

IMPROVING MANAGEMENT OF SUSTAINABLE DEVELOPMENT IN UNIVERSITIES

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Abstract: *This paper aims to improve the implementation of sustainable development principles in universities. The study's specific objectives are: making a comparative analysis of models to evaluate and implement the values of the sustainable development in university; presenting a model for the management system of sustainable development in university. The study is based on data from the literature on the implementation regulations and status of sustainable development in universities and a case study. The analysis concludes with the presentation of major axes of action for a more systematic approach to specific issues of sustainable development management in university.*

Key words: *Sustainable development, Education for Sustainable Development, University Management System for Sustainable Development.*

1. Introduction

The concept of “sustainable development“ (SD) was defined in „Our Common Future”, the landmark report of the World Commission on Environment and Development, as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” [22]. Although it has appeared in connection with the environmental problems, the meaning that the concept is given today is broader, including ecological, economical

and social aspects [7].

The education is the field where the concept of SD is more and more applied, the most used collocation being Education for Sustainable Development (ESD) [4]. In higher education (HE), which this paper is related, promoting SD values is considered to be a strategic axis of each HE institution, materialized under specific forms in all three dimensions of their mission: education, research and services for community.

Considering the importance of this approach, there have been developed

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strategies, policies and guidelines that are presented in the documents elaborated within the framework of European and international programmes and networks. Starting in 1990, university representatives convened several conferences around the world and produced a series of European or internationally recognized declarations focused on Higher Education Sustainable Development (HESD), such as: the Copernicus Universities Charter on SD (1994), the Luneburg Declaration on HE for SD (2001), the Ubuntu Declaration on Education and Science and Technology for SD (2002), the Graz Declaration on Committing Universities to SD (2005) [5].

Copernicus-Campus – as the European university framework for SD, is taking up leadership in the European HE area, to mobilize universities around the theme of sustainability [13]. Another important initiative, which addresses SD in HE, is the strategy of the United Nations Economic Commission for Europe (UNECE), and respectively the program Decade of Education for SD (DESD) (UNESCO, 2005) [21].

All of these documents and guidelines have determined major changes in HE, towards the implementation of the SD values. The action ways and the results of these processes are summarized in numerous studies and reports.

So, in 2009 was published the DESD Global Report Learning for a Sustainable World [18]; this mid-Decade review reports the difference between regional ESD strategies, and illustrates also the progress made and obstacles encountered during the first five years in establishing strategies and mechanisms that support the development and implementation of ESD.

Numerous other studies and reports concerning ESD are presented in the

literature and on universities websites. As a general remark, the authors appreciate that the stage of SD implementation in universities is moderate.

Thus, in his study [3], W.L. Filho states that even though over 600 universities worldwide have committed themselves towards sustainability by signing international agreements, and several thousand of them are pursuing matters related to SD on an ad hoc basis, many of them have not succeeded in fully implementing the principles of SD into practice due to a combination of reasons, varying from lack of institutional interest, to limited resources or staff involvement.

Several studies, based on the analysis of universities' websites, show that, although there is a wide interest and observable measures of certain universities to reduce the effects of their actions on society and environment, there is a lack of clear understanding of the possibilities of implementing SD principles in universities. Even in countries which do well in national comparisons related to sustainability, like Sweden or USA [2], [6], [10], universities are not working with SD to the extent that could be expected considering the university law.

Similar conclusions regarding the low level of the implementation of SD values in universities are formulated in the study on the HE in Romania [8]. The results of the study state that the main obstacles in implementing the concept of sustainability in Romanian HE are: lack of financial resources, no communication or ineffective communication between the organization's structures, lack of a favourable organizational culture, backward mentality of the people, and inertia or resistance to change.

2. Aims and objectives

Considering the essential role of HE in promoting SD, the present paper aims to contribute to the improvement of the implementation of SD values in universities, by appropriate management tools. The study's specific objectives are: comparative analysis of SD implementation and evaluation models; defining a model for SD management system.

The methodology of the study consists on a systematic analysis of the approaching ways of SD in universities, based on scientific studies. Research includes also a case study approach of sustainability in one university.

3. Evaluating the approach of SD in universities

The methods of approaching sustainability by academic institutions vary very much. The most important differences, revealed by several researches/studies are presented below.

a) In terms of issues considered, some universities focus their efforts on reducing the environmental impact of their operations, while others focus on integrating SD in the curriculum and/or in the scientific research. While the manner of defining and approaching sustainability within university is very different, reflecting cultural, economic and political diversity, most of the documents/papers highlight the following significant areas of the ESD in universities [11],[12]:

- **Policy, planning and administration:** this topic addresses the mission, policies and planning on SD, the communication processes, administrative

positions and committees, SD audits, assessment and reporting.

- **Research:** encourage research on SD issues for resolving society's problems, and for developing new methodologies/models and tools for approaching economical, social and ecological problems in a sustainable manner.

- **Teaching:** the integration of the SD concepts in curriculum across all disciplines, so that future HE graduates develop new attitudes and skills necessary for SD.

- **Services and collaboration with the community:** supporting sustainability efforts in the communities, working with local authorities and civil society to foster more livable, resource-efficient communities and socially inclusive, and have small environmental footprints.

- **Internal environmental work:** actions focused on reducing the effects on the environment of university's activities and encouraging more sustainable lifestyles.

b) In terms of implementation methodology of SD in universities, there are two different strategies: incremental and holistic integration [13].

- **Incremental integration:** in this case, university starts with one project that creates awareness and visibility of pertinent issues, and then progressively evolves to encompass other functions of the ESD.

- **Holistic integration:** was adopted by universities situated in cities that took sustainability very seriously. This meant that a reinforcing cycle of sustainability activities between the city, the university, the staff, the citizens and the students was established.

c) The assessment methodology of SD level is very important for continuous

improving of SD results in university. From this point of view there are several models, some of them will be presented.

So, Agenda 21 (action plan of the United Nations with regard to SD) tends to be complemented with a set of indicators which make it possible to monitor whether the proposed measures actually lead to achieving the strategic targets, and thus to a change in a given aspect of reality [5].

In some countries there are used standard methodologies of SD assessment. One example is the College Sustainability Report Card (2011) [17], applied to evaluate the environmental sustainability efforts at 322 schools in the United States and Canada. Four surveys were designed to gather information about sustainability in campus operations, dining services, endowment investment practices, and student activities, a total of 52 indicators being used to evaluate performance within these categories. Likewise, some universities periodically elaborate plans and reports at institutional level, such as: University College London [21] and Princeton University [16], these being only two examples.

STARS (Sustainability Tracking, Assessment & Rating Systems) is a model developed by the Association for the Advancement of Sustainability in HE, in order to offer a framework for assessing their own performances in the field of sustainability, as well as creating a common standard of evaluation [15]. The STARS criteria include the environmental, economic and social indicators of sustainability, which are divided into three categories, related to: Education and Research; Operations; Planning, Administration and Engagement.

AISHE (Assessment Instrument for Sustainability in HE) is an evaluation tool

developed by the Dutch Foundation for Sustainable HE, which assists universities as consultant for measuring the success of integrating SD [10]. The AISHE is an assessment model based on processes, and consists of 20 different „criteria”, especially regarding educational aspects, measured by a quantitative method.

4. Model for SD Management Systems in Universities

The previous analysis shows that there are no unique patterns of action, and that there are not generally used instruments for implementing SD values and for evaluating the results. Elaborating unitary models could help improving the effectiveness of university approach for SD, and controlling the implementation of the programs developed at international, regional and national levels.

The model proposed in this paper is based on the idea that to be applied, SD principles should be reflected in the university's strategy and objectives, and there should be defined responsibilities and developed appropriate processes to achieve the objectives and to control the activities and the results. In addition, there should be provided the necessary resources, the training of human resource being one of the key success factors.

In the above description there are mentioned the main processes for achieving SD, shown schematically in Figure 1. System configuration has to be harmonized with the ISO 9001 model for quality management systems [14], which promotes an approach based on processes. The figure shows three distinct processes: management processes, core/basic processes and support processes (for ensuring resources).

•**Management processes** include: developing policies on SD, defining general axes of action and overall/general objectives; planning SD system; establishing responsibilities; defining communication processes; analyzing SD activities and results.

Through these processes the coordination at senior management level is ensured, essential for the successful implementation of SD and for achieving long-term benefits. The major role of senior management is to achieve behavioural changes so that SD would be integrated in the everyday life of the university.

Policies and general objectives underlie the planning of organization activities for shorter periods of time, including the projects on which depends the achievement of strategic objectives. The extent of the changes and of the objectives level should take into account the available resources and the cultural particularities of the university.

•The **basic processes** relate to the activities that contribute directly to the achievement of the established targets.

Considering the world experience on the integration of SD in universities, the model proposed in this paper associates the basic processes to four directions of action concerning SD in HE: development of student’s skills; scientific research of problems associated with SD; joining and supporting the efforts for sustainability of the socio-economic community; campus sustainability – resource management.

•**Resources management** is presented in Figure 1 as a distinct block, being associated to processes that ensure the necessary resources for the activities related to SD. In this context, human resource plays a very special role, and requires staff training and skill’s assessment, in terms of sustainability.

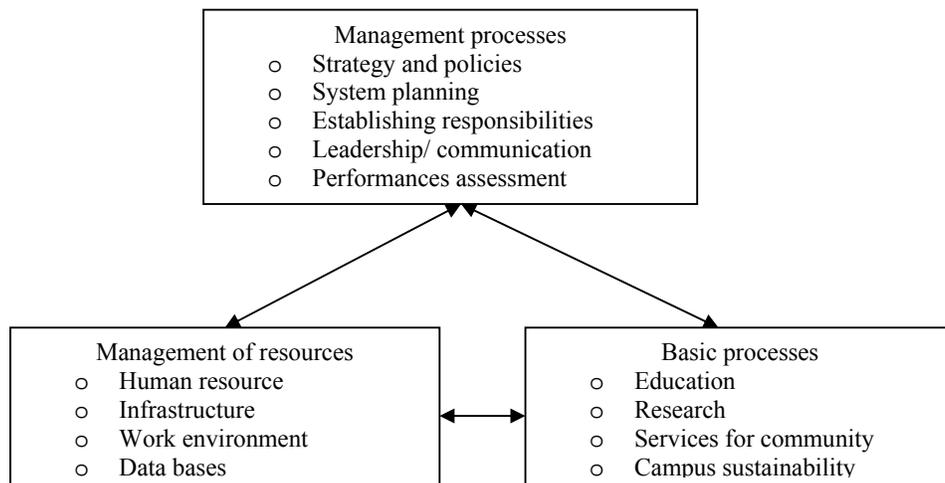


Fig. 1. *Management System for Sustainable Development*

•The structure of the management system described above has a similar configuration with the one presented in the model ISO 9001- Quality Management System. The analogy with the international standards of quality has several motivations:

1) Promotes the principles and the requirements of modern management, which can be applied in any field, as: the system approach, leadership, staff involvement, approach by processes, continual improvement. The implementation of the PDCA mechanism (plan – do – act – check), both at organization level and in change projects or repetitive processes – represents the essence of a well done management.

2) the implementation of SD in connection with quality assurance and other principles of Bologna process. SD can be considered a component of the university management system, which is associated with new requirements more severe, on harmonizing economical development, human conditions objectives and the protection of nature.

3) the harmonization of the SD approach with the quality assurance creates the framework for the development of integrated systems, which includes specific management tools of other models applied in European universities (ISO 9001, ISO 14001, EFQM etc.).

Finally, there must be emphasized the need for introducing criteria and measurable indicators that allow the results control and the planning of activities related to sustainability, for each of the four major axes of SD. The indicators of the assessment models mentioned above (at §2) and good practices can be a reference in solving this problem, but setting indicators and performance

standards remains a problem of each university.

5. Case study

The case study refers to Transilvania University of Braşov and it is based on the model presented above, concerning the management of the SD actions. The approaches associated with the four axes of action are analyzed distinctly, including management processes. The assessments primarily aimed the management tools that are used; the analysis of results is limited to qualitative assessments.

SD has been defined as strategic axis of the university's development since 2007, by implementing SD values in the scientific research. For 2007-2012 the assumed areas of research are related to sustainability issues: renewable energy systems an energy efficiency; conservation and capitalization of natural resources; health and quality of life; education, culture and communication. The research results contributed to the promotion of sustainability in the other services provided by the university – such as training and services for community. Also, actions for the campus sustainability, focused on the use of renewable energy have been made. University's strategy for 2012-2016 [19] continues to pursue the SD values promotion, setting clear objectives in this regard.

For each of the SD dimensions have been launched projects and programmes for the improvement of the activity, both at university and faculty levels. The actions are coordinated at a higher level, the responsibility for the SD approach being associated with senior management (rector and vice-rectors).

From the perspective of a management system for SD, lack of control mechanisms for the sustainability results, can be considered a weak point. So, although inside the university can be observed the concern for sustainability and there are appreciable results on SD, they are poorly known in the absence of appropriate tools and methods for promoting and measuring progress. This shortcoming is found on each of the four axes of materializing SD in university.

Thus, in terms of education, the preliminary analysis [1] reveals that there is a visible progress in the last years, but there are no indicators to measure the degree of integrating SD issues in the curriculum.

Changes that have been made in curriculum relate to the ongoing process of renewal and modernization of the study programmes. The decisions of introducing new programmes and modernising the existing ones were based on market requirements, the need of harmonizing the university curricula with the European ones and to improve the internal resources efficacy; also, it was taken into account the development of study programmes lines at Bachelor-Master-Doctorate degree, on areas in which excellence research is based on the university's resources. This policy has had significant impacts on the quality improvement of study programmes, and on the integration of SD into education.

Scientific research is the university's area in which the SD orientation is the most visible and obvious. Ongoing projects and partnerships are visible on university's website that highlights the university involvement in solving problems associated with SD. From the perspective of integrating SD in research, the weak point is the lack of information on the

amount of the projects and the events related to SD and the insufficient promotion of the results of these actions. The same remark can be made on university participation in the local community to promote SD. A registered progress is represented by the introduction of the university's newsletter, since 2012, but this form of promotion does not provide the necessary information for university's management in order to measure the progress in implementing SD.

Physical aspects – energy and water resources, buildings and terrains, wastes etc. – refer to the university actions with direct effects on the environment. In this area, there are some achievements regarding the use of alternative energy resources, the collective selection of waste, etc., but there are still problems in the effective operation of the system, related to the behaviour of the academic community members. To these aspects is added the concern for the enhancement of effective use of university's buildings, which are the subject of a series of projects for the rehabilitation and modernization of the patrimony.

There are concerns, likewise, regarding improvement of the life quality in university, by promoting inside the university a favorable climate for human resource training, development and motivation, this being one of the strategic objectives for 2012-2016. The economical aspects, also, are references in the decision process at all levels, there are specific structures and tools developed for planning and controlling economic resources. These issues are associated to management processes and are analyzed systematically at the assessment of the institutional quality and study programmes.

5.1. Key results

The present paper can be a reference for the improvement of SD approach in university, based on formal policies and systematic actions. Priority issues to be solved are the following:

- Management: defining the management system for SD and the addressed SD areas; developing tools for SD planning and control; clarification of the connection between SD and the quality system of the university;

- Education: evaluating the share of the SD issues in curriculum and in the study programmes conducted within university; introduction of specific assessment tools regarding student skills in SD;

- Research: improving tools for SD assessment in the research activities (projects, publications, events) and the significant results dissemination, too.

- Relations with the economic and socio-cultural environment: developing urban and social studies considering the campus-city relationship for establishing policies and specific objectives to ensure their cohesion;

- Resources: developing policies and plans relating to continual development of the management tools for improving: the use of energy and water, the selective collection of the waste, the financial planning and risk analysis, the social framework and human resource motivation etc.

Research results also indicate the need to introduce regulation and measurement indicators of sustainability at national level, for the effective implementation of SD principles in daily activities of HE institutions.

6. Conclusions

Although there are many programs and documents relating to the implementation of SD principles in universities, this process also involves difficulties. The paper emphasizes on the completeness of the process and the decisive role of university leadership in creating adequate management tools. The authors propose a model for SD management system, harmonized with the quality system of the university.

The proposed model is the basis of the case study conducted by the authors and summarized in the paper. The analysis highlights the strengths and weaknesses, providing useful information for measuring progress and continuous improvement of university performance on SD.

Priority of action must be given to introducing criteria and measurable indicators that allow results control and the planning of activities related to the university sustainability. In the authors' opinion, setting indicators and performance standards is an important problem of each university. The assessment and communication of the results on the implementation of SD in the university, using periodical reports is also a very important aspect to be considered.

It is envisaged broad involvement of students in these processes, thus ensuring, and in this way, the development of students' skills in SD: defining coherent programmes of action will allow the increasing of student's involvement in solving problems, through dissertation/licence project and other projects and programmes. It also required awareness of all categories of employees, by participating in training programs related

to SD issues and by evaluating personnel's skills and attitudes, this being an important aspect.

The novelty brought by this paper is the approach of the SD management in a more formalised manner, based on PDCA mechanism, in connection with the quality system of university.

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