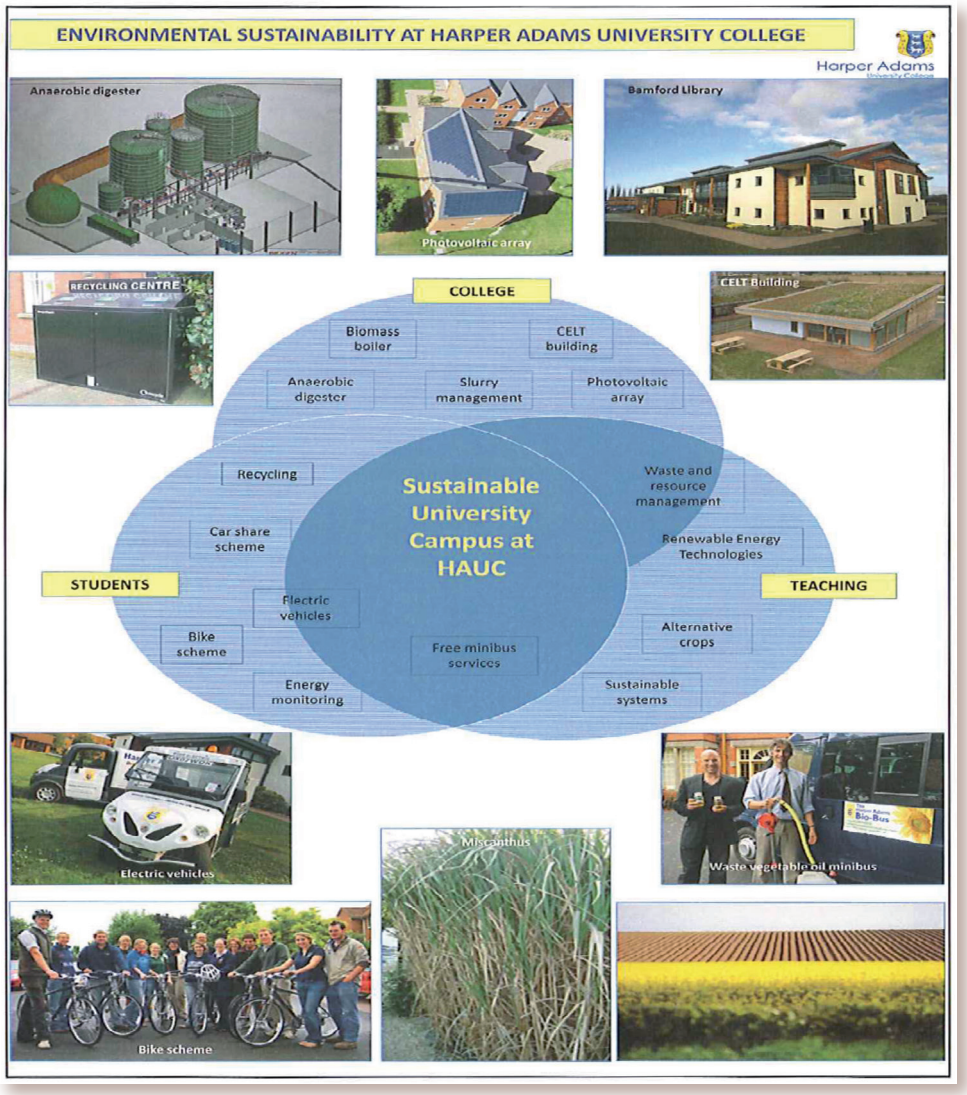

Fig. 2 ➤ Environmental sustainability at Harper Adams University College

FICHE 4

Implementation of Institutional Sustainable Development Policy to Develop a 'Sustainable Campus'

General Information

Leading Organisation

Harper Adams University (HAU)

HAU is the premier UK Higher Education (HE) institution focused on the land-based and food supply-chain sectors. Over 2,500 HE students attend HAU, primarily on sandwich courses which include a year-long industrial placement. There is a growing number of postgraduate students at both diploma and masters level.

The University estate includes amenity areas, woodland, and a commercial farm of 205 ha (plus 303 ha rented land) that includes cereals, potatoes, forage maize and grassland carrying a dairy herd, sheep, beef, pig and poultry units.

HAU offers a wide range of courses including Foundation and Honours degrees, in addition to shorter awards that meet the continuing professional development needs of those already in the workplace. The subjects covered are Agriculture, Animal Welfare and Managements, Business, Countryside, Engineering, Food, Leisure and Tourism and Land & Property Management.

HAU has been listed as the UK's Best University in the Sunday Times University Guide for the last five years. In the 2012 guide HAU was placed 6th for teaching excellence (from 122 higher education institutions), 6th for student satisfaction, with the institutions graduate unemployment statistic one of the lowest in the UK.

Country : United Kingdom

Funding Organisation	Higher Education Funding Council for England (HEFCE)
Level of Implementation	Local
Time Frame	2002 - 2015
Main topic of the Activity	Strategy Development
Area of Interest	❑ Teaching ☒ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

To develop the management of Harper Adams University as a higher education institution as a model for the teaching of sustainable development to students.

Implementation

Harper Adams has tried to integrate the concept of sustainable development into the curriculum of the awards taken by students. However, it was felt that the experience of students at the University must encompass sustainable development. There was no point lecturing students about sustainable development if this was not part of their everyday lives. Students have been encouraged to recycle, conserve electricity, share cars, travel on University minibus, eat food with fewer air miles and/or sourced from Fairtrade. Harper Adams has constructed buildings which have won awards for there "green credentials" such as the Bamford Library and the Countryside, Leisure and Tourism (CELT) building made from straw with a green roof. The latest development is the generation of heat and electricity from anaerobic digestion, sourced from slurry from the University farm and food waste. This will provide the electricity required by the University and reduce its carbon footprint. See the poster that is included in this case study.

Thematic Focus

Environmental Pillar

One of the key drivers for the development of an environmental sustainability strategy was to reduce the consumption of energy (electricity and gas) on the campus and therefore to become more energy efficient and save money. Once this was initiated work began on recycling, biodiversity, development of clean technology, sustainable transport, water management, and reduction of carbon emissions.

Economic Pillar

Sustainable consumption and integration of environmental concerns in business decision making.

Social Pillar

Development of human capital and skills, community cohesion, social equity, and health and quality of life.

Life Science Field

Implementation of a sustainable development strategy at HAU affects all subjects that are taught at the institution, namely Agriculture, Animal Welfare and Managements, Business, Countryside, Engineering, Food, Leisure and Tourism and Land & Property Management.

Criteria of Evaluation

	1	2	3	4	5
Transferability				✗	
Pertinence					✗
Capacity Building					✗
User Friendly					✗
Innovation					✗
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking & Interdisciplinarity

This approach is interdisciplinary as it requires technologies from many different sectors to achieve its objective, as well as having a social focus in that the staff and student population have to embrace the concept to ensure that the sustainable campus model works in practice.

Conclusions

Results & Impacts

The setting of clear objectives for sustainable development at Harper Adams University that align with the national strategy set by HEFCE has provided a very successful way to establish sustainable development as part of University life.

Success Factors / Awards

2011 Winner ▸ Times Higher Education Award for Outstanding Contribution to Sustainable Development
2011 Winner ▸ Renewable Energy Infrastructure Awards - Renewable Electricity Facility Award
2011 Winner ▸ The Energy Institute's Environment and Energy Award - Estates Manager of the Year
2010 Finalist ▸ Green Gown Award for Sustainable Construction
2010 ▸ Awarded Carbon Trust Standard
2008 Winner ▸ Times Higher Education Award for Outstanding Contribution to Sustainable Development

Further Information

Website

HAUC Energy Policy, Environmental Sustainability Strategy 2010-15, Carbon Management Plan 2010-15, and information regarding sustainable technologies at HAUC:
http://www.harper-adams.ac.uk/sustainability/sustainable-technology.cfm

Publications

Energy and education: carbon reduction in College buildings
http://openfields.org.uk

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FICHE 5

Città Studi - Campus Sostenibile

General Information

Leading Organisation

UNIMI

The University of Milan dates back to 1924. In recent years, the university has launched an action of development that has affected some 80 000 square meters. The most recent phase of expansion is in the main areas of communication sciences, intercultural mediation, art, science, veterinary medicine and biomedicine. The University has also recently strengthened its commitment to the development of technology transfer and application of scientific research results in the context of economic productivity.

POLIMI

On November 29, 1863 Francesco Brioschi, a politician, a distinguished mathematician and expert in hydraulic, former rector of the University of Pavia and the Secretary General of the Ministry of Education, inaugurated the Polytechnic underlining the "common and special purpose" and their correspondence to the "intellectual and materials needs of the country." The excitement of evolution that occurs in Lombardy since the thirties of the nineteenth century, however hampered by several limitations of political, social and economic, induces intellectuals to a more careful consideration about what is happening in Europe considering the intelligence an economic factor at the same level of capital, labor and infrastructure. With the establishment of the Polytechnic, it becomes the center of all the educational initiatives and dissemination in the field of science and technology, the dynamic center of applied research and the place of trial and tests for third parties to which entrepreneurs resort.

Country : Italy

Funding Organisation	POLIMI, UNIMI
Level of Implementation	Local - Regional
Time Frame	From February 2011, ongoing
Main topic of the Activity	Sustainable Campus
Area of Interest	❑ Teaching ☒ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

The project aims at transforming the whole campus neighborhood into an urban area being exemplar in Milan with respect to life quality and environmental sustainability. The project is open to the participation and support of researchers, students and all campus citizens.

Goals of the project:

- experiment innovation developed by scientific research,
- life style transformation and more livable spaces,
- life style rethinking,
- become a good example for the whole city,
- cope with the international network of sustainable campuses.

Implementation

The project is structured into four main themes or areas of interest. The themes are identified in order to cluster the received project proposals and activate thematic working groups. They are deliberately broad to encourage an interdisciplinary approach, are interrelated, may overlap and be understood as an opportunity for working groups interaction. The four working groups and the way the themes will evolve will structure the whole project and encourage a convergent vision for the sustainable campus.

The four themes are:

- People
- Energy
- Environment
- Accessibility

Thematic Focus

Environmental Pillar

Improvement of environmental quality (air, water, soil)
Mitigation of the heat in different campus area
Reduction of car parking areas and rehabilitation of collective spaces
Waste management and recycling
Improvement of green areas

Economic Pillar

Energy saving (reduction of fuel consumption and dispersion)
Widespread use of renewable sources
Water management
Monitoring and energy management
Testing of innovative systems for energy control

Social Pillar

Quality, safety and recognition of routes (bike lanes, safe pedestrian crossings, signage)
Promotion of sustainable mobility (bicycles, electric cars, car sharing)
Permeability and reconnection of the spaces
New services for students, workers and residents (residences, sports, event space)
Active participation of all the campus' users (students, researchers and administrative officers)
Creation of collective spaces being comfortable and livable
Dedicated web platform
Continuous education and communication
Campus identity strengthening as open but unitary place

Life Science Field

Broad spectrum of topics concerning life sciences.

Criteria of Evaluation

	1	2	3	4	5
Transferability			✗		
Pertinence					✗
Capacity Building				✗	
User Friendly				✗	
Innovation				✗	
Partial / Global Approach		✗			

Scale from 1 - 5
1 very low
5 very high

Networking

This project is supported by the collaborative work of many components of the PoliMI and UniMI communities.
ISCN - International Sustainable Campus Network.
World Economic Forum - Global University Leaders Forum.
European Commission - Environment - Sustainable Development.

Interdisciplinarity

The project is structured in four main themes or areas of interest, which cover the fundamental pillars of Sustainable Development.

Conclusions

Results

The Città Studi Campus Sostenibile is open to the contribution of all the users registered as members of the PoliMI or UniMI community, offers the possibility of an active participation of students, teachers and administrative staff.
Continuous training and dissemination path. Strengthening of the campus as a place recognisable and unit but at the same time open to the outside.
Quality, safety and recognition of routes (bike lanes,safe pedestrian crossings, signage) and encouragement of sustainable mobility (bicycles, electric cars, car sharing). New services for students, workers and residents of University City (residential, sports, event space).

Impacts

Reduction of fuel consumption; widespread use of renewable sources; water management; reduction of parking spaces for use.

Further Information

Website www.campus-sostenibile.polimi.it

Publication http://www.campus-sostenibile.polimi.it/c/document_library/get_file?uuid=7f400488-3cb1-4471-ad7f-56804039b7f5&groupId=10157

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FICHE 6

OPERA - European Observatory on Pesticide and Risk Analysis

General Information

Leading Organisation

OPERA Research Centre

OPERA is a young, growing independent research centre and Think Tank of the Università Cattolica del Sacro Cuore (UCSC) providing simple pragmatic solutions to support EU and national decision making.

The OPERA vision is to provide high quality information and analysis of the latest developments in EU agri-food policy-making to promote balanced dialogue between interested stakeholders.

The main objective is to develop clear and pragmatic approaches for improving intensive and biological agriculture together with simple and transparent solutions for all our stakeholders through the use of existing research. Furthermore OPERA aims to develop new research in collaboration with partners to support the on-going sustainability of European agriculture.

OPERA is headquartered in Piacenza (Italy) hosted by the UCSC, which provides the necessary resources and support. Furthermore, OPERA has a second office in the building of the representation of Regione Lombardia in Brussels where the policy team is based in order to communicate more effectively with relevant organisations and representatives in Brussels.

Country : Italy

Funding Organisation	Università Cattolica del Sacro Cuore
Level of Implementation	Local - Regional - European
Time Frame	From 2010 to ongoing
Main topic of the Activity	Sustainable Agriculture
Area of Interest	❑ Teaching ☒ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

OPERA is working to provide a series of pragmatic recommendations to policy makers to bridge the interest and objectives of agriculture and environment as well as to ensure efficient implementation of the agriculture related policies in the EU.

Implementation

The way of working of OPERA consists in using the potential of existing scientific researches as well as the existing expertise and knowledge to support the stakeholders in their political and technical decisions concerning agriculture.

For this reason OPERA provides its members and the wider public with rapid, high-quality information and analysis of the latest developments in European agri-food policy-making as well as promote a balanced dialogue between the interested parties, covering the majority of stakeholders.

Research and scoping documents have been produced that focus on various aspects and resources for agricultural production. Starting from elements related to the management of water and water quality, to the sustainable use of pesticides or to the sustainable production systems, OPERA has addressed the main challenges faced by agriculture in these areas and is providing pragmatic solutions.

Following this approach, OPERA participates in several European projects. The most important are:

BROWSE to use new and improved exposure models to contribute to the implementation of the Thematic Strategy on the Sustainable Use of Pesticides (developing new training and communication material for awareness raising as well as new risk indicators). http://operaresearch.eu/en/projects/show/&tid=3

HEROIC to improve and harmonise the tools and methods used for human and environmental risk assessment (RA) of chemicals of different classes (pesticides, biocides, pharmaceuticals, cosmetics, industrial chemicals) http://operaresearch.eu/en/projects/show/&tid=5

SIA NETWORK to promote and facilitate the debate and dialog between academics, policy-makers and business representatives, in order to create and promote economic, social and environmentally sustainable production solutions for the development of European agriculture within the wider context of addressing the challenges associated with food security, resource use, social acceptance and economic efficiency http://operaresearch.eu/en/projects/show/&tid=6

Thematic Focus

Environmental Pillar

Sustainable agriculture, sustainable use of pesticide, biodiversity, efficient management of resources.

Economic Pillar

Sustainable consumption, sustainable production, efficient use of resources, agricultural and environmental policy, agricultural market stabilisation.

Social Pillar

Rural policy, training and awareness raising.

Life Science Field

Fields of life science are taken into account with an interdisciplinary approach through continuous dialog between academics, policy makers and stakeholders involving internationally recognised technical experts, policy makers and professionals from industry and NGOs in the field of agriculture, public health, economics and politics. In particular, proposals and recommendations have always been developed in a pragmatic way taking into account water, soil and biodiversity conditions as well as social factors and economic costs.

Criteria of Evaluation

	1	2	3	4	5
Transferability				✗	
Pertinence			✗		
Capacity Building				✗	
User Friendly				✗	
Innovation			✗		
Partial / Global Approach			✗		

Scale from 1 - 5
1 very low
5 very high

Networking & Interdisciplinarity

The modus operandi of the OPERA Research Centre is based on the creation of a virtuous circle where OPERA:

1. offers a European platform to debate on the topical issues in the agriculture sector,
2. the topical issues identified during debates and stakeholder interactions are retained and analysed,

3. a comprehensive network of expertise from around Europe is used to evaluate the issues and provide solutions (including the involvement in project for fundamental research),
4. provides the environment to develop analyses, solutions and recommendations,
5. and disseminates the results and bring them back in the platform debate to the attention of policy makers and stakeholders.

All this process is achieved using an interdisciplinary approach involving environmental economical and social sciences. Continuous dialog between academics, policy makers and stakeholders to identify the best solutions for the long term sustainability of European agriculture is possible through the set-up of specific working groups. Members of the working groups are internationally recognised technical experts, policy makers and professionals from industry and NGOs in the field of agriculture, public health, economics and politics.

Conclusions

Results & Impacts

OPERA was born on March 2010 and since that day organised more than 20 public events as well as create 5 working groups with a total production of more than 10 publications/policy papers. The 90% of the OPERA financial resources are coming from collaborations with public bodies and participation to international calls: this is a sign of the appreciation and of the trust created by this initiative.

As a fully independent body, OPERA's vision is to be transparent to all the relevant stakeholders and the public. For his reason, all the results and the material produced are freely available on the website www.operaresearch.eu

Further Information

Website

www.operaresearch.eu

Publications

Land grabbing: is the EU the largest net importer of agricultural produce and 'virtual' land?

Landscapes - Why good field margin management is important and how it can be achieved

Selecting the right Risk Indicators to successfully implement the Sustainable Use Directive

Risk Indicator selection and Quantitative Targets to meet Sustainable Use Directive objectives

Agricultural Market Stabilisation System – policy instruments to be included in the CAP

On Farm Water Management and How can it be achieved Through Bio Purification Systems

OPERA vision on the future of the CAP - Contributions to the Commission consultation process on Common Agricultural Policy after 2013

Bee health in Europe - Facts & figures

OPERA contribution to public consultation on Common Agricultural Policy after 2013 June 2010

Highlights of the Commission conference: "Common Agricultural Policy after 2013"

http://operaresearch.eu/en/documents/

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FICHE 7

Botanical Gardens, Special Places to involve Special People

General Information

Leading Organisation

Jardim Botânico da Ajuda

The Royal Botanic Gardens of Ajuda were founded in around 1768. The gardens were planned by Domingos Vandelli and were Europe's fifteenth and Portugal's first botanical gardens. They are divided into two levels: the upper terrace contains a patchwork of flowerbeds that house the botanical collection, while the lower level is dominated by a large central lake that is richly ornamented with sculptures of water-related animals and is prepared for growing aquatic plants, being characterised by the perfect symmetry of their layout. Various boards of management came and went, until in 1910 the Gardens were placed under the responsibility of the Instituto Superior de Agronomia (ISA).

The Botanic Gardens underwent their first major restoration in 1948. The second large restoration was carried out between 1995 and 1997. Priority was given to the irrigation and drainage infrastructures and to recreating the botanical collection along the lines originally laid down by Vandelli. An abandoned kitchen garden was also converted into a space that is especially designed for the blind and visually challenged.

The Ajuda Botanic Gardens is actually a special unit within ISA.

Country : Portugal

Funding Organisation	Own funds (restaurant, tickets, guided visits, fairs) supported by a framework of people of the Institute of Agronomy, 166 000 €/year
Level of Implementation	National
Time Frame	From 2002, ongoing
Main topic of the Activity	Botanic Gardens Management involving people with disabilities
Area of Interest	☒ Teaching ☒ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

Providing contact with nature to people with disabilities, increasing their experience and knowledge by participating in activities in accordance with their capabilities. Provide to non-disabled people, feelings of solidarity and transmission of knowledge.

Obtain with the help of disabled people, the same results in the maintenance of the JBA as those obtained by non-disabled people.

Provide work and a salary that allows the economic independence to three people to whom the labor market was inaccessible.

Implementation

From 2002-2009 the JBA was approached by several institutions to provide training to people with disabilities. A strong man, with a mental disease and with great taste for gardening, attended one of these training sessions. After attending the training the man began (and still does) working in the garden. There was also a contact by the Institute for Employment, Life-Employment Programme, with a very intelligent boy who was recovering from drug addiction and who was without an arm. He stays also working in the garden. One completes the other forming a good team. Each year, The JBA makes agreements with secondary schools for occupation in the garden of disabled students. This year we have 10 students beneficiaries, who come to the garden and help in the management or simply enjoy being there.

Thematic Focus

Environmental Pillar

Waste management; pollution; conservation of natural resources; biodiversity; conservation of heritage.

Economic Pillar

Urban and local development; sustainable production; sustainable tourism; Corporate social responsibility.

Social Pillar

Community cohesion; social equity; health and quality of life; equal opportunity.

Life Science Field

Agronomy; Botany; Ecology.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence					✗
Capacity Building					✗
User Friendly					✗
Innovation					✗
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking & Interdisciplinarity

It was possible to provide work and a salary that allows the economic independence to three people to whom it was forbidden the labor market.

Conclusions

Results & Impacts

A Garden of all for all, a place where people of all generations and all walks of life together with ISA students, have the opportunity to collaborate in all activities, along with a very small body of workers, strengthened by help from people who work within their capabilities, among them many volunteers, some of them disabled.

The work done in the Garden is recognised by society in general and also by the media. Recently was reported by national television, RTP, in a programme on the incorporation of disabled workers in Botanical Garden of Ajuda.

Success Factors / Awards

In 2007, the JBA workers had an award published in the Official Journal (Diário da República).
JBA's activities are within the Center of Agriculture for Applied Botany and Center of Applied Ecology Prof. Baeta Neves, both classified as Very Good.

Further Information

Website

www.jardimbotanicodajuda.com

Publications

Carvalho, H. & Espírito-Santo, M. D. 2004. *The Mini-Courses of gardening in the Botanical Garden of Ajuda*. Poster In: 2nd World Botanic Gardens Congress, Barcelona. Espanha CD-Rom.
http://www.bgci.org/barcelona04/abstracts/pdf_posters/dalilaposter2.pdf

Espírito-Santo, M.D. 2004. *Different levels of teaching in the Botanical Garden of Ajuda*. Lecture In: 2nd World Botanic Gardens Congress, Barcelona. Espanha CD-Rom.
http://www.bgci.org/barcelona04/abstracts/pdf_abstracts/espirito-santo_update.pdf

Espírito-Santo, D. 2007. *A utilização da colecção de plantas aromáticas, do Jardim Botânico da Ajuda, na educação*. O Botânico. 1: 20-21. Revista da Associação Ibero-Macaronésica de Jardins Botânicos. Alcalá de Henares.
http://hdl.handle.net/10400.5/5209

Espírito-Santo, D. 2008. *O Jardim Botânico da Ajuda: um jardim de ontem nos dias de hoje*. O Botânico. 2: 3-4. Revista da Associação Ibero-Macaronésica de Jardins Botânicos. Alcalá de Henares.
http://hdl.handle.net/10400.5/5210

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FICHE 8

Skills training of teaching staff in dealing with ethical sustainability dilemma's

General Information

Leading Organisation

University of Applied Sciences van Hall Larenstein, location Velp

Van Hall Larenstein (VHL), University of Applied Sciences, is a unique university in The Netherlands. The curricula focuses on nature and the environment, human and animal health and responsible entrepreneurship. Combinations of these areas of expertise result in a special and challenging bachelor and masters programmes with majors that are unique. But we offer more than just bachelor and masters programmes. Postgraduate courses and consultancy on national and international terrains are part of our service. VHL is not just a university, but also a knowledge company for social and economic questions. Van Hall Larenstein has 3 locations: Leeuwarden, Velp and Wageningen. VHL is part of Wageningen UR. As a result there is a vast range of professional, applied and academic programmes and research on offer. Transfer possibilities are available within a variety of programmes.

Country : The Netherlands

Funding Organisation	Subsidy of Ministry of Economic affairs, agriculture and Innovation
Level of Implementation	Local
Time Frame	From May 2011 to January 2012
Main topic of the Activity	Forestry and Nature conservation and management
Area of Interest	☒ Teaching ☒ Institutional activities ☐ National policies ☐ Practical experiences

Case description

Objectives

1. To enhance the skills of teaching staff in dealing with ethical and sustainability dilemma's in the class room.
2. To promote the use of ethical reflection techniques in the classroom such as the Socratic dialogue technique.
3. To experiment in the classroom with different age groups with ethical reflection techniques (such as the Socratic Dialogue) on real life cases from the professional practice.

Implementation

Objectives 1 and 2: two training sessions for teaching staff were organised by lecturer Gilbert Leistra in staff development meetings.

Objective 3: lecturer Gilbert Leistra is writing a teachers manual on this subject, based on several experiments he has performed with 1st year and 3rd year BSc. Students. Mr. Leistra has joined an 8 day training course himself on the Socratic dialogue technique himself and is working on a thesis about dealing with ethical dilemmas in teaching at the Wageningen University.

Background: in staff discussions on sustainability the general opinion was that the teaching staff abilities to deal with ethical dilemmas in the classroom was weak. Most teachers are able to present a dilemma, but lack the ability to lead a discussion with their students. Since dealing with dilemmas is a much asked quality or competence in the training of professionals, we decided to develop our own skills as a staff group.

Thematic Focus

Environmental Pillar

Conservation of natural resources; climate change; biodiversity.

Economic Pillar

Urban and local development; sustainable tourism; entrepreneurship in nature conservation.

Social Pillar

Development of human capital and skills; community cohesion; social equity; health and quality of life; equal opportunity; cultural diversity (different cultures have different value sets).

Life Science Field

Forestry, nature conservation, wildlife management, regional development.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence				✗	
Capacity Building					✗
User Friendly				✗	
Innovation				✗	
Partial / Global Approach			✗		

Scale from 1 - 5
1 very low
5 very high

Networking

These techniques can be transferred to other staff groups within the institute or towards other institutes, preferably by giving a staff training. No efforts are taken up yet, since the manual is still under construction.

Interdisciplinarity

The Socratic dialogue method can be applied in all disciplines. The interdisciplinarity is part of the strength of the method, since dilemmas arise at the interface of different domains or different P's from the PPP-framework.

Conclusions

Results

Still only preliminary results are available yet, since this project is still under way. The staff training and the Socratic dialogue in the classrooms has proved to be successful. This training has been used successfully in a course on entrepreneurial skills training for a nature management organisation in the Montferland area in December 2012 and the method is tested in an international course on sustainability in Oulu Finland in October 2012. During this last course for teaching staff a new initiative is started to apply for a Erasmus project to enhance sustainability training for teachers in the classroom. This two-year Core SD-project is coordinated by Oulu UAS in Finland and has 6 international partners. The project aims at providing a pedagogical and didactical set of tools for sustainability teaching for teaching staff. The Gilbert Leistra method will be one of the methods that will be further developed with the partners. A publication on this subject is part of the project results in two years' time. In June 2013 we will be notified if the project will be approved.

Impacts

The awareness of the special competences that are needed to deal with sustainability and ethical dilemmas has grown to the decision that this skill will be a fixed part of the curriculum of the Forestry and Nature conservation department. All students from all classes receive this training in one of their modules.

Success Factors / Awards

The quality of the instructions in the staff training was met with enthusiasm and the students were thrilled with the benefits of this Socratic dialogue technique: they were able to deal with impossible dilemmas now.

Further Information

Website

http://www.vanhall-larenstein.com/ForestryAndNatureManagement.aspx

Publications

Teacher training manual is under construction.
PowerPoint in Dutch and English is available.
Instruction for students is available.

Contacts

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FICHE 9

Sustainability Memorandum and Implementation process for Wageningen University and Research Centre

General Information

Leading Organisation

Wageningen University and Research Centre

Wageningen University and Research Centre is a consortium consisting of:

- Van Hall Larenstein, University of Applied Sciences,
- Wageningen University,
- and Foundation for Agricultural Research (DLO).

The consortium is specialised in research and education in the domain of health, lifestyle and livelihood, living environment, food and food production.
With 5000 students (plus 1500 PhD) and 6 000 staff it is the biggest Life Sciences Knowledge Institution in The Netherlands. The consortium has Institutes all over The Netherlands.

Country : The Netherlands

Funding Organisation	Wageningen University and Research
Level of Implementation	Local - National: Consortium wide
Time Frame	4 years (2008 - 2012)
Main topic of the Activity	Design and Implementation of a Sustainable Approach to Operations and Education
Area of Interest	❑ Teaching ☒ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

AMBITION
Leading level in sustainability in operations and Education and research in relation to operations
= a Leading organisation applies proven technology, and so takes less risk. However, a Leading organisation also strives for total sustainability and projects this externally;
= at the Leading level, sustainability is a self-evident aspect of decision/-making. This means that for any decision, the sustainability impact must be known and before the decision is made, alternatives that contribute to achieving the desired ambition level must be sought;
= it also means that the decision-makers can and will account for any decisions that they know do not contribute to the sustainability objective.
(It does not mean that sustainability considerations trump all other considerations in decision-making.)

Implementation

Ambition levels are translated into six sub-areas
1. Construction
2. Energy (National MOA)
3. Mobility
4. Procurement (National MOA)
5. Waste
6. Catering

Education and research are involved

Time frame:
2 years set-up
2 years Taskforce (encouragement)
Embedded in routines within the consortium (starting from 2013)

Thematic Focus

Environmental Pillar

Integral approach: i.e. balancing environmental, economic and social pillar.

Economic Pillar

Integral approach: i.e. balancing environmental, economic and social pillar.

Social Pillar

Integral approach: i.e. balancing environmental, economic and social pillar.

Life Science Field

All fields.

Criteria of Evaluation

	1	2	3	4	5
Transferability			✗		
Pertinence				✗	
Capacity Building				✗	
User Friendly			✗		
Innovation				✗	
Partial / Global Approach				✗	

Scale from 1 - 5
1 very low
5 very high

Networking

The side effect of the process is that the different parts of the consortium are getting to know each other better. The best practices of the different departments are being used for the implementation process.

Interdisciplinarity

Inside the field of life sciences.

Conclusions

Results

More concrete actual results (2012) are:
- First place of universities in the Netherlands in transparency benchmark annual reporting related to social aspects of entrepreneurship (CSR). The annual report of Wageningen UR (2011) was based on GRI guidelines
- Further improvement is under construction (annual report 2012)

The board of Wageningen UR has agreed with the MOU in Corporate Social Responsenbality (2012). Green Office Wageningen has started in 2012. Green Office Wageningen was started by a group of green-minded students of the Wageningen University. They coordinate sustainability related initiatives at the Wageningen UR campus.

"A taste of our what we have achieved thus far"
- Energy efficiency improvement of 7 % in 2011, when the deal was simply 2 %.
- 100 % purchase of green electricity.
- 70 million kWh of renewable wind energy generated in its own wind farm located in Lelystad.

- 43 % reduction in CO_2 emissions in 2011 compared to 2010.
- 100 % sustainable procurement.
- Expansion of thermal storage for the entire Wageningen Campus. In the summer groundwater is pumped to cool the buildings on Wageningen Campus and in the winter that same water (heated during the cooling process in the summer) is pumped to heat the buildings.
- Wageningen Campus is one of the most durable centres in the Netherlands. For construction, maintenance and renovation of buildings we work according to high sustainability criteria.
- Thanks to the work of students and researchers: compostable coffee cups, studies on influencing behaviour and LED lighting in the office environment, climate cabinets and toilets.
- A panel consisting of 100 students and staff members contribute ideas on sustainable procurement.

Impacts

Impact of the AMBITION all over Wageningen UR.

Success Factors / Awards

Support of the board
Involvement of all members of University (*i.e.* Board, all staff, students)
Involvement of all operations sub-areas and their managers
Continuous communication
Taskforce approach to encourage realising results
Events

Further Information

Website

www.wur.nl

Publications

Strategic plan 2011 – 2014 and GRI based Annual Report (2011, 2012): http://www.wageningenur.nl/en/About-Wageningen-UR/Sustainability.htm
In June 2013 available from the same URL:
Sustainability report
GRI based annual report 2012
Environmental plan 2013-2015

GreenOffice Wageningen http://greenofficewageningen.nl/

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FICHE 10

Specific universities policies about sustainable development in France

General Information

Leading Organisation

French Universities, "Ecoles d'ingénieurs" or higher education establishments are autonomous structures but they have to follow the National Strategy of Sustainable Development set by an interministerial committee for sustainable development.

Country : France

Funding Organisation	Universities
Level of Implementation	Regional
Time Frame	From 2006 to 2011
Main topic of the Activity	Sustainable Development Strategy implementation
Area of Interest	❑ Teaching ☒ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

Implementation of the National Strategy of Sustainable Development at the level of the French Universities.

Implementation

In France, universities are autonomous structures. They are responsible for their guidance in teaching and research. Therefore they are free to adopt a specific policy on sustainable development or not. Also they are free to structure itself by creating units specifically related to sustainable development. The case of the University of Southern Brittany is an example among others.

The university has created a "mission for sustainable development" led by an adviser. The role of the special adviser "sustainable development" is to monitor and to federate all the actions are within the context of sustainable development and to engage effectively in establishing a policy of long-term development. The realisation of these actions (animation, communication with the socio-economic partners...) will help to develop the skills of the university in teaching and in research.

The University of South Brittany has also established a charter given to all users of the university and it is possible to sign the charter online. In 2008, a competition dedicated to sustainable development was organised by the university and helped to bring out new ideas and projects that are now underway as the implementation of the collection of used batteries, waste sorting, etc.

Other universities are organised differently. The University of Burgundy has created a steering committee "sustainable campus". Indeed, for several years, the University of Burgundy set up actions for sustainable development. Some actions are implemented at the initiative of some of its services or of its staff. Others come from a comprehensive policy. There was therefore a need to coordinate actions such as social action aimed at staff and students or the hazardous waste management. The creation in October 2008 of the steering committee "sustainable campus" responded to this need. This committee is under the direct responsibility of the university president, marking the establishment of a strategy for the University of Burgundy in environmental protection and sustainable development.

Membership of the University of Burgundy in the "Green Plan universities" (presented by the Conference of University Presidents in October 2009) reinforces this position.

Higher education does not understand only universities in France. There are also engineering schools and groups of institutions who are called polytechnics. Depending on their area of work, these institutions can implement specific policies or create departments dedicated to sustainable development. As such, it is essential to cite the Polytechnic Institute of Grenoble, which is a reference in France for multidisciplinary research and environmental protection. The description of its graduate school refers specifically to the concept of sustainable development.

Finally some of the curriculum of higher education in France takes place in high schools : These are bac + 2 degrees called "Brevet de Technicien Supérieur". High schools do not have autonomous status. These high schools are subject to the obligation to respect the EPA from their ministry. For example, the agricultural college of Nevers-Challuy established a monitoring and reduction of waste generated within the facility. This action is subject to regular communication with students. Similarly various investments were studied to increase the use of rainwater collected or to reduce the energy cost of the boiler. However, funding for such facilities needs the help of local structures (General Council at the department level or Regional Council of Burgundy). Ther are no national funding for these projects. For example, the project which aimed to develop a device for video conferencing to avoid the travel of many teachers from Dijon (and thus reducing energy expenditure) was rejected. These actions are consistent with the themes of the NSSD in which the Ministry of Education is involved including that of education to sustainable development.

Anyway, the implementation of sustainable development strategies in these establishments is the result of horizontal actions and therefore requires the establishment of a cross-animation structure like for quality management in companies or in administrative services. In November 2010, AgroSup Dijon has created a "mission for sustainable development" led by an adviser.

Thematic Focus

Environmental Pillar

Exemplarity of Universities, Waste management, energy efficiency, water saving, Sustainable transport.

Economic Pillar

Long-term economic choices, Integration of environmental concerns in decision-making.

Social Pillar

General knowledge relative to SD, innovation in research and in teaching methods. Development of human capital and skills.

Life Science Field

More accurate programmes in general and vocational diplomas.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence					✗
Capacity Building				✗	
User Friendly				✗	
Innovation				✗	
Partial / Global Approach				✗	

Scale from 1 - 5
1 very low
5 very high

Networking

Networking is organised at the level of each University.

Interdisciplinarity

Developed in research activities and in teaching activities.

Conclusions

Results

Existence of structures dedicated to the management of SD in the French Universities.

Impacts

New choices in the organisation of Universities, SD is a criteria to buy or not to buy equipments or furnitures. Recycling, energy saving.

Success Factors / Awards

Image of the university.

Further Information

Websites of French Universities

Contacts

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5

5.3 Teaching

FICHE 1

Green Pedagogy, a concept for learning, teaching and advising for sustainable development

General Information

Leading Organisation

University College for Agrarian and Environmental Pedagogy Vienna

The University College for Agrarian and Environmental Pedagogy is situated in the west of Vienna. The surroundings offer a perfect ambience for green pedagogy. More than 50 teachers and about 550 students teach and learn at the University College. More than 3000 Students are studying in the further education programmes.

Environmental Pedagogy as a bachelor degree study has been implemented in 2008 as a new, innovative and unique curriculum at the University College in an addition to the existing curricula of agrarian pedagogy.

Further and Continuing Education
Approximately 150 further education programmes take place at the Institute for further and continuing education.

Target groups for the seminars, college courses or master programmes are educators, advisors, teachers, principals or manager in the field of education or advising.
A wide range of different programmes are offered: Bachelor Study Programmes "Agrarian and Environmental Pedagogy", "Environmental Pedagogy", Further and continuing Education, Master Study Programmes, College
Courses of study, Lifelong Learning, Research, Farming for health – Garden therapy and Green Care.

Country : Austria

Funding Organisation	Federal Ministry of Agriculture, Forestry, Environment and Water Management
Level of Implementation	National - International
Time Frame	Open
Main topic of the Activity	Teacher training and advising
Area of Interest	☒ Teaching ❑ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

Research to define the different approaches to chosen themes and create a reflective connection between agrarian pedagogy and environmental pedagogy.

Research to find ways for a constructive work with different appreciations of agrarian pedagogy and environmental pedagogy.

Fundamental research and applied research focused on the work field of green pedagogy.
Define methods and tools for a constructive method-set in green pedagogy.

Working and reflecting in the field of Green Pedagogy with students and in a teacher-group.

Implementation

Continuously in the study programme and in further education programmes (Study-Day, Booklet).
Bachelor Programme: see curriculum of Agrarian and Environmental Pedagogy
Master Programme: Green care and education management in rural areas
Study Day Green Pedagogy, Handbook and Videos/see: http://www.agrarumweltpaedagogik.ac.at/cm2/index.php/forschung/gruene-paedagogik

Further education:
http://www.agrarumweltpaedagogik.ac.at/cm2/index.php/lehrerinnen-und-beraterinnen-in-land-und-fw-berufsfeldern

Ecological Horticulture, Education for Sustainable Development and Nature Interpretation, Land Use and Biodiversity

ÖKOLOG-Summer Academy 2013
International Summer School 2013 " Rural Space in Less Favoured Areas", Promoting Change, Pedagogy for Nature Interpretation, Sustainable Intercultural Dialogue
Experiencing Nature in the Garden-Working with Children
Plants-what are their names?
The Earth-Chance for the World Climate... and only a few centimeters below
Introduction to Horticultural Pedagogy with Children
Nutrition, the Chance for the World Climate
Shopping for my Future

Thematic Focus

Environmental Pillar

Rural and local development, natural resources, sustainable production of food, ecological agrarian production, waste management, biodiversity, environmental consuming, CO_2-emission, renewable energy.

Economic Pillar

Sustainable consumption, rural and local development, sustainable production, sustainable tourism, global money circle, resource-economy.

Social Pillar

Development of human skills, social equity, health and quality of life, cultural diversity, Local engagement in sustainability, Green Care.

Life Science Field

Agronomy, food technology, sustainability, energy technology.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence					✗
Capacity Building			✗		
User Friendly			✗		
Innovation					✗
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking

University of Life Sciences Vienna, University Rostock, Donauuniversität Krems, Agrarian Colleges in Austria.

Interdisciplinarity

Pedagogy, Psychology and Life Sciences f.e. Sustainability, Agrarian Production, Forestry, Renewable Energy, Animal Production.

Results

The concept of Green Pedagogy is the pedagogical basis for teaching and learning in the university college.

Green Pedagogy is not static, not a strictly defined programme or agenda. The field of Green Pedagogy is like a plantlet, growing, changing, bearing fruit, manifesting itself over and over again, adapting on conditions.

The key-components are motivation to learn, learning situation, development of competences and reflection.

It is implemented on the one hand in all study programmes for training teachers and advisors and on the other hand in courses of further and continuing education. Green Pedagogy is one major focus in the educational research of the university college.

Impacts

Students are working in Green Pedagogy in Seminars and they develop competences in interdisciplinary projects, in different learning situations, in study-methods, in reflection and evaluation with the focus of the contra dictionary view in the field of Farming and Safeguarding. Moreover they students learn to develop innovations under the three dimensions of Sustainability and to reflect the learning process.

Green Pedagogy is also developing community in the form of cooperation and participation in all processes at the University college and in the field of practice.

Finally, Green Pedagogy gives also a set of values for a sustainable life.

Success Factors / Awards

“Producing seedlings”, Sustainability Award.

Further Information

Website

www.agrarumweltpaedagogik.ac.at

Publications

http://www.agrarumweltpaedagogik.ac.at/cm2/index.php/forschung/gruene-paedagogik

Contacts

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FICHE 2

Czech University of Life Sciences Prague

General Information

Leading Organisation

Czech University of Life Sciences Prague (CULS)

Faculties:

- Agrobiology, Food and Natural Resources
- Economics and Management
- Environmental Sciences
- Forestry and Wood Sciences
- Engineering

Institutes:

- Tropics and Subtropics (the only educational and research institute of such kind in the Czech Republic)
- Education and Communication

CULS is situated on a spacious and modern campus in the north western outskirts of Prague, about 20 minutes from the city centre. In harmony with global trends, CULS is putting more and more emphasis on educating students in all crucial areas related to sustainability, i.e. sustainable use of natural resources, organic agriculture, safety and security in the food chain, protection of the biosphere, sustainable land and water management, sustainable rural development and economics (e.g. in the tropics and subtropics). We educate students in ecologically sound waste management, environmentally friendly road vehicle management and alternative energy production (i.e. solar cell technology). We offer study programmes focusing on modern, up-to-date management of private and corporate as well as state enterprises. Our university educates future leaders who will be mindful of the sustainable management of our planets´ natural resources and of the related socio-economic and environmental issues.

Country : Czech Republic

Funding Organisation	Czech Ministry of Education, Youth and Sports
Level of Implementation	Local - Regional - National - International
Time Frame	From 2011 to 2020
Main topic of the Activity	Research and teaching
Area of Interest	☒ Teaching ☒ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

To become by 2020 one of the leading life sciences HEI in Central Europe, focusing on all 3 pillars of sustainability – in environmental issues, as well as in economic and social issues. Increasing the quality of support for preparation of research projects focusing on sustainability. Supporting interdisciplinary teams, with balanced generation structure of staff involved in research in innovative scientific areas related to sustainability (e.g. biotechnology, genetics and other identified areas interconnecting different scientific and technical fields) at CULS, in the Czech Republic and at international level, with the aim of establishing interdisciplinary actions focusing on sustainability. Reviewing and upgrading administrative, IT and process systems required for submission of project proposals and facilitating project implementation in the area of sustainability. Increasing awareness by the general public of outcomes of scientific work and research outputs at CULS related to sustainability.

Optimising conditions for quality publication output by CULS academic staff. Increasing student involvement (at MSc level) in research activities carried out at CULS in the areas of sustainability, and empowering younger staff, after graduation from PhD studies, to continue their research, which has been substantiated in their doctoral thesis and research carried out at CULS. Increasing the involvement of external stakeholders (economic practice, public administration, NGOs, Academy of Science, Research Institutes) in research and development at CULS in the area of sustainability. Increasing the process of implementation of quality instruments for the development of science and research at the level of all CULS Units in the area of sustainability (Departments).

Increasing the involvement of CULS in prestigious international research programmes focusing on sustainability. Identifying and recruiting top scientists from the Czech Republic and from abroad who are leading scientists in the area of sustainable development.

Implementation

- Study programmes focusing on sustainability
- Basic and applied research in the area of sustainability
- Communication and cooperation with relevant stakeholders from regional, national and international institutions (environmental agencies, NGOs) as well as with the industry (food industry, animal and plant production, rural tourism, etc.)
- Participation in relevant international programmes related to sustainability (e.g ISLE programme in the framework of LLP ERASMUS)
- Participating in National and International Boards and Commissions focusing on sustainability
- Cooperating within university networks, e.g. ICA (European Association of Life Sciences Universities www.ica-europe.info), ICA CASEE (ICA initiative for Central and South Eastern Europe http://www.ica-ls.com/index.php?option=com_content&view=article&id=109&Itemid=17) ELLS (Euroleague for Life Sciences www.euroleague-study.org).

Environmental Pillar

Waste management (separation of glass, plastics, and paper) in the whole campus.

Faculty of Engineering – new rotation system for solar panels developed.

Biomass production in Forest Establishment at the town Kostelec nad Cernymi Lesy and in Farm Estate Lany.

Faculty of Agrobiology, Food and Natural Resources – BSc study programme in English "Sustainable Use of Natural Resources" MSC study programmes include courses in organic farming and sustainable breeding methods in plant and animal sciences.

Institute of Tropics and Subtropics organises education of sustainable development and organic farming in developing countries (mostly in Africa, Central Asia, South America).

Economic Pillar

Social metabolism (interactions between economic and environmental pillar) – a particular methodology for Material and energy flow accounting (MEFA) in rural areas is prepared at the Department of Humanities (Faculty of Economics and Management).

Social Pillar

Faculty of Economics and Management – the research of organic farming from social sciences' viewpoint (sociological empirical research) is still more widespread (Department of Humanities in particular).

Lukáš Zagata from the Department of Humanities offers an insight into how organic farmers in the Czech Republic view their practice, interpret its symbolic value, and construct its content (Zagata, 2010). He distinguishes three perspectives of these organic farmers in an empirical study based on the Q-methodology: organic farming is perceived in the contemporary Czech Republic as a way of life, as an occupation, and as the alternative production of food. At the same time, Zagata admits that his findings do not ensure that the aforementioned three perspectives are exclusive within the organic sector in the Czech Republic. An idea that "idealistic" organic farmers have to act pragmatically in some cases to survive in the conditions of the market economy appears in this work as well.

Intangible forms of capital (human, social, cultural) and their development capacity are studied in rural areas of the Czech Republic (project of Ministry of Regional Development of the Czech Republic - Project No. WD-13-07-1 SOFARR).

Rural development in the Czech Republic is a topic that is being studied from various viewpoints by authors whose professional specialisation is rural/regional development. Lošťák and Hudečková (2010) studied the institutionalised form of endogenous rural development - the LEADER approach. In so doing by the content analysis of mass media, they found out that farming oriented projects of the present-day LEADER+ approach explicitly demonstrated their links with environmental protection (*i.e.* sheep to graze the grass, winter places for cattle to enable the cattle to be all year round on the pastures).

- The role of local actors in rural development: the availability of the countryside (as a place for living) has for studied actors mainly the quality "availability of environment (place for children, nature)", and only afterwards the others ("availability of freedom and peace" and others) (Kocmánková-Menšíková, 2008).

Life Science Field

Agrobiology, Food and Natural Resources, Environmental Sciences, Forestry and Wood Sciences.

Criteria of Evaluation

	1	2	3	4	5
Transferability				✗	
Pertinence			✗		
Capacity Building			✗		
User Friendly				✗	
Innovation					✗
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking & Interdisciplinarity

The Department of Humanities (Faculty of Economics and Management) co-operates mainly with these organisations (and their members) abroad:

a) Hungarian Academy of Sciences – Institute of Political Sciences (Imre Kovách)

b) Finnish Centre for Russian and East European Studies - University of Helsinki (Leo Granberg)

c) Department of Rural and Urban Sociology - University of Łódź (Pawel Starosta)

The department has active contacts with several European and overseas universities and other organisations, namely University of Missouri, Lithuanian University of Agriculture, Universität Rostock, University of Dublin - Trinity College, Gothenburg University, Agricultural University of Athens, Technical University of Lisboa, University of Aberdeen and Leibniz Centre for Agricultural Landscape Research (ZALF) Muencheberg. Members of the Department of Humanities are engaged in national and international advisory groups and participate on many international conferences and seminars.
The department of Humanities participated and participates in the European Union 7th Framework Programme – project CERTCOST (Michal Lošťák, Lukáš Zagata) and in the 6th Framework Programme – projects CORASON "A cognitive approach to rural sustainable development – dynamics of expert and lay knowledges" (Věra Majerová) and COFAMI "Encouraging Collective Farms Marketing Initiatives" (Michal Lošťák).
The Department of Humanities participated in preparation of Ministry of Agriculture materials for EAFRD (European Agricultural Fund for Rural Development) as well.

Conclusions

Results & Impacts

Since 2000, CULS has been implementing a systematic policy of increasing subjects and courses focusing on sustainability. Furthermore, research and innovation in the area of sustainability has led to the development and implementation of several important international projects, e.g. Sustainable Palm Oil Production Plant in Indonesia, Sustainable Rural Projects in Angola, Sustainable Development Projects in Mongolia (in cooperation with the Czech Government Development Funds) etc. On campus sustainable projects include separation of waste and recycling at all Faculties (paper, plastic, PET, used batteries, organic waste), production of biomass at CULS Forestry Establishment and CULS Agriculture Farms, low energy constructions (new lecture halls) and encouraging students and staff to use public transport instead of private cars.

Success Factors / Awards

As mentioned above, CULS is successful in the implementation of various international development projects focusing on sustainability. In this connection the Czech Government Grant Agency has been working with CULS in various development projects in Africa and South America for at least 15 years. These projects have all a common platform – sustainability in the three pillars of sustainability – environmental economic and social. Furthermore, CULS has already three accredited study programmes (1 BSc and 2 MSc) which focus directly on sustainability: BSc Sustainable Use of Natural Resources, MSc Sustainable Agriculture and Food Security, MSc Sustainable Rural Development in Tropics and Subtropics.

Further Information

Websites

www.czu.cz
www.pef.czu.cz
www.its.czu.cz
www.af.czu.cz
www.fzp.czu.cz
www.fld.czu.cz

Publications

Kocmánková – Menšíková L. (2008): *The need of information and extension service for the countryside and its development* (the opinions of local actors). Agricultural Economics - Czech, 54: 583-596.
Lošťák M., Hudečková H. (2010): *Preliminary impacts of the LEADER+ approach in the Czech Republic*. Agricultural Economics – Czech, 56: 249-265.
Zagata, L. (2010): *How organic farmers view their own practice: results from the Czech Republic*. Agriculture and Human Values, 27: 277-290

Contacts

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FICHE 3

Teaching in SD at the Norwegian University of Life Sciences

General Information

Leading Organisation

Norwegian University of Life Sciences

The Norwegian University of Life Sciences was established as a higher education institution for teaching in agricultural topics ca 150 years ago. The university is located south east of Oslo, in the small village of Aas.
The study programmes at the university includes; Agroecology, animal breeding and genetics, aquaculture, aquatic food production, bioinformatics, natural recourse economic, feed manufacturing technology, international development studies, international environmental studies, plant science, food science, landscape architecture, teacher training in science, water and environment technology, physics and renewable energy, property, industrial economy

Country : Norway

Funding Organisation	Ministry of Education and Research
Level of Implementation	National - International
Time Frame	Open
Main topic of the Activity	Teaching in SD / Elaboration study programmes and didactic tools
Area of Interest	☒ Teaching ☐ Institutional activities ☐ National policies ☐ Practical experiences

Case description

Objectives

Teaching in basic and applied sciences.

Research to support implementation of new didactic tools.

Research to find new ways of recourse utilisation and new systems for resource and energy management.

Implementation

The Norwegian University of Life Sciences offer study programmes (master and bachelor) in addition to single courses in sustainable development. Unless other is mentioned, our bachelor and master programmes are thought in Norwegian. We offer study programmes on master level both in Norwegian and in English. Anyway, all our master courses are given in English on demand.

Bachelor in environment and natural resources

The programme includes basic subjects as: physics, chemistry, biology, mathematic, statistic, geology, earth and hydrology, in addition to subjects like environment & natural resources and pollution & environment. In addition to 10 ects Ex. Phil., the student shall also select 30 ects from topics like earth & environment, limnology & water resources, environment toxicants & eco toxicology and geology. 40 ects can be elective and the students are encouraged to study abroad.

The aim of this study programme is to give the students a better understanding of the processes that affect earth and water resources, interactions between physical, chemical, biological and geological processes in earth and water systems in addition to see the context between global and local utilisation of natural resources and the challenges for the environment.

Master in environment and natural resources

In this programme the students can choose between 5 directions:

Environment Toxicants & Eco Toxicology – knowledge from basic composition, transport and availability of pollutants to the biological effects of these.

Earth & Environment – how climate changes, land use and pollutants affect the quality of the earth.

Geology – utilisation of renewable and non-renewable geological resources

Limnology & Water Resources – physical, chemical and biological processes in hydrological environments and how it affects water quality.

Sustainable Water and Sanitation, Health and Development (English) – competence on environ friendly drainage solutions in developing countries.

In all the specialisations the focus will be on interactions between physical, chemical, biological, geological and hydrological processes in the nature. The students will get deep knowledge in causes and the scope of changes in the environment, and how to prevent or change an unwanted development.

Master of Science in Ecology (English)

Specialisation: General ecology

The specialisation in General ecology will give the student a thorough understanding of central elements of ecology and make them able to understand and recognise the complexity of ecosystems, of the ecological and evolutionary processes that have formed biological diversity, and have an up-to-date knowledge about global change and its impact on organisms and ecosystems.

Specialisation: Tropical ecology and management of natural resources

The specialisation in Tropical ecology and management of natural resources will give the student a solid knowledge about the biology and ecology of the tropics. It addresses current challenges in tropical ecology like habitat destruction and biodiversity decline. Here the interrelationships between poverty, land-use and nature conservation are central.
http://www.umb.no/ina-en/article/more-about-tropical-ecology-and-natural-resource-management-2

Single courses

Sustainable agriculture and the environment (EDS215 – http://www.umb.no/soek/emner/eds215)
The students shall learn the principles on how changes in agricultural practice will affect both local and global environment.

Livestock biology and production (HFX130 –http://www.umb.no/soek/emner/hfx130
Sustainable livestock production, global and local. Resource base, resource efficiency and environmental impacts of livestock production.

Sustainable production systems (PJH300 – English - http://www.umb.no/search/courses/pjh300)
The candidate will attain: • operative knowledge about how to design and manage a sustainable farming system taking into account the nature-given conditions (as soil, climate or pests) and the possible management improvement (as tillage, fertilisation, improved plant material, management of biodiversity though crop rotation and mixtures, plant protection and so on); the main focus will be on Norwegian agriculture; • knowledge of the role of agriculture for food security, its responsibility in the exploitation and management of Earth's resources, and its contribution to and mitigation of global changes (both Norwegian and global aspects will be considered); • awareness of the political setting as public expectations and international regulations; • training in looking at the consequences of management at both long-term and global scale in order to evaluate the dynamics, strength and fragility of the agroecosystem; • training in applying knowledge from previous courses to practical situations, where a number of productivity and environmental concerns can be in conflict with each other.

Introduction to sustainable systems for stormwater and wastewater
(THT282 – http://www.umb.no/soek/emner/tht282)
The course aim to give an overview of the world wide challenges on stormwater and wastewater and possible technical solutions in order to see the important connection between nature, society and health when planning sustainable stormwater and wastewater solutions.
THT283 -
The students shall have an overview of the challenges related to inadequate sanitation in developing countries and an overview of potential technical solutions. The students should know limitations and advantages of different treatment systems and the socioeconomic factors of relevance for successful implementation in different parts of the world. The participants should be able to design and implement smaller decentralised, natural and source separating systems.

Continuous education

Education for Sustainable Development – Teacher education

The course is built up as a teaching network (for teachers in primary and secondary schools), to improve their academic and didactic skills in teaching in sustainable development.

Thematic Focus

Environmental Pillar

Sustainable production of food. Selection of suitable production areas for the single produce. The use of renewable energy in production systems. Life cycle analyses. Production and the effect on the environment. Waste and waste water management.

Economic Pillar

Sustainable consumption, rural and local development, sustainable production, sustainable tourism, global money circle, resource-economy.

Social Pillar

Sustainable infrastructure. Contact with the nature, also for learning environment. Building good social relations and good understanding of the environment.

Life Science Field

Aquaculture, animal and plant science, food science, environmental chemistry, urban and regional development.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence				✗	
Capacity Building			✗		
User Friendly				✗	
Innovation			✗		
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking

NOVA Network (The Nordic Forestry, Veterinary and Agricultural University Network).

Interdisciplinarity

Technology, biotechnology, waste water management, forestry, life cycle studies, pedagogy, sustainability, sea and land resource management.

Conclusions

Results

To be able to implement sustainability in all aspects in the society, it is important that teachers are trained with this focus. The teacher training system in sustainability has been an important contribution, and this will gradually be included in all teaching and research programmes at the university. In addition, new approaches in research are giving an important supplement to this new aspects.

Impacts

Sustainability is interdisciplinary, and has to be implemented at all levels, both in teaching and research. It is also important to get this established as early as possible in the teaching system.

Success Factors / Awards

Sustainability Award.

Further Information

Website www.umb.no

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FICHE 4

Master Geslopan (Management of Local Development in Parks and Natural Areas)

General Information

Leading Organisation

University of Teramo

The University of Teramo was established in 1993. Today, the University boasts 5 Faculties, 19 Degree Courses, 24 Masters, 6 Post-Graduate Courses.

The development strategy of University of Teramo focuses on two major study areas: Law-Politics-Communication and Agricultural-Biological-Veterinarian studies.

The Law-Politics-Communication sector of the University of Teramo, characterised by the Faculties of Law, Political Science and Communication Science, was ranked among the top 7 of the country according to a national survey conducted by the Public Administration Department and Formez.

The agricultural-biological-veterinarian sector (Faculty of Veterinary Medicine and Faculty of Bioscience) started 20 years ago and has become not only a strategic scientific reference for the local Region, but also it recognizes an important role in the National and International context as well, mainly directed to the inter Adriatic relationships.

Master GESLOPAN is promoted and managed in an interdisciplinary way by three Faculties: Veterinary Medicine, Bioscience and Political Science. It is now in its 10° edition.

Country : Italy

Funding Organisation	University of Teramo
Level of Implementation	National
Time Frame	From 2003, each year
Main topic of the Activity	Post degree course in Management of Local Development in Parks and Natural Areas
Area of Interest	☒ Teaching ❑ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

Master GESLOPAN is a one year post-degree course that offers an interdisciplinary education in the field of management, conservation and economical development of the Protected Areas. The Master's aims to build new experts who are able to valorise the natural, cultural and agro-food local resources through a sustainable approach.

The educational programme is characterised by an interdisciplinary approach, and aims to develop naturalistic, zoological, agro-food, sociological, economical and legal competences through the implementation of different educational instruments useful to operate with an innovative methodology in the protected areas (laboratories of EU project elaboration, business planning and fundraising exercises, stages in operative centres).

The didactical activities show two main objectives:

- Developing the self-employment capacities, directed to the creation of new business activities inside the protected areas and to the implementation of the role of sustainable development consultant and project manager.
- Increasing in Natural Parks administrators and employees new skills concerning the valorisation in a sustainable way of the local resources and new management and project capacities.

Implementation

The Master GESLOPAN permits the acquisition of 60 university credits.

The didactical activity is divided in five didactical units; each unit is developed inside a different Natural Park in the Center, North and South Italy (Abruzzo, Trentino-Alto Adige, Campania Regions). In this respect, the learning activity is enriched by the direct knowledge of the different territorial natural-socio-economical patterns as well as the local experiences (entrepreneurs, Parks managers, local development experts, etc.) by study visits, interviews, workshops and public debates. During each unit, students have to elaborate, present and discuss, in public with local representatives, their own project ideas for the local development and sustainable management of natural resources.

The didactical units cover the following thematic areas:

- legislation and management of protected areas
- socio-economical development in protected areas
- management and valorisation of natural and agro-food resources
- sustainability of agricultural, husbandry, forestry and touristic resources
- marine protected areas

The achieved competences concern:

- management and valorisation of the natural resources
- enterprise creation
- green products and services
- territorial and environmental marketing
- conservation biology
- sustainability of agriculture, husbandry and forestry
- sustainable tourism
- local development promotion
- projects elaboration and fundraising
- management and planning of protected areas.

Thematic Focus

Environmental Pillar

Conservation of natural resources; biodiversity; sustainable management of the natural resources.

Economic Pillar

Environmental economy; green economy; environmental marketing; rural development; sustainable services and productions.

Social Pillar

Elaboration of local sustainable development strategies; valorisation of local cultural resources (agro-food products, local traditions); development of the local competences; reduction of the marginal lands decline.

Life Science Field

Animal science, agronomy, conservation biology, forestry, food technology.

Criteria of Evaluation

	1	2	3	4	5
Transferability			✗		
Pertinence					✗
Capacity Building					✗
User Friendly				✗	
Innovation					✗
Partial / Global Approach				✗	

Scale from 1 - 5
1 very low
5 very high

Networking

Networking among University and Local / National administrations. Three National Parks, one Regional Parks and one National Marine Protected Area are strongly involved in the organisation of the Master, together with a Regional administration and four Municipalities.

Interdisciplinarity

The course is organised in collaboration among different Faculties (Veterinary Medicine, Bioscience and Political Science) and provides an interdisciplinary learning approach to furnishing useful skills directed to improve the student capacities to approach the sustainability field.

Conclusions

Results

The Master reached the 10° edition in 2013. Other than 200 students coming from many Italian regions and abroad (Brasil, French) attended the course in the past years now operating in different territories.

Impacts

The Master is recognised by the National Federation of Italian Protected Areas (Federparchi) and the Association of Protected Areas Directors (AIDAP).

Success Factors / Awards

Thesis elaborated during the Master have been largely utilised by several Institutions for the implementation of good practices or project preparation.

Further Information

Website	www.unite.it
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FICHE 5

Master of Science in Agriculture, Specialisation: Agroecology and Renewable Energy

General Information

Leading Organisation

Warsaw University of Life Science-SGGW (WULS-SGGW)
Faculty of Agriculture and Biology

Warsaw University of Life Sciences-SGGW (WULS-SGGW) is among the premier Polish institutions of higher education. It educates experts for the broad sense needs of the national biosphere. It offers wide-ranging programmes of study – from biological and technical, through veterinary medicine, economics to humanities. There are over 27 000 students enrolled, including postgraduate and doctoral studies students and around 1200 academic staff, including 260 full professors. The range of the academic programmes is systematically enlarged and currently includes 27 majors, of which 20 are offered by the 13 faculties and 5 by inter-departmental and interdisciplinary programmes. Within these 27 majors there are total of 70 areas of specialisations. Academic programmes are offered at the Bachelor's, Master's and Doctoral levels; there is also one MBA programme offered.

Farming and food systems are ecologically, economically and socially important in all societies. There is a need for graduates who would be familiar with such systems, which are characterised by complexity, multifunctionality and ability to undergo rapid change. The programme of WULS - Faculty of Agriculture and Biology - specialisation in Agroecology and Renewable Energy provides a scientific and holistic basis for describing, analysing and improving farming and food systems. The challenges linked to climate change and increasing energy demands have generated considerable interest in renewable energy, as well. Graduates with background in renewable energy sources should be in demand at various, both public and private, entities, as projects of renewable power plants and power sources (i.e. wind power, hydropower, bioenergy, biomass, biogas etc.) find their way to agricultural enterprises of different sizes.

Topics lectured in agroecology include environmental, production-related, economic and social challenges in farming and food systems; interdisciplinary approaches to dealing with complex processes of change; sustainable development in a local and global context; ecological organic agriculture. Renewable energy is covered in scope of natural resource management energy technology, problems related to production of renewable energy, as well as selected topics in economy.

Country : Poland

Funding Organisation	Polish Ministry of Science and Higher Education (statutory funding for WULS)
Level of Implementation	National - International
Time Frame	From 2007 to onward
Main topic of the Activity	Teaching / Elaboration of a multi-layered and cross-linked study programme
Area of Interest	☒ Teaching ☒ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

The objective is to familiarise students with fundamentals of agroecosystems, holistic methodology for evaluation and improvement, attitudes, ethics and values. The programme is designed to develop agroecologists who will be successful contributors to future food systems that must deal with production and economies, environmental impacts, and social equity issues. The programme prepares students for a wide range of positions concerning conventional and organic agriculture and food systems, including advisory services and extension, development projects, management of agricultural and natural resources, environmental protection, and further education and research. With real-life experiences as starting point, the programme provides knowledge and methods transferrable to a wide range of situations, as well as the personal skills to become a life-long learning agroecologist. The programme also aims at providing fundamental knowledge, as well as skills of combining and using knowledge in the area of technological aspects of resources management and renewable energy generation and related aspects of economy problems.

Implementation

A multi-layered and cross-linked study programme, which integrates and balances various disciplines and considerations, is considered as success enabler. Practical and case-based exercises are well supported by lectures and seminars, and the goal is to develop competency for responsible action by linking theory with practice.
In addition to ordinary lectures and guest lectures, there is a strong focus on problem-based teaching, group/team work, project work, independent projects, seminars, excursions, laboratory teaching and field work. The evaluation methods are varied and consist of written or oral exams, evaluation of reports, student presentations and participation/reports from mandatory activities.

Thematic Focus

Environmental Pillar

Ecology; Biodiversity; Waste management; Energy efficiency; Conservation of natural resources; Climate change; Development of clean technology; Reduction of gas emission.

Economic Pillar

Sustainable consumption; urban and local development, sustainable production, integration of environmental concerns in business decision-making.

Social Pillar

Development of human capital and skills, health and quality of life.

Life Science Field

Agriculture.

Criteria of Evaluation

	1	2	3	4	5
Transferability				✗	
Pertinence					✗
Capacity Building					✗
User Friendly				✗	
Innovation				✗	
Partial / Global Approach				✗	

Scale from 1 - 5
1 very low
5 very high

Networking

Universities in Germany, Denmark, Slovakia, Austria, Czech Republik.

Interdisciplinarity

The programme combines fundamentals of organic farming and renewable energy problems under single theme of eco-agrobiology, at the same time including, practical issues of economy related to these topics.

Conclusions

Results

Approximately 20 M.Sc. per annum.

Impacts

The specialisation faces moderate to high interest, allowing steady exchange of student groups year-to-year.

Success Factors / Awards

Graduates are employed in the agricultural, rural development, resource management or educational sectors.

Further Information

Website

www.sggw.pl
www.agrobiol.sggw.waw.pl

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FICHE 6

Master's programme Sustainable Urban Development

General Information

Leading Organisation

Swedish University of Agricultural Sciences (SLU – Sveriges Lantbruksuniversitet), Faculty of Landscape Planning, Horticulture and Agricultural Sciences

SLU is one of Sweden's most research-intensive universities, charged with the task of developing sustainable management and use of biological natural resources. Education and research at the university spans a spectrum from genes and molecules to biodiversity, animal health, sustainable forestry, food supply, societal planning and sustainable urban and rural development, as well as global phenomena such as climate change and its effects.

Mission Statement
SLU develops the understanding and sustainable use and management of biological natural resources.
This is achieved by research, education and environmental monitoring and assessment, in collaboration with the surrounding community.
Vision
"SLU is a world-class university in the fields of life and environmental sciences."

Country : Sweden

Funding Organisation	SLU
Level of Implementation	International
Time Frame	Ongoing
Main topic of the Activity	Education at master level
Area of Interest	☒ Teaching ❑ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

The goal of the master's programme Sustainable Urban Management is to prepare students for leading processes, development and knowledge dissemination concerning sustainable urban development and management.

Students are recruited from a large number of academic disciplines, including architecture, economics, physical planning, geography, environmental sciences, political sciences, etc. Students are required to hold a bachelor's degree in their discipline. The general idea is that students from different disciplines should mix and thus generate transdisciplinary knowledge. The aim is to reach consensus regarding the complexity of urban sustainability and the inevitable integration of environmental, social and economic sustainability.

Implementation

The master's programme Sustainable Urban Management is conducted in co-operation between the Swedish University of Agricultural Sciences, Malmö University, municipalities and private companies.

The study programme is flexible, and the entire programme can be completed in two years, although it is possible to progress more slowly. Each course comprises 15 credits, except for the 30 credit master thesis. Most courses are interdisciplinary. The theoretical introductory course "Challenges of the City" attempts to create a common platform from the various relevant disciplines. "Sustainable Urban Development in Theory and Practice" focuses on different case studies in Swedish cities. The other courses the first year are "Project and Process Leadership" and "Sustainable Urban Development – project course", the last of which may count as a one-year master's thesis. During the second year, focus is on urban planning and urban management, which are integrated in two subsequent courses, "Planning and Management in Theory" and "Planning and Management in Practice", including scientific methodology as a preparation for the 30 credit master's thesis, which concludes the programme.

Thematic Focus

Environmental Pillar

Conservation of natural resources.

Economic Pillar

Urban and local development.

Social Pillar

Community cohesion, social equity, health and quality of life, management of migration and cultural diversity, demography.

Life Science Field

Natural resources.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence			✗		
Capacity Building					✗
User Friendly				✗	
Innovation			✗		
Partial / Global Approach			✗		

Scale from 1 - 5
1 very low
5 very high

Networking

The master's programme is conducted in co-operation with municipalities and private companies.

Interdisciplinarity

Multilateral approach to the sustainable urban development.

Conclusions

Results

About 15 students have graduated so far.

Impacts

As far as we know, many of the students have got appropriate jobs at municipalities or private companies.

Success Factors / Awards

Graduates are employed in the agricultural, rural development, resource management or educational sectors.

Further Information

Website http://www.slu.se/sv/utbildning/masterprogram/hallbar-stadsutveckling/

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FICHE 7

TalveAkadeemia (WinterAcademy)

General Information

Leading Organisation

TalveAkadeemia

TalveAkadeemia is a NGO that offers network for students by organising an annual student science conference on sustainable development. The overall aim of TalveAkadeemia is to inspire students to get involved in research and innovation projects in the different fields of sustainable development.
Every year, the three-day conference tackles a different sustainability topic, giving participants new information, and allowing them to learn practical skills in workshops. The winners of the student science article competition get to present their work to a wider audience. Alternative ideas' sessions create a supporting environment for people to meet, share ideas and develop new projects. Every year, about 150 students from all levels and disciplines from all Estonian universities take part of in the conference.
TalveAkadeemia was founded by students from four of Estonia's largest universities in 2003.
While the organising team consists of approximately 20 students with different backgrounds every year, the strategic development of TalveAkadeemia is run by four student organisations from Estonian Universtiy of Life Sciences, Tallinn University of Technology and Tallinn University.

Country : Estonia

Funding Organisation	Environmental Investments' Centre, universities, Ministry of Research and Education
Level of Implementation	National
Time Frame	Ongoing since 2003
Main topic of the Activity	Student science conference on sustainable development
Area of Interest	☒ Teaching ☐ Institutional activities ☐ National policies ☒ Practical experiences

Case description

Objectives

The main aim of TalveAkadeemia is to encourage students to get involved in research and innovation projects in the different fields of sustainable development. This can be broken up into the following objectives, to:

- share the latest knowledge and information on sustainable development topics among students;
- create student networks between different Estonian universities;
- encourage students to continue work in research in sustainable development;
- give students practical skills and experiences in different sustainable development cases;
- inspire students to share their ideas with others, find partners and start new projects on sustainable development topics.

Implementation

- The Council of TalveAkadeemia, the organising team and participants of every conference are all students from different universities of Estonia and from different disciplines. This promotes cooperation between universities and creates links between different research fields.
- Preceding the conference, a student science article competition takes place where students can send their research projects that are connected to sustainable development. A diverse jury grades the articles and gives every student feedback. The best articles are presented at the conference and compiled into a booklet.
- The conference is built up in the following way:
  - first day is for theoretical info and research presentations;
  - second day is for practical workshops and panel discussion;
  - third day is for practical examples from Estonia by both young researches and business, conclusions.
- The alternative ideas' session on every evening of the conference allows participants to introduce their ideas and find partners. Time to time the Council of TalveAkadeemia has also offered financial support for concrete project ideas.

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Thematic Focus

Environmental Pillar

The conference topic is different every year and it's tackled from different perspectives. The environmental side has been so far the strongest. The conference topics have been: biodiversity, Baltic Sea, energy, sustainable development in general.
Besides the conference topic, the organisers try every year to keep the conference's ecological footprint as small as possible by including organic food in the menu, re-using pens and nametags, printing on recycled paper, using trains instead of buses where possible, separating waste, etc.

Economic Pillar

Even though the conference topic is often from an environmental field, the organisers always try to include the economic dimension. Some of the topics have also been more connected to this pillar: sustainable consumption and production, planning. And the last conference topic was new types of economy.
From the organisation side, since the organisers always try to look for local and organic producers for the conference menu as well as for the gifts for speakers, they also support local economy and environmental-friendly production.

Social Pillar

Once the conference topic has been about pro-environmental values in society, plus every year there are small discussions over the sustainability issues in higher education and student science in Estonia.
The conference also helps to build better human capital and skills, through different forms of education on sustainable development (student presentations, lectures, discussions, practical workshops with specialists). As the conference is organised by students from different universities, the participants are also a very diverse group from different universities and disciplines.

Life Science Field

Life Sciences are often tackled as part of the conference programme (depending of the year), and through student research presentations. For example, agriculture has been represented in the workshop topics in several years.

Criteria of Evaluation

	1	2	3	4	5
Transferability				✗	
Pertinence				✗	
Capacity Building					✗
User Friendly				✗	
Innovation				✗	
Partial / Global Approach			✗		

Scale from 1 - 5
1 very low
5 very high

Networking

One of the main goals of the conference is to allow participants to network with each other, through discussions, workshops, alternative ideas' sessions.

Interdisciplinarity

The conference connects students from all universities in Estonia, from different disciplines and allows them also to interact with different sustainability professionals, both academics and practioners. Based on the survey made among all TalveAkadeemia participants throughout the years, 75% of respondents said they found new contacts and acquaintances from the conference.

The conference topics are always viewed from different spheres: environment, economy, society and technology. Also more than 40% of the survey respondents say the conference gave a more interdisciplinary view to sustainability.

Conclusions

Results & Impacts

Over the years the conference has given organiser-experience to 113 students, experience to present their research projects to 76 students. More than 150 researches and specialists have been involved in the grading process of the student articles. 30% of the participants throughout the years say that TalveAkadeemia gave them extra motivation to continue in their studies, for close to 35% it gave better link between their own field of study and sustainability.

There have been at least 4 big projects started from the conference, including a new NGO and an annual environmental summer camp.

Success Factors / Awards

- Deed of the Year from rector of Eesti Maaülikool, Estonian University of Life Sciences in 2006
- III prize in the National Science Popularization Award in 2009
- III prize in the Science Popularisation Award of Eesti Maaülikool, Estonian Universtiy of Life Sciences in 2009

Further Information

Website www.talveakadeemia.ee (in Estonian)

Publications There are conference magazines from last 3 years, the students' article booklets from all the years, plus several student articles have been published in Estonian scientific journals and blogs (all in Estonian).

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Author Kadri Kalle, representative of Estonian University of Life Sciences in TalveAkadeemia council

FICHE 8

ACRU - Assocation of the Carpathian Region Universities

General Information

Leading Organisation

Assocation of the Carpathian Region Universities (ACRU)

The Association of the Carpathian Region Universities (ACRU) is an integrated network of higher education institutions. The main objective of the Association is the advancement of academic, scientific and cultural cooperation in the Carpathian region.
It also enhances the coordination of various activities in the field of international university relations, to the development of specific mechanisms for the transmission of information and knowledge, and to the exchange and support of contacts between member universities and interested third parties. The ACRU is also aimed at promotion of social, educational and technological development among neighbouring countries, communities and regions.

Country : Slovakia

Funding Organisation	ACRU
Level of Implementation	International
Time Frame	ACRU was established in 1994
Main topic of the Activity	Academic, scientific and cultural cooperation of higher education institutions
Area of Interest	☒ Teaching ☒ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

1. The reinforcement of communication channels among member universities in order to encourage the exchange of teaching and research staff.
2. The organisation of forums to study and debate questions of regional nature.
3. To foster the mobility of the university community as a support for increased knowledge of languages and cultures.
4. To cooperate with local authorities, NGOs, international institutions, etc., with the aim to promote the development of the Carpathian region.

Implementation

1. Regular events: Annual Conferences and Executive Committee meetings

An Annual Conference is organised by the member universities on a rotation basis. It is a platform for exchange of information, discussion about current issues and topics of interest for the member universities. ACRU's programme of activities, previously drafted by the Executive Committee of the Association, is also decided upon at annual conferences.

The Executive Committee formed of the President, Secretary General and 3 Vice-presidents, each representing a different member country, meets at least twice a year to discuss and supervise the implementation of ACRU's activities, the administration of agreements and to prepare the annual conferences.

2. Working and thematic groups

The activity plan is realised through three working groups: **1.** research working group whose main role is to prepare and implement joint research projects; **2.** education working group facilitating student, teaching and administrative staff exchange; **3.** funding and International Relations working group whose main responsibility is to establish contacts with organisations similar to ACRU and to identify EU projects and funds.

3. Joint projects, workshops and summer schools

Preparation and implementing joint projects is among ACRU's greatest priorities. An example of successful cooperation within the network is a number of implemented projects, predominantly in the field of education.

As regards research projects, due to a thematic variety of research at the member universities and in order to improve common research, three thematic groups have recently been formed - **1.** Group of medical sciences, **2.** Group of social and economic sciences, **3.** Group of hard sciences and technology. Their main task is to put forward concrete proposals of action in the given field.

Links among the member universities are also strengthened by a range of workshops and summer schools organised by the member universities which are open for participation to students within the ACRU network.

4. Mobility within the network

Mobility of students as well as academic and administrative staff within ACRU network is stimulated and facilitated with the help of ACRU Grant Scheme which provides financial support towards mobility costs related to study visits, stays, summer schools, workshops, courses and conferences.

5. Website

The visibility of ACRU is provided by a regularly updated website (currently under reconstruction) – a common platform for exchange of information on the member universities, their activities, projects and workshops.

Thematic Focus

Environmental Pillar

Environmental quality.

Economic Pillar

Promotion of economic development.

Social Pillar

Social equity, support people to people cooperation, social dialogue.

Life Science Field

N/A.

Criteria of Evaluation

	1	2	3	4	5
Transferability			✗		
Pertinence		✗			
Capacity Building			✗		
User Friendly		✗			
Innovation			✗		
Partial / Global Approach				✗	

Scale from 1 - 5
1 very low
5 very high

Networking & Interdisciplinarity

ACRU comprises 24 member universities providing higher education in a variety of fields. The Institute of EastWest Studies (IEWS), Prague; University of Geogia and UG Services, Atlanta, Georgia, USA; Associated Colleges of the South, Atlanta, Georgia, USA; Foundation for Development of the Carpathian Euroregion,Kosice, Slovakia; Central Europe Initiatives, Matt Richardson, Atlanta, Georgia, USA, E-mail: cei@mindspring.com; European Center of Atlanta, Stewart Odend'hal, Atlanta, Georgia, USA, E-mail: ECA@uga.cc.uga.edu; Association Liaison Office Washington DC, USA; American Association of State Colleges and Universities Washington DC, USA, web: http://www.aascu.org.

Conclusions

Results & Impacts

Implementation of cooperation between the Carpathian Universities.
Official representatives of ACRU's member universities meet each year on ACRU Annual Conference organised in turn by the member universities.

Further Information

Website www.acru.eu.sk

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FICHE 9

BioenergISA. Opportunities to Recover Energy from Organic Materials

General Information

Leading Organisation

Instituto Superior de Agronomia (ISA)

The Instituto Superior de Agronomia (ISA) is the largest and most qualified school of graduate and post-graduate degrees in the Agricultural Sciences, in Portugal, and its know-how is recognised nationally and internationally. With 160 years of experience, adjusting its teaching to technological change and to the reality of the country, focusing both on quality and modernisation.
Integrated in the Technical University of Lisbon since 1930, it has about 1 850 students in 3 cycles of instruction, a faculty of 128 Teachers and 24 Researchers, including 139 PhDs.
Located in the heart of Lisbon, Tapada da Ajuda – an Environmental and Botanical Park with about 100 ha. Its logo, representing an eagle sustaining the motto Hinc patriam sustinet (those who feed the homeland), support the vision of the innovation, the knowledge and the role of the university in modern society.

Country : Portugal

Funding Organisation	Self-funding
Level of Implementation	Local
Time Frame	One semester, every year
Main topic of the Activity	Energy recovery from wasted organic matter
Area of Interest	☒ Teaching ☐ Institutional activities ☐ National policies ☐ Practical experiences

Case description

Objectives

The main objective of this project is to recover energy from waste organic materials, through anaerobic digestion technology.
As substrates for biogas production, the project aims to use the following organic materials generated/produced at ISA Campus:

- Organic wastes from canteen which are not recycled (liquid fraction or soup);
- Bioenergetic crops (Miscanthus, Cyanara cardunculus, Jatropha);
- Sub-products of biodiesel production (cake from the extraction of oil from seeds).

Each organic material was co-digested using different inoculums (sewage sludge or pig manures) in batch reactors, in order to optimise the biogas yield and quality.

Implementation

This project has been carried out by bachelor students from the 3rd year, in the frame of the course "Environment and Energy", organised in different groups.

The first step of the laboratorial work is to characterise the different organic materials under study, in order to define the correct amount to be sampled into the batch reactors. After starting the trials, biogas production needs to be daily monitored until the end of the trial, defined by the absence of produced biogas.

At the end of the practical work students have to write a report, present the work and discuss the results with the other working groups.

Thematic Focus

Environmental Pillar

Waste Management; Organic Recovery; Energy Efficiency; Development of clean technology; Reduction of gas emission.

Economic Pillar

Urban and Local Development.

Social Pillar

Development of Human Capital and Skills.

Life Science Field

Agronomy; Forestry; Environmental sciences.

Criteria of Evaluation

	1	2	3	4	5
Transferability				✗	
Pertinence					✗
Capacity Building			✗		
User Friendly				✗	
Innovation			✗		
Partial / Global Approach				✗	

Scale from 1 - 5
1 very low
5 very high

Networking & Interdisciplinarity

This experience is a good example for other schools (at different levels of teaching) to start or improve their waste management policies, regarding the organic matter streams and to recover renewable energy from the treatment of those streams.

The motivation of students is a driving force to implement this practice at different levels and to develop innovative practices when they will be at the professional activities.

This practice involved different technical and scientific areas, agronomy, forestry, food science, environmental engineering, social sciences and economics.

Unfortunately, scaling-up this project to a pilot unit it's not possible due to the lack of resources available from the University's budget for this type of projects.

Conclusions

Results & Impacts

The experience showed good results at different levels because it was possible to produce biogas with a standard quality and also to achieve a good removal efficiency of the organic matter present on the feedstock used in the digestion process.

At the environmental point of view this experience showed to the student community and to all the other people working at the ISA that we can benefit from the reutilisation of different resources, to produce add-value products and avoid their negative impacts at the environmental level.

Further Information

Website

www.isa.utl.pt

Publications

Carvalho, L. and Duarte, E. (2011). *How the concept of co-digestion can be applied at a university campus canteen*. Oral presentation to be presented to the 16 European Biosolids & Organic Resources Conference, Seminar & Exhibition, 14-16 November 2011, The Royal Armouries, Leeds, UK

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FICHE 10

The place of the Tutored Project in the conception of the curriculum of a vocational bachelor in water and waste treatment

General Information

Leading Organisation

AgroSup Dijon

AgroSup Dijon is the National Superior Institute in Agronomy sciences, food sciences and environment. AgroSup Dijon organises french engineering diplomas in food sciences and in agronomy and environmental sciences. It also organises master level diplomas, international masters and bachelor in the same fields of activity and in the field of educational sciences. The Eduter institute within AgroSup Dijon deals with the development and the technical support of agricultural education in France.

Country : France

Funding Organisation	AgroSup Dijon and University of Burgundy
Level of Implementation	Regional
Time Frame	From 2004, ongoing
Main topic of the Activity	Students training
Area of Interest	☒ Teaching ☐ Institutional activities ☐ National policies ☐ Practical experiences

Case description

Objectives

The tutored project has a particularly important role in training students during the last year of a vocational bachelor. Students must learn to work on multidisciplinary topics independently. They must work using a comprehensive (global) approach in order to be able to work in companies.

Implementation

The bachelor diplomas are under the responsibility of universities. However the title of these bachelors is set by the Ministry of Higher Education and their content is framed in a flexible way and validated by the ministry. Training in 1 Year, the L3-called "professional bachelor" may be co-accredited with engineering schools (e.g. License "Protection of the Environment, statement water and wastes treatment" is a co-accredited training between University of Burgundy and AgroSup). In the case of professional bachelors, the existence of a "statement" that specifies the title of the diploma allows each institution to show the specificity of the local diploma.

However the structure of these formations is determined by the ministry. The final year of training includes 600 hours of training at the University and an internship of 12 weeks. This internship is typically done in a company dealing with environmental issues. It is expected that during the 600 hours of training taking place in university students perform a tutored project. This tutored project has a special place in training. This is the time students learn to work in a multidisciplinary way and to have a comprehensive (global) approach of problems. This tutored project is an exercise that prepares students for their internship. The teaching sequence is designed as follows. Students receive disciplinary knowledge during the year and receive training in methodologies. The training in methodologies includes : the ability to do multimedia presentations and to do statements, the ability to do a literature search and a review of the literature. The tutored project is placed after these methodological training and after students have received sufficient training in water and waste treatments. Then, they are sufficiently independent to carry out a tutored project.

A tutored project is 150 hours in time use of students. This is the specifications imposed by the ministry. Before the 150 hours there are 8 hours of methodological training in project management to prepare students for the job. 150 hours in time use of students represent a higher working time for students. In our case this represents 225 hours of student work in total. The number of ECTS credits corresponding to the tutored project is calculated on this basis.

The subject of tutored project is proposed by a sponsor outside. The sponsor is usually a professional who works in the field of water treatment or waste treatment. The subject is treated in groups of three students.

A teacher supervises the tutored project. He is responsible for validating the subject of the project and he is responsible for validating the "problématique" (changing the subject into questions and methodology) that students propose. He validates the methodology and the planing proposed by the students. He verifies that

the planing is respected and provides bibliographic data if necessary. However, students must learn to work independently and to seek for themselves the information or knowledge they need.

At the end of the tutored project a report is made by the students (20 to 30 pages excluding appendices). The report must use the usual standards of scientific or technical reports. For instance It must include a summary in French and in English. There's a Powerpoint presentation with a statement in front of a jury that includes at least a competent teacher, the teacher mentoring the project, the sponsor of the project and a competent teacher. It adds quite often an other jury member who is a professional in the field of environmental issues.

Students are in a position to acquire the methods needed to work on multidisciplinary topics to work independently and with a comprehensive approach to deal with. Finally students learn to collaborate with colleagues and professionals. They are then ready to join a company and to do their internship, then to become an employee of a company.

Thematic Focus

Environmental Pillar

Wastes management, water treatment, Energy efficiency, Pollution and risk management. Conservation of natural resources.

Economic Pillar

Valuable diplomas for companies in SD activities, integration of environmental concerns in business decision-making.

Social Pillar

General knowledge relative to SD, development of human capital and skills, student professionalisation.

Life Science Field

Vocational diploma in life science field.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence					✗
Capacity Building					✗
User Friendly				✗	
Innovation				✗	
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking

Networking work.

Interdisciplinarity

One of the main objectives is to learn how to practice interdisciplinarity.

Conclusions

Results

An evaluation procedure that takes into account good practice in SD.

Impacts

Really efficient to prepare students to join a company.

Success Factors / Awards

Employability survey.

Further Information

Websites

http://www.agrosupdijon.fr/formations/licence-master-doctorat/licences-professionnelles/protection-de-lenvironnement.html
http://www.u-bourgogne-formation.fr/-Traitement-des-eaux-et-des-dechets,135-.html

Contact

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FICHE 11

International module "Integrated Biodiversity management"

General Information

Leading Organisation

University of Applied Sciences van Hall Larenstein, location Leeuwarden

Van Hall Larenstein (VHL), University of Applied Sciences, is a unique university in The Netherlands. The curricula focus on nature and environment, human and animal health and responsible entrepreneurship. Combinations of these areas of expertise result in a special and challenging bachelor and masters programmes with majors that are unique. But we offer more than just bachelor and master programmes. Postgraduate courses and consultancy on national and international terrains are part of our service. VHL is not just a university, but also a knowledge company for social and economic questions. Van Hall Larenstein has 3 locations: Leeuwarden, Velp and Wageningen. VHL is part of Wageningen UR. As a result there is a vast range of professional, applied and academic programmes and research on offer. Transfer possibilities are available within a variety of programmes.

Country : The Netherlands

Funding Organisation	Van Hall Larenstein
Level of Implementation	International
Time Frame	Every year, since 2007
Main topic of the Activity	Interdisciplinary approach to biodiversity conservation and the use of ecosystem services to ensure sustainable human well-being preserving natural values
Area of Interest	☒ Teaching ❑ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

General

The major Wildlife Management in-/ex-situ (WM) aims to educate future managers of animal populations, be it in the wild (in-situ) or in (semi)captive situations such as e.g. zoos, breeding programmes (ex-situ). An important aspect of this type of management is the trade-off between interests of people and nature. Multiple stakeholders exert pressure on managers to ensure their objectives are met as much as possible. For the major WM "management" is considered to be in compliance with the principles such as defined in legislation: the Rio Convention (1992), the Ramsar Convention (1979), the Bern Convention (1971) and so on. Other important guiding principles, known as the wise use principle (IUCN) have to be taken into consideration. Conservation and sustainable exploitation may sometimes go together, but this does require competent management. Competence in the integrated management of the ecosystem functions of land- and sea-scapes is the core of this course.

Specific

- This module will train you as future European field officers and/or policy makers. These professionals are required to ensure that attempts to stop the loss of biodiversity in Europe will be more successful.
- This module will give insight in ways to standardisation of the approach to field data collection, analysis and interpretation. This will be done for both a marine environment (the Waddensea, Island of Texel) and terrestrial habitats: most likely these will be the riverine/Wetland region of Biebrza and forest: Bialowieza (Poland).

Implementation

The module has been delivered since 2007.

It aims at an integrated approach of all pillars.

As people living in Europe concentrate in urban areas, the indigenous knowledge of nature and ways to collect data on the state of nature becomes rare. Fewer people with an interest in nature and wildlife have factual knowledge of and experience in the observation of natural processes. The present state of nature and new approaches to management of nature and natural resources, focusing on more output directed and controlled management, necessitates that nature managers are capable of collecting, analysing and interpreting the right data in a standardised way, with the aim of effective support of management of biodiversity through sound monitoring and evaluation. To do so these integrated Nature and Wildlife managing professionals have to possess a sound, basic knowledge of and insight in both socio-economic and ecological aspects. Using a 'helicopter view' and general policy life cycle principles, decisions are made as to what information is to be collected in the field, and how. They have to be able to oversee more than just their own nature area. They must be able to evaluate and manage nature units on a large scale, such as National Parks, Man and Biosphere areas (MAB), World Natural Heritage sites and such. The sound management of land- and seascape ecosystem functions in combination with socio-economic developments necessitates students to take notice of all aspects present in the environmental, economic and social pillar.

Besides theory lectures on a number of subjects, and practical problem based case studies, students will familiarise themselves with more field data collection techniques during the field trips. They will be further trained to analyse and interpret these data using GIS software, and they will apply the outcome to real life case studies on Land- and Seascape biodiversity conservation and management in Europe. There will be group work as well as individual tasks.

Thematic Focus

Environmental Pillar

Integral approach: i.e. balancing environmental, economic and social pillar.

Economic Pillar

Integral approach: i.e. balancing environmental, economic and social pillar.

Social Pillar

Integral approach: i.e. balancing environmental, economic and social pillar.

Life Science Field

Nature and Wildlife management.
As a consequence of its integrated and international nature this course deals with a range of life science fields. Approximately 1/3 of all European mammals are listed in Annex II of the Habitat Directive. The EU Sustainable Development Strategy made "halting the loss of biodiversity in the EU by 2020" a priority. As 42 % of Europe's native mammal species are threatened, they can be considered a key conservation and biodiversity target.
Wildlife populations are not bound by national boundaries; however management practices are very much limited by national frameworks. A better view on a common European integrated approach to biodiversity conservation, ecosystem services and sustainability is now emerging. This module addresses this new situation and helps students to develop professional competences needed to contribute to such an integrated European approach. This module takes them through methods to study and sort information on the state of biodiversity in large areas. And they will be working out evaluations of the policies used on EU, national, and local levels for Land- and Seascape biodiversity conservation and management. Refined (mammal) field data collection and research techniques and the use of a GIS-based model (Maxent) are the starting point.

Criteria of Evaluation

	1	2	3	4	5
Transferability		✗			
Pertinence				✗	
Capacity Building				✗	
User Friendly				✗	
Innovation				✗	
Partial / Global Approach				✗	

Scale from 1 - 5
1 very low
5 very high

Networking

This course is run in close cooperation with professional practice in both Poland and the Netherlands. Each year about 20 guest lecturers contribute to the course by presenting their work on a wide range of subjects ranging from social to economic and nature related issues.

Interdisciplinarity

Competence in the integrated management of the ecosystem functions of land- and sea-scapes is the core of this course. As such the managers of Nature, Habitats, Wildlife, etc. act as intermediaries. They should be knowledgeable on many things, cooperating with a wide range of stakeholders. The changing attitude toward nature and wildlife as we see in the western world in the past three decades does have a large impact on the position of these managers. Add to this the increased insight we have in natural processes, the importance of biodiversity and ecosystem functions, and the desire to use this knowledge to achieve aims that at times are incompatible, and you have a very interesting job position for these managers... Apart from sound knowledge of and insight in biological principles, ecology and such, this requires skills and knowledge in the more socio-economic aspects. Management of Nature, habitats, wildlife and such is increasingly referred to as integrated management of Land- and Sea-scape Biodiversity.

Conclusions

Results

This module trains students as future European field officers and/or policy makers. These professionals are required to ensure that attempts to stop the loss of biodiversity in Europe will be more successful. This module will give insight in ways to standardisation of the approach to field data collection, analysis and interpretation. This will be done for both a marine environment (the Waddensea) and terrestrial habitats: most likely these will be the riverine/Wetland region of Biebrza and forest: Bialowieza. The entire period of 10 weeks is used, and about three weeks are spend carrying out fieldwork and attending guest lectures in Poland and on the Island of Texel.

Impacts

The course has a considerable impact both on the students and the representatives of professional practice. New insights are developed, friendships and professional networks are developed and enhanced. Students perspective on professional is broadened.

Success Factors / Awards

Every year an international population of students are interested in taking the course and professional practice is both interested in the results and in offering internships and research subjects to participants.

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Further Information

Publications

A module book is available outlining the major components of the module as well as the ways of teaching, the lecture schedule, the way students will be assessed and so on.
http://www.vanhall-larenstein.com/photoShare/6353.en.0.o.Modules-Exchange-stduents-2013-VHL.pdf

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FICHE 12

Management of pests, diseases and weeds

General Information

Leading Organisation

Swedish University of Agricultural Sciences (SLU – Sveriges Lantbruksuniversitet), Faculty of Landscape Planning, Horticulture and Agricultural Sciences

SLU is one of Sweden's most research-intensive universities, charged with the task of developing sustainable management and use of biological natural resources. Education and research at the university spans a spectrum from genes and molecules to biodiversity, animal health, sustainable forestry, food supply, societal planning and sustainable urban and rural development, as well as global phenomena such as climate change and its effects.

Mission Statement
SLU develops the understanding and sustainable use and management of biological natural resources.
This is achieved by research, education and environmental monitoring and assessment, in collaboration with the surrounding community.
Vision
"SLU is a world-class university in the fields of life and environmental sciences."

Country : Sweden

Funding Organisation	Swedish University of Agricultural Sciences
Level of Implementation	National - International
Time Frame	From August to November every year
Main topic of the Activity	Course for students within the horticultural Science programme
Area of Interest	☒ Teaching ☐ Institutional activities ☐ National policies ☐ Practical experiences

Case description

Objectives

The course gives fundamental understandings of application of such basic disciplines as biology, ecology and technology for environmentally sound and sustainable management of pests, diseases and weeds in horticultural crops. The course follows up on species knowledge and principles from basic plant protection courses aiming at management programmes that are logical, practical and possible to adopt by farmers.

On completion of the course, the students will:

- explain fundamental application of and integration of basic disciplines as biology, ecology and technology for development of sustainable management of pests, diseases and weeds in crops that are logical, practical and possible to adopt by farmers;
- explain the definition of integrated pest management and its historical background;
- have knowledge of and describe the authorities' responsibility in plant protection issues in the agricultural sector in a European perspective;
- explain the environmental impact of different pest management strategies.

Implementation

The course is given on an annual base within the Horticultural Science Programme and the Agroecology – masters programme at SLU, Sweden.

The course consists of lectures, literature seminars, group and individual projects, excursions (fruit and vegetable growers in southern Sweden), oral and written reports.

Thematic Focus

Environmental Pillar

Plant protection management relies on a profound knowledge of the biology and ecology of the causal organisms and of the crop ecology where they act. In the course issues how to develop sustainable and resilient pest management strategies are addressed both in integrated pest management (IPM) and in organic farming.

Economic Pillar

Important problems with pests, diseases and weeds especially in horticulture are addressed both traditionally and within the concept of integrated pest management (IPM) and organic farming.

Social Pillar

In the course students are carrying out several study excursions to farms. During these visits they practice their skills in communication with farmers comprising farming practices as well as social and political aspects of farming.

Life Science Field

Agroecology.

Criteria of Evaluation

	1	2	3	4	5
Transferability				✗	
Pertinence					✗
Capacity Building					✗
User Friendly				✗	
Innovation			✗		
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking

Pest management seen by farmers organisations, excursions to different growers.

Interdisciplinarity

The students will learn how to incorporate subdisciplines of plant pathology, entomology, nematology and weed sciences (epidemiology, etiology, population ecology, microbial pathogenicity, competition, etc.) into management programmes that are logical practical and adoptable by farmers.

Conclusions

Results

The students showed progressive skills in sustainability of productions systems for horticultural and agricultural crops during the course. Through the different pedagogic methods used in the course and the large focus on individual work and discussion the students matured in their relation to questions of sustainability and especially on plant protection issues. At the end of the course the students showed much more integrated and cohesive knowledge about sustainability within plant protection.

Impacts

The students will be much more prepared to understand and to work with questions connected to sustainability in future courses and in their future occupations.

Success Factors / Awards

The response of the students and their evaluation of the course were enthusiastic. The students were highly motivated for questions concerning sustainability and their engagement was the most important issue for the success of the course.

Further Information

Website http://www.slu.se/en/education/courses/?kurskod=BI0904

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FICHE 13

E-Learning Academic Network (ELAN III) introduction into Sustainability

General Information

Leading Organisation

University Leuphana, Lüneburg

Leuphana University of Lüneburg bases its development on an all-encompassing idea of education and on the content and value oriented implementation of its activities. The University sees itself as a

- **Humanistic university**

In its understanding of education, Leuphana combines personal and academic development while placing the process of acquiring knowledge into a concrete context.

- **Sustainable university**

Through its education and research, Leuphana contributes to the sustainable development of society. Leuphana fosters competencies in dealing with complexity, problem-solving in an interdisciplinary manner, engaging in responsible and self-directed learning, developing a readiness and willingness to take on social responsibility or shaping the future in a sustainable manner.

- **Proactive university**

Leuphana fosters the development of responsible and proactive individuals who demonstrate the creativity and thoughtfulness as well as the willingness and ability to creatively shape society. Leuphana contributes significantly to the solution of social problems through research, education, continuing education, and academic services.

Country : Germany

Funding Organisation	State of Lower Saxony
Level of Implementation	Regional
Time Frame	From Mai 2007 to December 2008
Main topic of the Activity	General web based tool
Area of Interest	☒ Teaching ❑ Institutional activities ❑ National policies ❑ Practical experiences

Case description

Objectives

As part of the e-learning initiative of Lower Saxony "eLearning Academic Network" (ELAN), the aim of the project "Introduction to Sustainability" is the development of a versatile e-learning module to teach the basic issues of sustainable development in an interdisciplinary perspective. The module is used in the so called "Leuphana semester", which has to be completed by all undergraduate students at the University of Lüneburg across faculties. Here, the online self-learning phases are linked to attendance periods. Thus, in an interactive and communicative learning situation, the aim is to stimulate the discussion and reflection on sustainable development and education for sustainable development. It can also be used at other universities in different contexts in subjects in which the issue of sustainability should be considered. By designing a blended learning module with completed sub-units, the module can be used both as a complete and finished purpose product, on the other hand can also take the subject-specific background of a discipline. This is supported by the combination of e-learning and attendance periods. In site-specific content, the requirements of each subject can be considered and such a customised adaptation to the own needs of each user can be made.

Implementation

The transferability of the module has been evaluated by the cooperation partner - the University of Hannover – and was tested and subsequently evaluated by the project team. Since the tool can be used also in principle, in the non-university sector, learners from other groups (eg businesses) have the opportunity to benefit from it and also contribute to its further development. The overall project includes the module "Introduction to Sustainability" and the module "Sustainability Management" at the Centre for Sustainablility Management at the University of Lüneburg.

For the technical contents, the responsible teacher is responsible with their team, and the didactic and technical e-learning skills are bundled in a working group. During the term of the ELAN III eLearning project, the working group is affiliated to the Institute of Electronic Business Processes (IEG) and here assigned to the work area by Prof. Dr. Mathias Gross, who coordinated the whole project.

The tool is intended to be used by approximately 1400 students.

Thematic Focus

Environmental Pillar

Biological and landscape variety.

Economic Pillar

Consumption and life styles, sustainable tourism.

Social Pillar

Nutrition.

Life Science Field

No specific topics.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence					✗
Capacity Building				✗	
User Friendly			✗		
Innovation					✗
Partial / Global Approach			✗		

Scale from 1 - 5
1 very low
5 very high

Networking

Universities of Oldenburg and Hannover.

Interdisciplinarity

Tools may be used by any faculty.

Conclusions

Results

1400 students trained per year.

Impacts

Better understanding of and motivation to study sustainability related issues.

Success Factors / Awards

Awarded in the years 2008 / 2009 as official UN Decade project "Education for Sustainable Development in Germany"

Further Information

Websites

http://www.leuphana.de/institute/infu/aktuell/archiv/ansicht/datum/2008/09/03/elan-iii-projekt-einfuehrung-in-die-nachhaltigkeit-ausgezeichnet-1.html
http://www.dfn.de/fileadmin/3Beratung/Betriebstagungen/bt49/forum-mm-ottow.pdf

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5

5.4 Practical activities

FICHE 1

Environmental Management and Educational Activities in the Wied Ghollieqa Nature Reserve

General Information

Leading Organisation

Nature Trust (Malta)

Set up in 12 December 1962, Nature Trust (Malta) is one of the oldest and biggest environmental NGO's in the Maltese Islands. Today it works on four main areas:

- **Environmental education –** with school children, students in post sec and University, public etc. It also is the Foundation for Environmental Education International NGO (FEE) rep in Malta running the programs Eco schools, Young Reporters for the Environment, Learning About Forests and Blue Flag all dealing with education in sustainable development and empowering citizens.
- **Manage Ecological Important sites –** Working in the conservation, drawing up management plans, ecological research, restoration of habitats in various sites.
- **Wildlife Rescue –** Rescue of turtles cetaceans and planning to open the first wildlife rehab centre in the Maltese Islands.
- **Lobby –** for environmental awareness and law enforcement is natural sites.

Country : Malta

Funding Organisation	Nature Trust
Level of Implementation	National
Time Frame	On-going
Main topic of the Activity	Environmental Management and Education
Area of Interest	❑ Teaching ❑ Institutional activities ❑ National policies ☒ Practical experiences

Case description

Objectives

Wied Ghollieqa Nature Reserve was set up in 1990. This is a valley system which was in a degraded state and the project focused on restoring the area, afforestation, soil erosion measures, water retention.

Implementation

The project has been ongoing since 1989. Over the year thousands of indigenous trees were planted all over the area where abandoned and degraded fields where previously found. These helped to provide better air quality for the surrounding area including the University. The Nature Reserve is on University of Malta grounds and is protected by local legislation. According to The Malta Environment and Planning Authority, this reserve may also become a Natura 2000 site in the future.

The project also included the restoration of kilometers of rubble walls to avoid soil erosion and encourage again wildlife to find shelter in the area. Since the start of project, soil erosion has been reduced to a minimum therefore providing the trees with better soil. The measure also enabled the project team to plant more trees and shrubs in the area.

Rubble walls were also built to slow down rain water coming from flood rains which is a recent phenomena of climate change. The idea was to slow down water that was causing damage to the ecology of the site and at the same time, a dam was restored to allow water to stay in the valley bed both for wildlife as it was attracting again a large number of avifauna and for ground water absorption. This would also help in the climate change issue of water scarcity.

The area was also fitted with educational information boards and now site is also used for educational purposes where hundreds of students visit the site each year on environmental education. Site is also used by University Students especially by the faculties of Sciences, Education, Geography and Art. In the buffer zone areas a indigenous tree nursery was set up with trees for the same reserve and apiculture activity introduced to provide funds for the maintenance of the reserve with honey and help in seed propagation.

Thematic Focus

Environmental Pillar

Waste management, conservation of natural resources, biodiversity.

Economic Pillar

Sustainable production.

Social Pillar

Health and quality of life.

Life Science Field

Botany, apiculture, fauna, entomology, avifauna.

Criteria of Evaluation

	1	2	3	4	5
Transferability			✗		
Pertinence				✗	
Capacity Building					✗
User Friendly			✗		
Innovation				✗	
Partial / Global Approach			✗		

Scale from 1 - 5
1 very low
5 very high

Networking & Interdisciplinarity

Working with other NGos and organisations like WWF in site management.

Conclusions

Results

This valley which was once in a derelict state is now resorted to it natural condition.

Impacts

From an abundant valley this nature reserve is now being used for ecological studies.

Further Information

Website	www.naturetrustmalta.org
Contact	info@naturetrustmalta.org
Author	Vincent R. Attard - Nature Trust President

FICHE 2

Hellenic Wildlife Hospital

General Information

Leading Organisation

EKPAZ

EKPAZ (or Hellenic Wildlife Hospital) is a non profit, non Governmental Organisation. It started its activity in 1984, but with this name it has been operating since 1990. It is the oldest and largest wildlife rehabilitation center in Greece and Southern Europe, dedicated to:

- Treatment, rehabilitation and release of all species of wildlife indigenous to Greece,
- Education and information of the public on wildlife protection issues,
- Protection of endangered species,
- Research on threats to wildlife and wildlife rehabilitation (illegal shooting & trapping, poisoning & pollution, habitat degradation and destruction) and taking preventive action,
- Cooperation with public authorities, national and international NGO's with similar goals.

Country : Greece

Funding Organisation	Hellenic Wildlife Hospital
Level of Implementation	National
Time Frame	On-going
Main topic of the Activity	Wildlife protection and public activities (volunteering, environmental education)
Area of Interest	❑ Teaching ❑ Institutional activities ❑ National policies ☒ Practical experiences

Case description

Objectives

The Hellenic Wildlife Hospital (HWH) treats between 3000 and 4500 wild animals each year from all over Greece. Its' main premises are on the island of Aegina, but it also operates through a vast network of volunteers, collaborating organisations, first aid stations and departments covering the whole country.

It is the first wildlife rehabilitation centre founded in Greece to obtain an official license from the Greek State to possess, treat and release all species of indigenous wildlife.

Many rare and endangered species are treated every year: both species of Pelican, Eleonora Falcons, Lesser Kestrels, Imperial and Spotted Eagles, Griffon and Egyptian Vultures, Black and White Storks, Herons and Waders.

Implementation

Hundreds of young people from many countries have taken part in its activities in Aegina and all over the country, learning about wildlife and contributing to protection and care. Also, many volunteers gain an unforgettable experience by working with the animals.
The HWH has carried out diverse projects on wildlife protection, and also international development aid projects, active mainly in the area of the Balkans and Turkey.
The HWH is a member of the International Wildlife Rehabilitation Council (IWRC), a California based international scientific organisation which provides rehabilitators with the most recent information and research results through congresses, seminars, literature production and on-line help.
The HWH regularly conducts environmental education projects for schools, publishes a quarterly Journal and through regular use of the media informs the public about wildlife problems.

Thematic Focus

Environmental Pillar

Conservation of natural resources, biodiversity, conservation of wild life.

Economic Pillar

Sustainable tourism, integration of environmental concerns in business decision-making.

Social Pillar

Community cohesion, community understanding.

Life Science Field

Zoology, Veterinary, environmental.

Criteria of Evaluation

	1	2	3	4	5
Transferability				✗	
Pertinence			✗		
Capacity Building				✗	
User Friendly					✗
Innovation				✗	
Partial / Global Approach			✗		

Scale from 1 - 5
1 very low
5 very high

Networking & Interdisciplinarity

Working with other NGOs and organisations and isolated users.

Conclusions

Results & Impacts

- Rescue of wild animals
- Treatment and rehabilitation of wild animals
- Releases of cured animals to their natural habitats
- Breeding and rehabilitation of endangered species
- Constructional projects for the improvement of the living and treatment conditions of all wild animals hospitalised in our installations
- Precautionary measures for better living conditions of wild animals in their natural settings
- Infrastructure work for enhanced reception of visitors (e.g. schools)
- Nominal adoptions, by volunteers, of endangered wildlife species
- Informative publications, brochures, posters, cards, etc
- Publication of a magazine, which is distributed free-of-charge to the 3 000 members of our Hospital, and to 1 000 additional recipients.
- Souvenir production (e.g. T-shirts and calendars with wildlife topics)
- Documentary production
- Events for raising awareness
- Organisation of wildlife seminars and conferences
- Hospitalisation of volunteers from all over the world
- International relations and support provision to under developed countries
- Construction and equipment of an Information Center
- Scientific research, which involves data gathering, statistical analyses and interpretation of results.

Success Factors / Awards

In 1992 the HWH was granted the Athens Academy Award in recognition of its contribution to wildlife protection in Greece, and the significant role it has played for the sensitisation of the public.

Further Information

Website	http://www.ekpazp.gr/multi158/
Publications	Publication of press releases describing the activities of the Hospital, which are available to any stakeholder. Press releases are available online here: http://goo.gl/eo6VO
Contact	Aegina Headquarters: ekpaz@ekpazp.gr
Author	Andreas Katrakilis, Agro-Know Technologies, Greece

FICHE 3

Sunny Garden

General Information

Leading Organisation

Agricultural University – Plovdiv

The Agricultural University was established in 1945. It is the only specialised state university in Bulgaria in the area of agricultural and related sciences. The University provides training for the three academic degrees – BSc, MSc and PhD. The research activities are completed on the training-and-experimental fields, spreading on 185 ha.

The Agroecological Centre is a structural unit of the Agricultural University – Plovdiv. It was founded in 1989 with the aim of coordinating the efforts of researchers, students, farmers and consumers for the development of organic agriculture in Bulgaria. Since 1994 it has been functioning as a Demonstration Centre for organic farming. The Centre has facilities to train students, teachers, farmers, and agricultural specialists in the field of organic crop production.

With the close academic and research contacts kept with more than 100 universities from all over the world and the implemented educational and research international projects, the Agricultural University won its recognition as a higher educational institution open to the rich experience of its partners.

Country : Bulgaria

Funding Organisation	Innovation Norway and state-subsidised budget
Level of Implementation	National
Time Frame	From 2009
Main topic of the Activity	Ecological education of children; practical training of university students; promoting organic farming, raising consumers' awareness of food safety
Area of Interest	☒ Teaching ☐ Institutional activities ☐ National policies ☒ Practical experiences

Case description

Objectives

"Sunny garden" educational farm for children was established at the Agricultural University (Plovdiv) on the site of the Agroecological Centre under project KNRIN - 2008/115261 that was financed by Innovation Norway. Project partners are Norges Vel – the Royal Norwegian Society for Development, the Centre for work with children within the Municipality of Sofia and "Bioselena" foundation for organic agriculture. "Bioselena" is a Bulgarian non-government organisation. The Foundation was established in 1997 by the Research Institute of Organic Agriculture FIBL – Switzerland. The main task of the consortium is developing and supporting sustainable and organic agriculture, biodiversity preservation and environment protection.

The project offers children and young people the unique chance to joint agricultural practices and to learn where human food comes from, to get hands on experience, to plant tomatoes, peppers and other vegetables, to harvest the yield, to cook traditional Bulgarian vegetable food, to knead bread flour, to process milk into butter and cheese, etc.

University students help the schoolgirls and boys enriching their experience working with children and acquiring some pedagogical knowledge and teaching practice.

The aim of the "Sunny Garden" organic farm is to contribute to ecological education of children and to give knowledge to school-age children of sustainable production, especially organic farming, as a sustainable way of life and for preservation of the environment.

"Sunny Garden" unites the efforts of university researchers, local authorities, regional educational inspectorates, teachers, non-governmental organisations, etc. for ecological upbringing of younger schoolgirls and schoolboys and for the formation of ecological culture.

Implementation

Children from primary schools in Sofia and Plovdiv, living away from rural areas, have the unique chance to join agricultural practices.
They are taken by bus, accompanied by their teachers, and on the farm they have university students as their trainers and animators. For most of the children the visit on the "Sunny Garden" farm is their first agricultural experience. They do things they had done only virtually on the computer.
For most of them that is an unforgettable lesson on ecological behavior and sustainable development. Training is offered as a role game, combining traditional and innovation pedagogical approaches.

Thematic Focus

Environmental Pillar

Pollution; Conservation of Natural Resources; Biodiversity; Development of clean technology.

Economic Pillar

Sustainable consumption; Urban and local development; CSR practices.

Social Pillar

Development of human capital and skills; Health and quality of life; Ecological upbringing of children.

Life Science Field

Agriculture and organic farming in particular; Children upbringing and ecological culture, Practical training of university students who acquire pedagogical experience and methods of teaching life sciences.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence					✗
Capacity Building				✗	
User Friendly					✗
Innovation					✗
Partial / Global Approach				✗	

Scale from 1 - 5
1 very low
5 very high

Networking & Interdisciplinarity

Joint venture of school authorities, university students and staff, local authorities.
Problems of sustainable development, organic production and safety food are presented for the first time in an accessible and attractive way to young children.
Children acquire agricultural experience, they learn lessons on safety food production; they get knowledge on nutritional culture and environmental protection and organic production of ecologically pure natural food. That is very important for their proper upbringing.
Another aspect is that they fell in love with land and land-based practices. Some of them are motivated to choose life sciences and they will come to study at our University.

Conclusions

Results & Impacts

Children attend their first practically-oriented lessons in organic farming.
University students acquire pedagogical experience working with children for eventual future teaching career at school.
The project contributes to ecological upbringing of children and for the formation of their ecological culture.
University students enrich their pedagogical approach working with school-age girls and boys.
The project is a contribution to the joint activities of schools, universities and public authorities for training in sustainable development.
The Agricultural University gains prestige and realises is social function.
The increased interest of different schools from urban regions is an evidence of the positive response and the benefits for upbringing and education of the younger generation.

Success Factors / Awards

The Bulgarian Ministry of Education, Science and Youth awarded the prestigious special prize PYTHAGORAS in Ecotechnologies to "Bioselena" as a partner in the consortium for the special contribution to science, and for the active social position in developing organic farming.

Further Information

Website http://www.bioferma.org/

Publications www.youtube.com/watch?v=m9ZFjKVIBtI

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FICHE 4

SolidarISA

General Information

Leading Organisation

The name of the project is SolidarISA. It was created by students of Agriculture Engineering of Instituto Superior de Agronomia (Technical University of Lisbon), with the main goal of helping poor people, donating the results, food or income, to the Banco Alimentar de Lisboa (Food Bank of Lisbon), an organisation that distributes food to the most needed people.

Country : Portugal

Funding Organisation	Instituto Superior de Agronomia and Banco Santander
Level of Implementation	Local - Lisbon - Portugal
Time Frame	Since February 2011
Main topic of the Activity	Agrocharity
Area of Interest	☒ Teaching ☐ Institutional activities ☐ National policies ☒ Practical experiences

Case description

Objectives

The charity project "SolidarISA" began in 2011 with the aim of helping those in need, leveraging the capabilities of our Institute, the ISA. Its purpose is to reverse the benefits of each farming activity, whether food or cash assets, resulting from the sale of final products, to the Food Bank of Lisbon.

The "SolidarISA" is an integrated activity at the Instituto Superior de Agronomia, working as a school activity, allowing students to put into practice the subjects taught within the degrees.

Implementation

In February 2011 students, the president of ISA, the president of Banco Alimentar de Lisboa, and the director of Banco Santander Universidades, signed up a protocol, defining what is the proposes of SolidarISA and what would be done.
In 2011, the project has focused on three acres of seed chick-peas, assigned by the Institute.

The harvest took place one day in July and another in August, with the presence of 80 volunteers, including students, teachers, and volunteers of Banco Santander, which was attended by the media, enabling visibility and advertising for this project and the people and companies that have joined.

Thematic Focus

Environmental Pillar

Conservation of natural resources, by producing a legume culture in a non used field.

Economic Pillar

Urban and local development.

Social Pillar

Development of human skills; social equity; help eradicating hunger.

Life Science Field

Agronomy.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence					✗
Capacity Building				✗	
User Friendly				✗	
Innovation				✗	
Partial / Global Approach				✗	

Scale from 1 - 5
1 very low
5 very high

Networking

The project has already been mentioned in several volunteer sites, having a good acceptance. The involvement of Banco Santander as sponsor also creates a lever on the advertisements for this action.

Interdisciplinarity

Agriculture, social welfare, community cohesion.

Conclusions

Results

In the Spring campaign we delivered 1,83 tons of chick-peas, which was packaged in one kilo packages and delivered to the Food Bank of Lisbon, to distribute to inumerous institutions that support. Since December 2012, we started a 0,5 ha of cabbagge for the same purpose.

Impacts

Strong commitment to this cause, as demonstrated by the solidarity movement created during harvesting and subsequent feedback.

Further Information

Websites

www.facebook.com/solidarisa.isa
www.isa.utl.pt/home/node/4619
www.dosomething.pt/pt/projectos/solidarisa/
www.santandertotta.pt/pagina/content/0,1564,1042_34706_1_1_1041_6_0,00.html

Contacts

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Authors

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Tomás Sassetti Coimbra, student of ISA/UTL

Pangea Cultural and Environmental Association

General Information

Leading Organisation

Pangea Cultural and Environmental Association

Pangea works with the help of volunteers for the "Whole World", which means the Nature and the Human who lives in it with care, who does not want to take anything from Nature for himself but who enriches the landscape and who serves sustainability with his acts and way of thinking.
Main activities are:

- Environmental education programme
- Work camps (Gálya-tábor in Hungarian)
- Geological wanderer camps
- Hedgehog nature camps
- Study trips to abroad
- Sustainable management programme
- Management for nature conservation
- Education of the science geology
- Keeping folk traditions
- Voluntary work
- Development of the education centre

Country : Hungary

Funding Organisation	Governmental resources (based on tenders accessible for NGO's), public support from one percent of income taxes, Hungarian Environmental Partnership Foundation
Level of Implementation	Local - Regional - National
Time Frame	From 1995 to date
Main topic of the Activity	Environmental and cultural activities involving students and teachers of courses related to environmental sciences
Area of Interest	☒ Teaching ☐ Institutional activities ☐ National policies ☒ Practical experiences

Case description

Objectives

Organising scientific field trips for university students with a complex and holistic view. Accommodation is provided in the environmental education centre that is surrounded by a garden that is managed by following the principles of organic farming. This way collecting volunteers for activities mentioned in the Short Description. The aim of experience-based environmental education program is to help the environment- and nature-conscious attitude of young people to develop and to support the biology and geography lessons taken in the school with practice on the field. Pangea's aim is to develop an environment –and nature-conscious view of life of children in order to make them susceptible for environmental problem. Pangea have established an extensive fruit garden which is consisting of traditional varieties of the Bakony Mountain and serving as a genebank. The nature conservation of the fruit garden will be presentation of traditional fruit varieties.

Implementation

A wide range of activities involving several target groups from children to adults and from amateurs to professionals. Ensuring venue for field trips of university courses, plus organising a special course with the title "Nature in the Winter Time", showing non-formal methods of environmental education and organising an optional course for students of Szent István University. Advertising our education centre for the students to come regularly and take part in education for younger generations and management of the garden, maintenance works of the centre, special works for restoration of protected geological values. Furthermore, organic farming programmes and teacher training courses are meant for adult audience.

Thematic Focus

Environmental Pillar

Selective waste collection, energy efficiency by using effective wood-stove, conservation of natural resources, maintenance of elements of traditional lifestyle.

Economic Pillar

Showing sustainable consumption patterns (bio production, packaging-less, energy efficient, traditional), local development in a small village of sparsely inhabited rural area.

Social Pillar

Strengthening community cohesion in the village and cooperation with other initiatives in the micro-region, laying emphasise on health and quality of life, preserving cultural diversity and traditions. Increasing the awareness and appreciation of local products regional cooperation and traditional knowledge (e.g. “etno-botanics”, etc.).

Life Science Field

Agronomy as cultivating an altogether 7 hectares vegetable garden with fruit orchard and pasture of traditional sheep breed, all by organic farming. Teaching life sciences in the field for different age groups.

Criteria of Evaluation

	1	2	3	4	5
Transferability				✗	
Pertinence			✗		
Capacity Building			✗		
User Friendly				✗	
Innovation				✗	
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking

Everyday contact with other Hungarian NGOs of environmental education plus Szent István University, and small community initiatives of the micro-region.

Interdisciplinarity

Creating contacts among several branches of nature, life and social sciences to show complex, holistic approach.

Conclusions

Results & Impacts

Good contacts, volunteers, several groups from gradual education year-round.

Success Factors / Awards

Accreditation as Open-Air (Forest) School, Pro Natura Award (Ministry of Environment).

Further Information

Website

www.pangea.hu

Contacts

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FICHE 6

"De Sol a Sol" - a sustainable day

General Information

Leading Organisation

AlumnISA

Associação de Estudantes do Instituto Superior de Agronomia (AEISA)

Verde Movimento

Instituto Superior de Agronomia (ISA)

Universidade Técnica de Lisboa (UTL)

Consortium between the actual and former students of the ISA, Verde Movimento and the ISA/UTL

Country : Portugal

Funding Organisation	Self funding and sponsors
Level of Implementation	Local
Time Frame	From October 2011 to the end of June 2013
Main topic of the Activity	Sustainable cultural event
Area of Interest	❑ Teaching ❑ Institutional activities ❑ National policies ☒ Practical experiences

Case description

Objectives

Creation of a sustainable day – The "De Sol a Sol". To carry out a sustainable cultural event designed to all UTL community, where all energy will be generated by renewable sources. A set of photovoltaic panels will be installed at the event location and will generate the energy to support the activities of whole event. Other uses of energy from renewable sources will be demonstrated during the event activities, such as solar cookers, etc.
To show people different sustainable activities and can be easily done in our life.

We expect to engage more than 10 000 students.

Carbon foot print will be assessed.

Implementation

- Identify the partners and the sponsors
- Identify the location
- Select the energy sources/equipment
- Define cultural activities (music, dance, gastronomy and activities to promote Life Sciences and Sustainable Development)
- Define scorecards / (KPI´s) key Performance Indicators
- Measure and control
- Prepare a Post-launch review / conclusion

Thematic Focus

Environmental Pillar

Waste Management, Energy Efficiency, Pollution, Conservation of Natural Resources Sustainable Transport, Climate Change, Development of clean technology, Reduction of gas emission.

Economic Pillar

Sustainable Consumption, Urban and Local Development, Sustainable Trade, Sustainable Tourism, CSR Practices, Integration of Environmental Concerns in Business Decision-Making.

Social Pillar

Development of Human Capital and Skills, Community Cohesion.

Life Science Field

Agronomy, Environmental sciences.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence					✗
Capacity Building					✗
User Friendly					✗
Innovation					✗
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking

UTL and other Life Sciences Universities in Europe and all over the World.

Interdisciplinarity

Life Sciences, social sciences and economics.

Conclusions

Results

We expect to promote a totally sustainable cultural event.
Furthermore the installation of the photovoltaic panels will be a good example for students in our Institute as in the future all energy necessary for the horticultural production area will be guaranteed by this installation.

Impacts

The impacts will be at economical, social and environmental levels.

Success Factors / Awards

Be 100% sustainable for one whole day.

Further Information

Website

www.isa.utl.pt

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FICHE 7

International Development Management. Fair Trade Management

General Information

Leading Organisation

University of Applied Sciences van Hall Larenstein, location Wageningen

Van Hall Larenstein (VHL), University of Applied Sciences, is a unique university in The Netherlands. The curricula focus on nature and environment, human and animal health and responsible entrepreneurship. Combinations of these areas of expertise result in a special and challenging bachelor and masters programs with unique specialisations. But we offer more than just bachelor and master programs. Postgraduate courses and consultancy on national and international terrains are part of our service. VHL is not just a university, but also a knowledge company for social and economic questions. Van Hall Larenstein has 3 venues Leeuwarden, Velp and Wageningen. As a result there is a vast range of professional, applied and academic programs and research on offer.

Country : The Netherlands

Funding Organisation	Van Hall Larenstein
Level of Implementation	Local
Time Frame	Every year from September to February
Main topic of the Activity	Tropical Chain Management
Area of Interest	☒ Teaching ❑ Institutional activities ❑ National policies ☒ Practical experiences

Case description

Objectives

1 Implement value chain development. To develop informal market structures into formal market access, add value through implementation of logistic management, apply quality management systems, warehouse management.

2 Develop competences on conversion plans towards organic agriculture and design organisational structures for market access through voluntary standards certification.

Implementation

Two modules during 9 weeks.
Input: Lectures, Field work, Literature, Readers, Case study, Guest Lectures. Presentations and Reporting.

Thematic Focus

Environmental Pillar

Apply sustainable agricultural practices (GAP) and Organisational Development.

Economic Pillar

Develop diversified market access (from informal to formal market access).
Develop sustainable market access.

Social Pillar

Develop inclusive business capacity competences.

Life Science Field

Tropical Agriculture/ organic agriculture.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence			✗		
Capacity Building					✗
User Friendly			✗		
Innovation					✗
Partial / Global Approach				✗	

Scale from 1 - 5
1 very low
5 very high

Networking

High, Activities relate to multi stakeholder approach (Supermarkets, Warehouse service providers, Extension Services and NGO facilitation).

Interdisciplinarity

High, Integration of Agronomic, Logistic, Post Harvest and Standard & Certification, Commercialisation.

Conclusions

Results

Competent students for value chain development practice.

Impacts

Empowerment of informal sector actors towards formal market actors.

Further Information

Website www.vanhall-larenstein.com

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FICHE 8

Learning regions in Slovenia with polygons in nature for learning about ecoremediations, self-sufficient supply and sustainable development

General Information

Leading Organisation

International Centre for ecoremediation

The International Centre for ecoremediation was established at the Faculty of Arts with the goal of developing new integrated knowledge relating to the economy, environment and society. Throughout history nature has developed incredible buffer capabilities. These processes can be used because of the rapid development of knowledge we posses and which has improved our quality of life. The application of natural processes to protect the environment is called Ecoremediation, a concept that is acknowledged in Slovenia as being associated with exceptional development opportunity. Traditionally good relationships exist between West Balkan countries and consequently we wish to recognise this development potential in this part of Europe as well.

THEMATIC SCOPE:

1. Ecosystem technologies
2. Education for Ecoremediations
3. Application of Ecoremediations
4. Knowledge transfer
5. Examples of Best practices and Opportunities for participation.

Country : Slovenia

Funding Organisation	International Centre for ecoremediation, Faculty of Arts, University Maribor
Level of Implementation	Local (municipalities) Slovenia
Time Frame	From 2007 to ongoing
Main topic of the Activity	Environmental protection, sustainable development
Area of Interest	❑ Teaching ❑ Institutional activities ❑ National policies ☒ Practical experiences

Case description

Objectives

The aim of the project was to establish innovative and experimental condition for the generation of knowledge and functioning of natural and built ecosystems, which is needed to achieve sustainable development of the local environment. Thus, the specific objectives of the project were as follows:

- designing and implementing the conditions and their realisation in the field of education through direct experience;
- increasing the capacity for autonomous decision-making in favor of the protection of nature and the environment. Innovative design of learning materials for experiential education is based on the acquisition of personal experience and research approach;
- development of programs, which are intended for use under the established conditions for education. Programs are based on educational achievements and they develop skills at all stages of Bloom's classification. Educational institutions receive these programs to develop proactive approaches of education for sustainable development. The programs are also designed to prepare the system bases for the mandatory practice of biotechnology schools;
- creation of models, concepts and a systemic basis in primary and secondary education with the aim that sustainable development is used as an ecosystem approach to protect nature and the environment, which is the basis of survival of mankind.

Ecoremediation (ERM) is the application of natural systems and processes for environmental protection and restoration and it sets a basis for ecosystemic technologies. Additional value of ERM is that it revitalises degraded parts of environment thus new value is given back to the environment. This is important while revitalisation enhances the value of environment and therefore, it can further be used for development of other activities. With ERM we protect important ecosystems from pollution and at the same time ERM enables sustainable development as we are using natural processes to achieve this development. By doing so we can mitigate the effects of natural catastrophes.

Ecoremediation is a measure for maintaining the balance in the environment and for enhancing only what is considered as growth of the environment's self cleansing capabilities. Because of its preventive and curative functions ecoremediation has an outstanding value and it should be included in all development plans.

Implementation

In line with this reasoning, the University of Maribor, Faculty of Arts, International Centre for Ecoremediation reported in 2009 a project with an innovative approach to education, where we developed the methodology of an outdoor classroom in nature. We provided a theoretical basis for interdisciplinary experiential learning with an emphasis on sustainable development. In 2010, the Slovenian Ministry of Education and Sport supported the project of establishing educational polygons in Slovenia, with the objective of providing especially young people (without the exclusion of lifelong education) with a holistic approach in research, teaching and learning in nature. The Educational polygon for standing waters in Sveta Trojica, the Educational polygon for groundwater in Miklavž and the Educational environment for natural ecoremediation by the river Dragonja have as yet been only partially established. In addition, the

Educational point for constructed wetlands in Dobrna, the Educational polygon for ecoremediation GRM Novo mesto and the Educational point for soil protection in Rakičan are also under construction. Nature's Classroom, which links the above mentioned educational points, includes several educational paths (the municipality of Poljčane alone features 13 educational paths), cycle tracks and observation points. The majority of activities take place at the two educational polygons in the municipality of Poljčane, i.e. in the settlement Modraže, where the emphasis is placed on ecoremediation and self-sufficient supply.

Because of the need to use certified processes in rehabilitation of environmental damages which have occurred due to ignoring of natural frameworks, ERM can be used to rehabilitate these damages.

With ecosystemic technologies we can reduce and eliminate the consequences of natural catastrophes (floods, draughts, landslides...) and diffuse pollution (agriculture, tourism, traffic, industry, landfill sites and disperse settlement). With relatively low costs we can achieve good results in protecting our environment, water resources, streams, rivers, lakes, underground water and sea. Buffering, self cleansing and habitat capacities are basic functions of ERM. They should be used for protection of water resources, for treating contaminated soils and sediments and for mitigating the effects of climate change.

Thematic Focus

Environmental Pillar

Conservation of natural resources, protection of natural resources with ecoremediations; using permaculture for protecting and using natural resources.

Economic Pillar

Local development.

Social Pillar

Development of human skills; social equity.

Life Science Field

Environment.

Criteria of Evaluation

	1	2	3	4	5
Transferability					✗
Pertinence					✗
Capacity Building				✗	
User Friendly					✗
Innovation					✗
Partial / Global Approach					✗

Scale from 1 - 5
1 very low
5 very high

Networking

The project was well received by the Slovenian society, particularly by primary schools and secondary schools, especially in secondary schools of nature conservation and environmental protection, which lack the number of learning environments in nature.
We will establish an International Ecoremediation Network, the main purpose of which is to efficiently connect partners within the area of Ecoremediation to assure more appropriate sustainable development in Europe.

Interdisciplinarity

Natural science, environment science, sustainable development, social welfare, community cohesion.

Conclusions

Results

Last year around 1000 people of different ages visited the polygons. The polygon curricula is adapted by polygon guides according to visitors age. Polygons in the Slovenian educational field are recognised as an excellent asset to natural environments for research and experiential education for the natural sciences, therefore the schools usage of polygons increase from year to year.

Impacts

Learning polygons have a major impact on local sustainable development, thus helping to develop the local environment, as well as the inclusion of a wider crowd of local people who have become part of the development. Such an education polygons have an impact on the educational system in Slovenia, because of the increasing interest in experiential education in classrooms in nature, which are polygons, as well as they deliver sustainable development of local area.

Success Factors / Awards

Geographical Association of Slovenia – 2012
The best researcher 2012

Further Information

Website http://www.ucilnicavnaravi.si/

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6 Comments and conclusions

According to HEFCE's (2009) vision our starting point is that in the next years the higher education sector "will be recognised as a major contributor to society's efforts to achieve sustainability – through the skills and knowledge that its graduates learn and put into practice, its research and exchange of knowledge through business, community and public policy engagement, and through its own strategies and operations." For this reason Sustainable Development education has to become a central issue for Higher Education Institutions (HEIs).

As observed by UNESCO Associated Schools (2011) Ministries of Education worldwide are currently examining how to introduce and reinforce the SD dimension throughout the curricula, in the training of teachers, in extra-curricular activities and in non-formal education. So an approach that considers all these aspects - and possibly also their interrelations – is necessary.

The objective of the work carried out in the WP3 working group of the ISLE project has contributed to these goals with the identification and presentation of Good Practices connected with Sustainable Development education in Higher Education Institutions (HESD).

The topic of HESD was considered in a broader sense and the presented case studies moved from the construction of the political and institutional framework to the presentation of specific formal and informal learning experiences in HEIs.

The cases studies were chosen with the aim of giving to readers the prospect of the complexity of the topic but also of the variety of approaches and solutions that can be proposed. The presented initiatives are very different one from the other, concerning the typology of the involved institutions (ministries, national agencies, consortia, single universities, NGOs), the level of implementation (from local, to regional, to national, to international), and the geographical spread (all over Europe, but in some cases involving also – through international cooperation – extra-European countries). In some cases the initiatives are characterised by a punctual approach (*i.e.* a specific initiative within an university course), whilst in others by a systematic one (*i.e.* the construction of a ESD framework in a national strategy).

But all the Good Practices were chosen with attention to their transferability; that is the possibility to be replicated in other contexts or to constitute ideas and starting points for new initiatives, which can be adapted to the many different contexts present all over Europe.

Also in the diversity of the case studies presented, some common and characterising aspects merit consideration: the interdisciplinary and holistic approaches to ESD, the attention to achieving tangible results, the involvement of local communities and the bottom-up approach, the importance of partnerships and networking, the capacity building and the innovation of the initiatives.

Many experiences concerning SD teaching provide evidence that interdisciplinary and trans-disciplinary (holistic) approaches are the most suitable in educating for sustainability. Questions related to SD are complex, strictly integrated with the real life of everybody but connected with causes and effects at different scales. They need the development of interactions and links among different disciplines finalised to the construction of a coordinated and coherent whole. Moreover SD needs disciplines to transcend their traditional boundaries to move towards a holistic concept, able to integrate socio-economical and environmental questions, putting the respect for the others (including next generations) and for the environment in the center.

Applying to real word problems, another characteristic of the initiatives is the attention to achieve tangible results. The main goal isn't the solution of theoretical questions but the change in the values of society and in the behaviors of the people, starting from the actors of the education process.

Therefore the attention is put on the capacity building and on the learning process, developing not only technical competences but also communication and problem-solving skills. The students become protagonist of the learning process and of the interaction between the HEIs and the civil society. New methodologies like project working characterise the learning activities, besides a strong attention to the possibilities offered by the Information and Communication Technologies. Another focal point, maybe not enough stressed, is the training of teachers and trainers on ESD.

Another characterising aspect of the presented initiatives is the objective of building partnerships and networks: partnerships among different institutions are created to better achieve the goals on ESD, networks are created to share knowledge and experiences within Universities consortia, links between universities and business are achieved to better define the field of application of ESD and spread innovations among enterprises [6].

(6) On this topic the Report "Sustainable development: an employers' perspective" has been elaborated within the ISLE Project

Among the partnerships it is very important to underline the relations that can be realised between HEIs and civil society, with particular regard to local communities. The role of a sustainable campus in improving the quality of life of a neighborhood, the importance of informal learning activities carried out by students in the management of urban parks and natural areas, the engagement of HEIs in sustainable farming and in social agriculture are only some of the numerous examples.

These examples increase the centrality of higher education institutions and their role in the society, not only for their fundamental tasks of research and education but also for the activities of local peoples involvement, dissemination, diffusion of new approaches to social and environmental issues, and social innovation. Along these ways participative and interactive approaches are preferred, as well as bottom-up initiatives that have their starting point in concrete exigencies of the societies in which HEIs operate.

Finally the content of innovation of the different initiatives has been considered. Several types of innovation are present in the analysed cases: in the topics (globalisation, healthier lifestyles, energy production and consumption, green procurement, social inclusion…), in the methods (multi-stakeholder and participatory approaches, use of new technologies, new learning methods, inter-disciplinary and trans-disciplinary approaches…) and in the capacity of building an institutional and cultural framework favorable to SD education.

Education is a key instrument for bringing about changes in values and attitudes, skills, behaviours and lifestyles consistent with sustainable development (UNESCO Associated Schools, 2011). The conditions for success of the presented initiatives is not only linked to the capacity of providing students with new knowledge, practical skills and competencies, but above all it is linked to the widespread adoption of new values, attitudes and behaviours aimed at contributing to sustainable development of current and future generations.

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8 Annex 1

Faculty of Ecology and Landscape Architecture

Leading Organisation

University of Forestry, Sofia, Faculty of Ecology and Landscape architecture

Country

Bulgaria

Area of Interest

Teaching

Objectives

Teaching to students (bachelors and masters) on Ecology, environmental protection, sustainable development of natural resources; Development of doctoral thesis on Ecology, environmental protection, sustainable development of natural resources; Scientific researches on Ecology, environmental protection, sustainable development, management, control and modeling of natural resources.

Information

www.ltu.bg

GIZ Initiative 'Between Lecture Room and Project'

Leading Organisation

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Country

Germany

Area of Interest

Teaching - Practical experiences

Objectives

To interlink young scientists all over the world; to create an intersection between Science and sustainable development practice; to implement the initiative as firm part in curricula and seminars at German universities. Target group: students of all faculties in East German universities including Berlin

Information

http://www.giz.de/

Agroecology Basics

Leading Organisation

Swedish University of Agricultural Sciences (SLU)

Country

Sweden

Area of Interest

Teaching

Objectives

The course aims to provide basic and advanced knowledge and the ability to understand human-dominated ecosystems and their interaction/connectivity with the surrounding environment (natural and cultural), with the focus on agricultural systems.

Information

http://www.slu.se/en/education/courses/?kurskod=BI0904

Master Program Environmental Protection in Agriculture

Leading Organisation

University of Craiova, Faculty of Agriculture

Country

Romania

Area of Interest

Teaching

Objectives

Specialisation "Environmental protection in agriculture", aims primarily - by carrying out interdisciplinary studies – to develop specialisation licensed persons who have appropriate training in the field, according to the information and news that operate at international level.

Information

http://www.agro-craiova.ro

Master - Culture of Innovation and Sustainable Development

Leading Organisation

Alma Mater Foundation (University of Bologna)

Country

Italy

Area of Interest

Teaching

Objectives

The aim of the program is to provide knowledge and operational tools to design and to help create business innovation with a specific focus on the issues of environmentally sustainable design of products and services, through an interdisciplinary and professionalisation path.

Information

http://www.unibo.it/it/didattica/master/2011-2012/cultura_dell_innovazione_e_sviluppo_sostenibile

ARCTUROS Environmental Centre

Leading Organisation

NGO ARCTUROS

Country

Greece

Area of Interest

Practical experiences

Objectives

Having the conviction that the way to resolve environmental problems comes from the knowledge and the awareness, one of the fundamental objectives of ARCTUROS is the environmental education of children, citizens but also government owned institutions, with the aim to develop environmental conscience to all parts involved for the protection of wildlife.

Information

http://www.arcturos.gr/en/support.asp

Project "AOC-Van Hall Zonneboot": Project Participation Dutch Solar Boat Challenge

Leading Organisation

University of Applied Sciences van Hall Larenstein

Country

The Netherlands

Area of Interest

Practical experiences

Objectives

The main goal is to yearly develop and or innovate a solar energy boat and compete in the top 3 of the Dong Energy Solar Challenge (the yearly Solar Boat Challenge event in The Netherlands) with an 100% sustainable solar boot. Collaboration between higher education students and intermediate level students to practice future collaboration skills. Collaboration of students with representatives of SME's to enhance professional competences.

Information

www.vhlde.nl

SD Institution and Policies

Leading Organisation

Ministry of Ecology and Sustainable Development

Country

France

Area of Interest

Policies

Objectives

The Ministry of Ecology and Sustainable Development is the successor of Secretariat of State in charge of sustainable development which was established in May 2002. The horizontal nature of the actions associated to sustainable development are obvious. The policy implementation follows the following rule : Under the leadership of the State, all departments and devolved services, local authorities and civil society contribute to the sustainable development strategy.

Information

www.gouv.fr

Friends of the Earth – CEPA

Leading Organisation

Ministry of Ecology and Sustainable Development

Country

Slovakia

Area of Interest

Practical experiences

Objectives

Protecting the environment, promoting environmental, social and economic justice, supporting sustainable development of the regions and strengthening effective participation of citizens in decision-making processes linked with public interest issues. To achieve its objectives, the association seeks, supports citizens and provides educational, publishing, consultation and informational services.

Information

http://www.priateliazeme.sk/cepa/

Authors

Chapter 1 – Emilio Chiodo
Chapter 2 – Pedro Aguado (2.1), Francesca Valente (2.2), Adrian Bugeja Douglas, Everaldo Attard (2.3)
Chapter 3 – Emilio Chiodo
Chapter 4 – Emilio Chiodo (4.1), Adrian Bugeja Douglas, Everaldo Attard (4.2), Magdaléna Lacko Bartosová, Jean-Pierre Lemière (4.3), Christina Yancheva (4.4)
Chapter 5 – *The authors' name and affiliation are indicated in the footnotes of each form*
Chapter 6 – Emilio Chiodo

Evaluation and selection of the Good Practices:
Adrian Bugeja Douglas, Emilio Chiodo, Nagy Péter István, Magdaléna Lacko Bartosová, Jean-Pierre Lemière, Christina Yancheva

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