
СОЦІАЛЬНІ ПРОБЛЕМИ ОХОРОНИ НАВКОЛИШНЬОГО СЕРЕДОВИЩА ЛЮДИНИ

UDK 574.4

A. Gomera Martínez, M. Vaquero Abellán, A. de Toro Jordano,
J. E. Aguilar Moreno, C. Guijarro Jiménez

ENVIRONMENTAL MANAGEMENT AND EDUCATION AT THE UNIVERSITY OF CORDOBA

University of Córdoba, Spain

The main commitments and lines of action at the University of Córdoba (Spain) in environmental management and education through projects and strategies implemented by the Environmental Protection Service / Servicio de Protección Ambiental (SEPA) are presented. The SEPA was established in 2000 and began working to comply with the University's environmental policy, identifying areas for improvement in environmental management and education and developing measures to control the different environmental issues arising from university activities.

Thus, the SEPA aims to encourage among all members of the university community (workers, students and organizations), an environmental culture based on the responsibility to protect and improve the environment.

Key words: University, Environmental Protection Service (SEPA), environmental management, environmental education, sustainability, awareness, resources, waste, transport.

A. Гомера Мартинез, М. Вакуеро Абелан, А. де Торо Джордано,
Х. Е. Агуилар Морено, К. Гунджаро Ждименез

Університет Кордобы, Іспанія

ЕКОЛОГІЧНЕ УПРАВЛІННЯ ТА ОСВІТА В УНІВЕРСИТЕТІ КОРДОБИ

В роботі представлено основні обставини та напрямки діяльності Університету Кордобы (Іспанія) в екологічному управлінні та вихованні через стратегії та проекти Служби захисту навколишнього середовища (СЗНС). СЗНС була заснована та почала свою роботу згідно екологічній політиці університету, в 2000 р., встановлюючи області з покращення екологічного управління та освіти, а також за розвитком заходів контролю різноманітних питань щодо захисту навколишнього середовища, які підіймаються науково-дослідною діяльністю.

Таким чином, мета СЗНС – покращити екологічну культуру всіх членів наукового суспільства (співробітники, студенти, організації), яка основана на захисті та покращенні навколишнього середовища.

Ключові слова: університет, Служба захисту навколишнього середовища, екологічне управління, екологічне виховання, стійкість, компетентність, ресурси, відходи, транспортування.

A. Gomera Martínez, M. Vaquero Abellán, A. de Toro Jordano,
Х. Э. Агуилар Морено, К. Гуиджаро Ждименез.

Служба защиты окружающей среды, Университет Кордовы

ЭКОЛОГИЧЕСКОЕ УПРАВЛЕНИЕ И ОБРАЗОВАНИЕ В УНИВЕРСИТЕТЕ КОРДОВЫ

В работе представлены основные обязательства и направления деятельности Университета Кордобы (Испания) в экологическом управлении и образовании через стратегии

и проекты Службы защиты окружающей среды (СЗОС). СЗОС была основана и начала свою работу, согласно экологической политике Университета, в 2000 году, устанавливая области по улучшению экологического управления и образования, а также по развитию мер контроля различных вопросов, касающихся защиты окружающей среды, поднимаемых научно-исследовательской деятельностью.

Таким образом, цель СЗОС – улучшать экологическую культуру всех членов научного общества (сотрудники, студенты, организации), которая основана на защите и улучшении окружающей среды.

Ключевые слова: Университет, Служба защиты окружающей среды, экологическое управление, экологическое образование, устойчивость, компетентность, ресурсы, отходы, транспортирование.

Universities are increasingly aware of the environmental consequences arising from their research, teaching and administration activities. Like any other organization, a university uses a range of resources (energy, fuel, water, materials, etc.) necessary for the implementation of these activities. These activities generate, in turn, a large amount of waste products in the form of discharges, air emissions or waste. Likewise, transport used by the university community represents another important environmental aspect to take into account as for fuel consumption, gas and noise emission and associated waste generation.

The universities also are aware of their responsibility as Higher Education Institutions to transmit and extend environmental knowledge and values at a personal, social and professional level. If a framework of study that integrates environmental considerations is created, students will be more permeable and receptive to acquire environmental friendly values and habits and will be prepared to incorporate this responsible attitude in their future jobs. Therefore, the environmental protection in the university has two values: management and education.

THE UNIVERSITY OF CÓRDOBA AND THE ENVIRONMENT

The University of Córdoba is aware of this dual responsibility and is committed to act accordingly. In addition, the continued rise of interest groups that influence and put pressure in this area (companies, administration, financial institutions, media, society ...) facilitates and promotes a suitable framework for sustainability.

In its Strategic Plan 2006-2015, the University is projected as a "Centre committed to the environment, advocate for its preservation, for its quality and for the sustainable use of natural resources as a means of improving the welfare of society and quality of life of its environment". In order to achieve this, the University provides specific guidelines and strategies, such as the 'Declaration of Environmental Policy', a public document in which the chancellor as chief executive of the Institution expresses the commitment of respect and environmental responsibility in the sphere of the university. To implement actions that provide compliance with these commitments, the Environmental Protection Service (SEPA), a central organ of the university, was created. The SEPA, aiming to introduce the environmental factor in university management and to establish a culture of respect for the environment among its members, develops and promotes activities related to the environment and the sustainability in all areas and university units. These activities are aimed, firstly to identify and assess compliance with legal environmental requirements of the institution, and secondly, with the environmental improvement of the university activity within the various fields of competence of the SEPA.

MAIN ENVIRONMENTAL COMMITMENTS OF THE UNIVERSITY OF CÓRDOBA: SOME EXAMPLES OF HOW TO MAKE THEM EFFECTIVE

1. Studying and analysing the activities in the area of the University that are generating environmental impacts.

Any academic activity (teaching, research or administration) may be generating impacts of varying magnitude. For measuring and monitoring, the SEPA has established a

system of environmental indicators that provide regular information on resource consumption, waste production and mobility rates, among others.

2. Raising awareness, educating and informing members of the university community on environmental issues and management.

It is important to provide students with the necessary academic training and environmental awareness that will allow them to develop their future work and guarantee the support of a sustainable future of our society. In this sense, the University represents an area of great interest to develop tools to measure and analyze students' environmental awareness through various indicators relating to knowledge, attitudes, perceptions and behaviour, which in turn help to identify the main social groups present around this concept. An example of one of these measures is a study to design an instrument for measuring and monitoring the environmental awareness of the students of the University of Córdoba, which reflects the four dimensions that define this term and its relations:

- *Cognitive dimension*: the degree of information and knowledge on issues related to the environment.

- *Affective dimension*: perception of the environment, values and beliefs of students in environmental matters.

- *Attitudinal dimension*: students' attitudes compared to their environmental responsibility, willingness of students to adopt pro-environmental criteria in their behavior.

- *Active dimension*: production of environmentally responsible practices and behaviors, both individual and collective.

Also, it is aimed to define the possible levels of environmental awareness present in the university population, to analyse how they are distributed among the reference population, differentiating the potential social sectors as appropriate. This will result in the identification of the needs and demands in university environmental management and education in order to propose possible suggestions and solutions.

On the other hand, it is equally important to educate and inform all employees (government bodies, teachers, researchers, technicians, administrators) on the main environmental impacts of their activities, the procedures established to control them as well as the environmental responsibility and the 'added value', ie., having this training and being able to transmit it to the students.

3. Preventing pollution, both through improved waste management, discharges and emissions and their minimization.

The SEPA has set up selective collection programs of the majority of waste (hazardous and non-hazardous) produced in the UCO. Thus, workers and students may use different containers to ensure the recycling of this waste through delivery management companies approved by the Administration. Table shows the main lines of separate collection of waste generated in the UCO.

Main types and quantities of waste collected in 2009

Waste	Kgs. (2009)
Hazardous waste	16.700
Ink-jet and tonner	525
Batteries	550
Electric waste and computers	10.500
Confidential Paper	2.000
Cell phones	10
Urban waste: organics	4.200
Urban waste: plastic	129.500
Urban waste: paper	34.500
Urban waste: glass	17.000

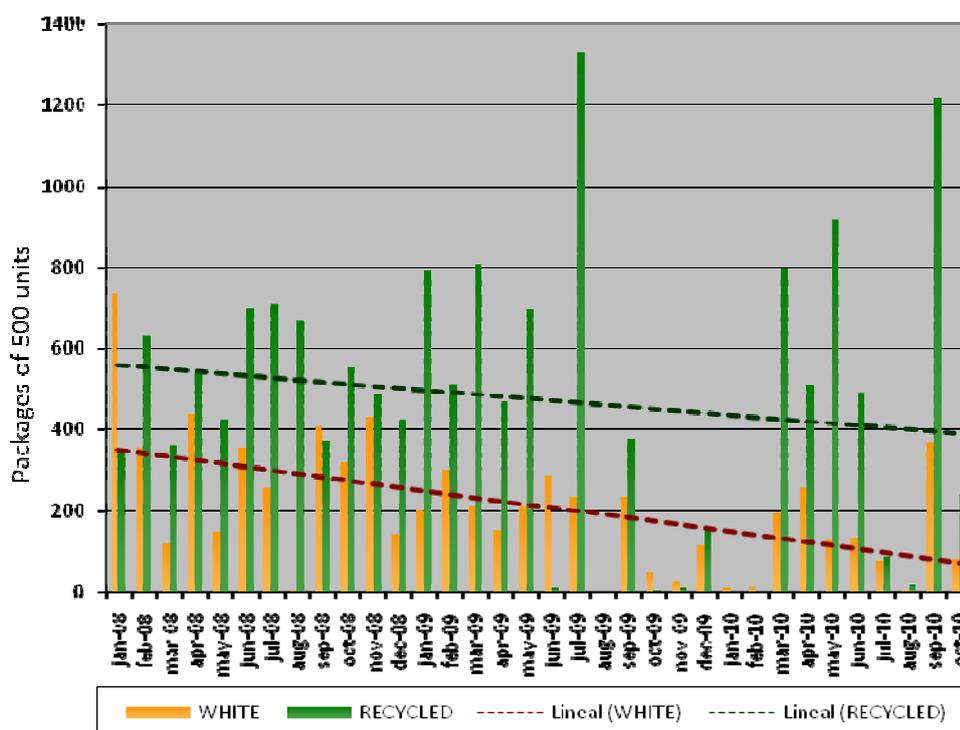
Waste production has grown from 2001 to 2009, when it has begun to stabilise. From 2011 a waste minimization plan will start in order to reduce waste generation where possible, improve environmental management and cost savings.

In addition, the UCO is beginning to analyse their carbon footprint, to assess the CO₂ equivalent emissions produced by their activities and raise awareness and management actions to reduce them.

4. Promoting energy conservation, water and raw materials.

The UCO has planned an Energy Efficiency Strategy that begins with energy and water audits, ie., revisions of the buildings that seek to detect deficiencies in electrical, lighting, air conditioning and piping systems and water supply reflecting an increase in spending, with a view to proposing measures to remedy these deficiencies and improve the efficiency and energy and water saving.

With regard to the most widely used material in the university, paper, the SEPA has developed a specific campaign to promote responsible consumption. The campaign includes both the dissemination of good practices to reduce its use whenever possible (opting for digital formats, using paper on both sides, etc...) as the introduction of recycled paper in the entire university. Recycled paper used follows all required technical and environmental specifications. As shown in Figure, the general trend of the use of paper is declining, and in almost all cases the recycled paper is consumed much more than white paper (the average is at 70% of recycled paper compared to 30% of white paper).



Evolution of white recycled paper and Consumption at the University of Cordoba (2008-2010)

5. Increasing the use of sustainable transport facilities.

Promoting more sustainable transport in the UCO is one of the biggest challenges of the SEPA. Two examples are a bicycle loan program and a website to share car journeys to college.

The bicycle loan program is a system which is available to students and workers so that they have access to a continued bike loan during the academic year both for traveling to work or study centres and for private use .Bikes are provided with a road safety kit (helmet, reflective vest, set of lights, etc.).

On the other hand, the idea of car sharing is becoming more widespread in large organizations (industrial areas, large companies, etc.). Everyday more than 7,000 university students and workers move to the different centers of the UCO in private vehicles, with consequent damage to the urban environment: emissions of greenhouse gases, fuel consumption, noise, jams, etc. However, in many cases people need to travel by car due to personal and working responsibilities and obligations, or, in some cases, to the limitation of public transport. In these journeys, the average occupancy of cars is very low, not reaching, according to SEPA estimates, more than two people per vehicle. For this reason, the SEPA has created the website www.uco.es/compartetucoche, a meeting place between people doing similar journeys by car, making the car-sharing deal easier. It is a free service for students and workers in the UCO, which aims to connect people who demand free seats in cars with those that can make them available to others in the movement to and from the different university centers.

CONCLUSIONS

Universities play a key role in the society. As Higher Education Institutions, they are responsible for transmitting knowledge, values and attitudes that contribute to students' comprehensive education, to train them for working life and to interact with the surrounding environment in an appropriate manner. This environment is damaged and is still being damaged due to human activity, the result of a social model based on the indiscriminate use of resources and generation of waste products which Nature, in many cases, is no longer able to assimilate.

The responsibility to minimize the environmental impact raises the need of appropriate environmental policies designed to implement a model of a sustainable campus. A basic mainstay of this model is environmental education. By making people aware of the environmental problems which they are part of and the possibilities for tackling them, environmental management objectives will be achieved in a much more effective way.

The University of Córdoba is strongly committed to integrating environmental criteria in its management. While there is still a long way to achieve this goal, the foundations are being laid: a institutional commitment to respect and care for the environment, creating a specific body on environmental matters, the Environmental Protection Service (SEPA), which counts on human, technical and economic resources to design and develop activities that give effect to this commitment. And last but not least, an assumed educational responsibility and some groups of interest around the institution that enable a favorable and promising framework to make an increasingly aware and sustainable university a reality.

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Надійшла до редколегії 25.11.10