

HUMANE

Heads of University Management & Administration Network in Europe

SEMINAR

Universidade de Coimbra

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Environmental Issues

Abstracts

Session 1

Maintenance and Rehabilitation of Built Patrimony vs Sustainability

Raimundo Mendes da Silva (University of Coimbra)

For many centuries the University of Coimbra (UC) has had a great impact on the town of Coimbra, where 20 to 25% of the population is directly involved in university activities (students, teachers, researchers, administrative staff, etc.).

The buildings and other facilities of UC totalise more 200.000 m² of built area; in the next years, it will be very close to 300.000 m², as a result of the construction of a new campus for Engineering and Medical Sciences, and of a major restoration programme for some of the old buildings that will probably take place within the next ten years.

The co-existence of historic and monumental buildings – which represent an important part of the historic town centre - with the most recent constructions, alongside facilities of different ages and performance levels, represents a major economic, functional and environmental challenge.

This presentation deals with these challenges in so far as sustainability is concerned. First, we refer to and discuss some of the basic concepts and different strategies of building maintenance and rehabilitation, as well as the sustainable principles applicable to construction activity.

Then, we make a quick “tour” around the buildings and campus of the University of Coimbra, showing how they can be grouped in seven categories according to their different needs in terms of maintenance and safety.

Finally, applying those selected concepts to two groups of buildings in the UC patrimony, we analyse the constraints and the possible contradictions that emerge, not only *between* the vertices of the decision-triangle “cost-quality-environment”, but also *within* each “vertex”.

Session 2

“LaboPlus: a database system for the management of chemicals”

Johann-Peter Schäfer, University of Siegen

The uncontrolled storage of chemicals and the resulting stocks of substances are significant risks which are connected with chemical laboratories. Efficient tools

are required to get and to keep these stocks under control as well as to prevent their inappropriate growth. Due to the lack of satisfying products, the University of Siegen together with Merck KGaA developed a software tool to meet the mentioned goals.

The main features of the development are an easy handling system which enables also users who are untrained in computers to work with it, the incorporation of practice-relevant aspects and a modular system. The latter allows the user to handle only those modules he wants but without loss of the basic functionality. In this presentation the main aspects of the system will be illustrated.

Session 3

Environmental issues in Universities:

a) Italy

Giuliana Zotta Vittur (SISSA, Trieste), and Giovanni Andreotti, University of Pisa

In various HUMANE seminars on Environmental Issues, the situation in Italian universities in relation to this subject has never yet been presented. In this presentation we shall give a brief outline of “Space Management”, “Waste Management” and “Environmental Management”. In particular we will use the University of Pisa – of which Paolo Andreotti is the Administrative Director – as an example of what is happening in Italy.

The University of Pisa can be defined as a “city campus” in as much as it represents a model of total integration between the university and the city: it is enough to consider that in a city with a population of about 90,000, the university has 50,000 registered students! As often happens in Italy, many of the buildings belonging to or being used by the university are old and of considerable architectural and historical interest. As a result the university has proposed a policy of coordination with the local government authorities (town, province and regional councils) to optimize the relationship between urban and social structures and to limit interference with the eco-system of the area.

b) The Netherlands

Betty de Keizer, Environmental Manager, University of Amsterdam

This presentation will examine the state of affairs of environmental management at Dutch universities in general, and the University of Amsterdam (UvA) in particular, with a special look at the issue of integration with other management fields (like Health and Safety) as well as teaching and research activities. The “red thread” running through the presentation will be the need for co-operation between universities from all over the world to share knowledge and experiences together.

Session 4

Government Environmental Policies and Universities: The Helsinki Case

Kari Suokko and Toivo Vainiotalo, University of Helsinki

1. Government Environmental Policy and Impact on Finnish Universities

The Council of State has set the objective that the principle of sustainable development shall be incorporated into the everyday activities of all Finnish universities, including purchases, waste management, energy consumption and traffic arrangements. In 1996, the Ministry of Education called on all universities to promote sustainable development in their work practices.

According to this survey and other available information, by the end of the 1990s almost all universities had prepared a program for sustainable development, focusing on energy and other forms of consumption, waste management, and commuting. Some universities have already adopted ISO 14001 in their environmental management procedures, and most universities have implemented a special waste management plan. Sustainable development programs are also considered an exemplary model for students and staff, and documents about sustainable development are available on the homepages of almost all universities.

Every four years, the Finnish Government approves a Development Plan for Education and Research, which is prepared by the Ministry of Education. According to the latest development plan, *Education and Research 1999-2004*, "the principles of sustainable development will be taken into account in the educational provision and other activities of different school forms."

2. Environmental Strategy of University of Helsinki

Since 1997, the University of Helsinki has been committed to following the principle of sustainable development in all its activities. In December 1997, a working group was appointed to draw up a strategy of sustainable development. A preliminary environmental audit and the preparation of the practical aspects of the strategy were assigned to the Department of Limnology and Environmental Protection. The aim was to translate the principles of sustainable development into concrete measures of action. A proposal for a strategy of sustainable development was approved by the University Senate in 1999.

The preliminary audit conducted by students revealed no major flaws in the observation of environmental norms and regulations. Active students and members of staff have, in fact, contributed in many ways to steering the University towards sustainable development. However, there still is room for improvement in all areas of operation, and the implementation of the principles of sustainable development requires continuous commitment and systematic work.

The strategy of sustainable development focuses mainly on ecological sustainability, but economic, social and cultural impacts have also been taken into consideration.

The aim is to reach the teaching and research objectives of the University while consuming less material and energy and reducing waste and emissions.

Environmental management will be adopted as part of University administration step by step. The responsibility for the implementation of the strategy programme is divided between administrative departments, and an environmental team has been created in the Administration Office to coordinate cooperation between the departments. The aim is to design an environmental management system during the next 5-10 years that could, if necessary, be certified on the basis of the ISO 14001 or EMAS standards.

Environmentally adverse operations at the University have been classified into ten categories. The most significant environmental aspects are purchases, traffic, building, waste management and consumption of paper, energy and water. Systematic efforts are being made to reduce the environmental impacts of all categories, and the University has the ambitious goal of putting into practice 28 concrete environmental measures by the year 2005. A set of indicators will be used to monitor the achievement of environmental objectives.

The University has carried out the following measures: instructions for purchases have been revised in accordance with environmentally responsible practices, environmental training has been arranged for persons responsible for purchases, the University has participated in a national energy-saving week, parking fees have been introduced, environmental instructions for staff coffee rooms have been issued and the recycling of construction wastes and computer junk has been improved.

3. Examples of environmentally good practices in the University of Helsinki

The University of Helsinki uses some 400 buildings (floor area 390,000 m²), with very significant energy consumption. The Technical department has committed itself to environmental friendliness, especially energy saving. Energy consumption can be influenced through technical decisions taken at the investment stage and through maintenance and use procedures. The finding of new solutions that are economical and environmentally friendly from the life cycle point of view has required the evolution of procedures related to property development, maintenance and use.

The life cycle tendering procedure was developed in the Viikki Info centre project, where it was first applied. The life cycle tender involves a competitive tendering procedure for a contract that includes both design and responsibility for maintenance. In the case of the Viikki Info centre, the life cycle tender applied to the mechanical services installations; the tenderer undertook maintenance responsibility for a period of five years, including liability for energy consumption in excess of the goals set, plus care, maintenance and repair costs.

We shall look at some of the technical design features which contributed to excellent results in terms of energy conservation, with heat consumption about a quarter of the normal figure for a comparable building, and generally low electricity consumption.

Environmental management systems (EMS) in Swedish central government authorities

Staffan Sarback, University of Luleå

The aim of Swedish environmental policy is to protect human health, to safeguard long-term good management of natural resources and to protect natural and cultural environments. Environmental management systems are useful tools in implementing this policy.

In Sweden, we have a system of relatively small ministries and many, sometimes large, government authorities. The ministries lay down the overall tasks and spending of these authorities. Since 1997, 243 authorities have been assigned by the government to introduce an environmental management system..

All authorities have some impact on the environment, for example through energy use, travel, waste handling and procurement. Many also have a more indirect effect on the environment through their operations. In practice, the path to implementation of environmental management systems in an authority is as follows:

First of all, an environmental *impact assessment* is carried out to identify current environmental aspects and impacts associated with the organisation's processes. On the basis of this, an environmental *policy statement* is developed, with environmental *objectives and targets* that describe the aim of the organisation's environmental work. This is followed by an *action plan*. Responsibility and authorisation for environmental measures is distributed within the organisation. Staff training and routines for both the internal environmental work and external contacts are developed. After a period, there will be a *follow-up* of the environmental performance, often by way of an internal audit. The results are summarised in an environmental *progress report*, which is then used as the basis for *improved* environmental work. The follow-up procedure serves as a reminder and ensures that environmental work is effective. Too often, activities are planned and carried out without any form of follow-up.

An effective environmental management system requires an active management of the authority or organisation. This also includes the requirement for an annual progress report. This presentation will look at some of the motives and obstacles presented by authorities, and also the indirect effects, defined broadly as *exercise of public authority*, i.e. general guidelines, and *dissemination of knowledge* and *collaboration* i.e. international work, collaboration with authorities, the public and the private sector.

The presentation will include some examples of measures carried out by the Swedish Environmental Protection Agency, both with indirect effects (e.g., establishing a quality control system for the operations), and direct effects such as developing routines for the agency's transport with bicycle messengers and ethanol fuelled car (eco-car), reducing 80-gram copying paper with 75-gram, or changing screen-settings on all PCs. These apparently small measures have been shown to have large cumulative effects.

Session 5

The Contribution of Universities to Sustainable Development – the example of Karlsruhe

Mr. Ulrich Becksmann, Karlsruhe University (Environmental Research Centre)

With its various buildings, the University of Karlsruhe forms a district all of its own. About 4,000 employees and more than 15,000 students live, study and work on campus. Such an organization causes considerable movements of materials and traffic.

Due to a strong emphasis on engineering and natural sciences, the consumption of energy is high and causes considerable costs. Building services engineering and efficient and conscious use of electrical energy offer possibilities of saving energy and money. Connecting the university to the district heating network contributed considerably to the protection of the environment. Energy-saving techniques and installations are applied in new buildings. The state as a builder and financier could and should set an even better example with energy-saving and environmentally sound constructions. The Environmental Research Center for example has taken steps in order to develop an energy management which will later have an impact on the whole university.

Being important multipliers through research, training and transfer of knowledge, universities play an important role in encouraging sustainable development. The Europe-wide charter "COPERNICUS" wants to persuade universities to fulfil this task and to oblige them. The EU offers assistance with the new eco-audit guidelines EMAS II. A number of German universities have already been certified or are currently being certified. The Environmental Research Centre is starting with small steps applying a bottom-up strategy.