



Environmental Management Systems (EMS) implementation processes and practices in European higher education institutions – Top-down versus participatory approaches

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ABSTRACT

Environmental Management Systems (EMS) have been implemented on a large scale to improve companies' environmental performance and to certify their achievements. More recently, universities are following this trend, which has been brought forward by the debate about campus sustainability. This empirical international research investigates EMS development and implementation processes in universities around Europe, providing an overview about European higher education institutions with EMS implemented at their campuses, and focuses on a comparison of top-down versus participatory implementation approaches. In addition to regional differences, this article discusses in which aspects an EMS at the campus can be seen as a tool that goes beyond operational aspects to tackle campus sustainability. Furthermore, it provides implications for the professional practice.

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1. Introduction

An increasing number of companies and institutions have become aware of their environmental impact, together with their social and environmental responsibilities. Environmental Management Systems (EMS) have been implemented on a large scale to improve companies' environmental performance and to certify their achievements. Although these tools have primarily been used by industries and corporations in the private sector, more recently organizations in the public sector and educational institutions such as universities have begun to use this certification process as well. They aim to reduce their environmental impact and, with special regard to universities, to embrace the 'environmental imperative', as named by several authors, and to integrate systemically sustainability into higher education institutions

(Adomssent et al., 2008; Cortese, 2003; Hansen and Lehmann, 2006; Lozano, 2006; Sharp, 2002; Weenen van, 2000).

In light of the complex challenges today's world is confronted with, universities have been attributed a twofold mission: Firstly, universities are called on to reduce their environmental impact as operating institutions, caused through direct activities, e.g. the use of classrooms and laboratories for teaching and research, offices and catering within the provision of management, administration and support services, and indirect actions, e.g. commuting and consumption of food and drink by the university's community. Secondly, they are called up to carry out research and teaching in the field of sustainability, and on creating settings that allow students and staff to develop new competencies that lead to more sustainable practices and finally to a more sustainable society (Alshuwaihait and Abubakar, 2008).

Campus sustainability links both – the operational aspects of teaching, research and institutional administration, like reducing energy consumption, emissions, materials, waste, and improvement of waste management, – as well as the educational aspect of teaching sustainability and providing opportunities to its internal and external community to learn, to reflect and to develop new

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practices and life style concepts that take into account the well-being of current and future generations. According to Cortese (2003), a university system consists of four dimensions, namely Education, Research, University Operations and External Community, which often have been seen as separate, based on hierarchical and competitive structures. But in order to develop a vision for a sustainable campus, he argues that it is necessary to understand the interdependence among these dimensions and to increase the collaboration between them, “as all parts are critical to achieving a transformative change (ibid.) Lozano (2006) adds a fifth dimension of “Assessment and Reporting” that should be considered in an ongoing manner. Departing from the point of view that EMS at the campus can have an impact on any of the dimensions described above, the paper aims to investigate aspects beyond the operational dimension to which EMS are usually connected because of their focus on quantitative measurements of environmental performance. Case studies (e.g. Ferreira et al., 2006; Nicolaidis, 2006 and Sammalisto and Brorson, 2008) show that EMS at the campus can be used in a broader sense beyond campus operations, blending also the dimensions of education, research, relationship with stakeholders identified by Cortese (2003) as well the continuous strive for improvement through assessment and reporting, identified by Lozano (2006). However, EMS at the campus are still a relatively sparsely chosen initiative in spite of the positive examples listed above. Concrete numbers are unknown since neither a national nor global register exists. Due to the specific structures and characteristics of higher education institutions it may even be questionable if EMS at the campus indeed successfully work, when looking at studies about barriers to campus greening (e.g. Dahle and Neumayer, 2001; Lozano, 2006). Therefore, this research was motivated by the interest to find out concrete numbers of existing EMS at the campus, the drivers for their implementation and to compare top-down versus participatory implementation approaches that would allow discussing their impact on the five dimensions of a university system described above. It was chosen to focus on the European academic landscape only, in order to be able to make a more profound comparison of regional differences than it would have been on a global scale.

The research objectives led to the following main research questions:

- (1) What is the current state of EMS implementation processes and practices at European universities?
- (2) Which are the main drivers to implement an EMS?
- (3) How have the EMS been implemented and how have students and staff been involved in the process?
- (4) Which measurement and reporting tools have been used?
- (5) How can these processes and practices be developed further and which implications exist for the professional practice?

Besides regional differences, this article discusses if an EMS at the campus can be seen as one tool beyond operational aspects to tackle campus sustainability, and provides implications for the professional practice. The results of this study shall contribute to the discussion about how sustainable development can be integrated in higher education institutions and specifically how EMS can improve campus sustainability.

1.1. Sustainable development and the role of universities

Due to their high societal impact, universities are challenged to take a leadership role in sustainability issues. As universities educate the next generation of decision-makers and influencers, universities can have a vastly greater impact on sustainable

development than any other single sector of society (Chambers, 2009).

The debate about campus sustainability has grown over the last three decades. Several international conferences and declarations are proof of this growth (e.g. The Stockholm Declaration (UNEP, 1972), the UNESCO conference in Tbilisi, Georgia (1977) (UNESCO, 1977); the Talloires Declaration (1990) (ULSF, 2008), the Earth Summit (1992) in Rio de Janeiro and the Agenda 21 with its chapters 35 and 36 (UNCED, 1992), the “Copernicus Charter” (1993) (Copernicus Alliance, 2010)). These have all been significant steps in spreading the discussion about the role of universities as multipliers for sustainable development and how the objective of integrating campus sustainability can be approached (Chambers, 2009; Cortese, 2003; Nicolaidis, 2006). They led to an increasing number of campus initiatives in this field that also got promoted by the Decade of Education for Sustainable Development 2005–2014, proclaimed by the UNESCO (UNESCO, 2010).

Three stages of sustainability implementation at a university have been identified (Leal Filho, 2009): Stage 1, in which the principles of sustainable development are not integrally understood and no strong efforts were undertaken yet towards promoting sustainability at the institution; systematic projects or a holistic approach are still lacking; Stage 2, in which significant efforts towards sustainable campus operations have been realized, the principles of sustainable development are broadly understood and projects exist to promote sustainability as a whole or in the context of specific subjects and/or research; Stage 3, in which the university has fulfilled the requirements of the previous stages and has a long-term commitment towards contributing to sustainable development, e.g. by means of sustainability policies, and/or by means of certification (ISO 14001 or EMAS), and by means of the existence of senior staff members in charge of the coordination of sustainability efforts and projects. EMS can therefore be seen as a proof of an institution’s process in following sustainable principles, and as a sign of the institution’s orientation towards incorporating sustainability at an advanced level.

1.2. Public participation

Promoting sustainable development is closely linked to the field of public participation and citizen involvement. *Participation* and *empowerment* are two terms associated with the development of key competencies for sustainable development. The first term means that “individuals must be provided with numerous opportunities throughout their lives to acquire the information and skills necessary to enact the citizen role” (Howell et al., 1987); the second describes a multidimensional process of learning to think critically and to effect change in the personal life and in the community. Particularly the latter aspect calls on citizens to be personally involved in the decision processes (Florin and Wandersman, 1990).

Agenda 21 stresses the importance of public participation as a “fundamental pre-requisite for the achievement of sustainable development” (UNCED, 1992). The governance strategy “Citizens as partners” of the OECD countries and the Aarhus Convention, approved by the United Nations Economic Commission for Europe in 1998 are aligned with this approach (OECD, 2001; UNECE, 2001).

Regarding the link between sustainable development and public participation, several advantageous aspects have been identified (Meadowcroft, 2004): (i) reconcile and redefine individuals’ and groups’ interests, (ii) contribute to shaping the future and (iii) adjust to impending change. Furthermore in terms of normative values and learning, participation allows (iv) facilitating a more complete disclosure of existing attitudes, (v) juxtaposing different approaches, (vi) promoting the integration of knowledge and the adaptation of governance to cross-cutting contexts relevant to

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