

DEVELOPING ENVIRONMENTAL COMPETENCE

LÁSZLÓ BERÉNYI¹

University of Miskolc (Hungary)

ABSTRACT

Achieving a higher level of sustainable development is an increasingly important issue. Developing environmental consciousness on individuals and organizations can be successful only on a stable methodological base. This task is feasible with the support of competence management. The paper summarizes a comprehensive model for evaluating environmental consciousness that provides the necessary frames and empiric results of analysing the environmental management tools and the organizational size. This research was carried out as part of the TAMOP-4.2.1.B-10/2/KONV-2010-0001 project with support by the European Union, co-financed by the European Social Fund.

KEYWORDS: *environmental management, consciousness, organizational development.*

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Introduction

Achieving a higher level of sustainable development is an increasingly important issue. There are several theoretical models and practical tools but the realization is difficult because of the various characteristic of the stakeholders. Organizations are both producers of goods and employer so they have a dual role and responsibility in sustainable development. Interests and values shall be harmonized with the development possibilities in an effective way.

Establishing the suitable management tools and development program needs a comprehensive approach that covers both the process and content; and allows coordinating the individual and organizational aspects of the problem. Expanding the interpretation of the competence to organizational level gives new opportunities for researches. Competence management includes tools for identification, exploitation and development of knowledge, ability and skills that increase the organizational competitiveness. Paying attention to environmental competence on organization level allows the management to harmonize the business objectives and the sustainability. In addition environmental competence is a horizontal one that shall be integrated into other competences.

The theoretical question of this paper is: How to define a unified frame set of measurement and development? The aim of empiric analysis is to present some initial characteristics of Hungarian organizations that help to introduce the suitable management tools in order to develop and to take the advantages of environmental competences. The paper allows the author's former results on environmental management with the concept of competence management.

¹ László Berényi – University of Miskolc, Faculty of Economics, Institute of Management Science, associate professor, PhD. Scientific interest: environmental management, quality management, ergonomics.
E-mail: szvblaci@uni-miskolc.hu
Tel.: +3646 565 111 / 1774.

1. Research background

This research was carried out as part of the TAMOP-4.2.1.B-10/2/KONV-2010-0001 project with support by the European Union, co-financed by the European Social Fund. The project aims improving the quality of higher education by establishing excellence centres for strategic research areas of the University of Miskolc. The project runs between 2011–2013.

There are four excellence centres defined that cover the professional skills of the University of Miskolc. Mechatronics and Logistics Excellence Centre give the frame of organizational researches as well. Dr. Dezső Szakály is the leader of the Scientific Research Group for “Innovative Solutions for the Management of Organizations to Increase Competitiveness”.

Developing new, innovative organizational solutions in order to increase the effectiveness of the production and logistics systems by using the competence-based approach is coordinated by Dr. Mariann Somosi Veres. Analysing the competencies and the competences in connection with the sustainable development is essential for developing environmental consciousness both on individual and corporate level.

2. Competence, competence management

2.1. Interpretation of competences

‘Competence’ can be interpreted as the ability to perform an activity properly. It is a set of defined behaviours that provide a structured guide enabling the identification, evaluation and development of the behaviours in individual employees (Szelestey, 2012). Competence also can be defined as knowledge and ability for performing certain tasks or roles.

There are various classifications in connection with competences. In an organizational view Szabó (2008) summarizes in her PhD Dissertation four categories of competences based on the practice-oriented approach of the EU:

- basic competences: general and frequent ones that are used in various areas of the life. These give the basis of developing other competences;
- key-competences: general elements of each profession. It is categorized by an EU framework (see later) and can be defined as important competences from a specified aspect;
- generic competences: general and independent support elements of successful work, e.g. importance vision, decision making skills, innovative approach, problem-orientation;
- functional competences: special skills and abilities in connection with a specified work.

It is useful and critical to take into consideration the regulation of the European Union. The European Reference Framework (2007) defines eight key competences that are necessary in order to realize the objectives of life long learning:

- communication in the mother tongue: ability to express and interpret concepts, thoughts, opinions etc. in both oral and written way;
- communication in foreign languages: it has a similar role than communication in mother tongue but it allows the understanding between various cultures and countries;
- mathematical competence and basic competences in science and technology: basic mathematical and scientific knowledge and thinking is necessary in order to solve problems in everyday situations, and to understand the happenings around us;
- digital competence: digital communication has a spread role in organization and in our whole life, including the access to learning materials as well;
- learning to learn: it is related to learning process by establishing the ability to pursue and organise the own way;
- social and civic competences: social competence refers to personal, civic one to interpersonal and intercultural situations and problem solving;

- sense of initiative and entrepreneurship is the ability to turn ideas into action: it involves creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives;
- cultural awareness and expression: it covers appreciation of the importance of the creative expression of ideas, experiences and emotions in a range of media (music, performing arts, literature and the visual arts).

2.2. Organizational and individual competences

Organizational (corporate) competence is more than the sum of individual ones. Of course the organizational performance depends on the knowledge and ability of the members. One of the most interesting challenges of competence management is to segregate and harmonize the tool set of using and developing them. Institute of Management Sciences of the University of Miskolc focuses on the corporate level by but there are individual competences taken into consideration as well.

In a simplified approach an organization shall focus on the organizational competences in order to increase the own competitiveness. Using up the individual knowledge and competence generates the necessary tasks for the organizations: collecting the knowledge, selection of employee, seeking for motivation points, supporting the knowledge-flow by coordination tools (meetings, teamwork etc.), building up databases and knowledge bases.

Awuah (2001) interprets organizational competence as the sum of individual and corporate abilities, knowledge and capacities. Research of the theme has the own history. In the 1970's the need for rationalization (Susánszky, 1984) was a similar challenge. The 7S model and searching the excellence by the McKinsey and Co. were worldwide known (Peters, Waterman, 1991). The objectives of organizational competence management are similar: finding the factors of successful operation.

Somosi (2011) draws up a model that summarizes each level of competences (Figure 1).

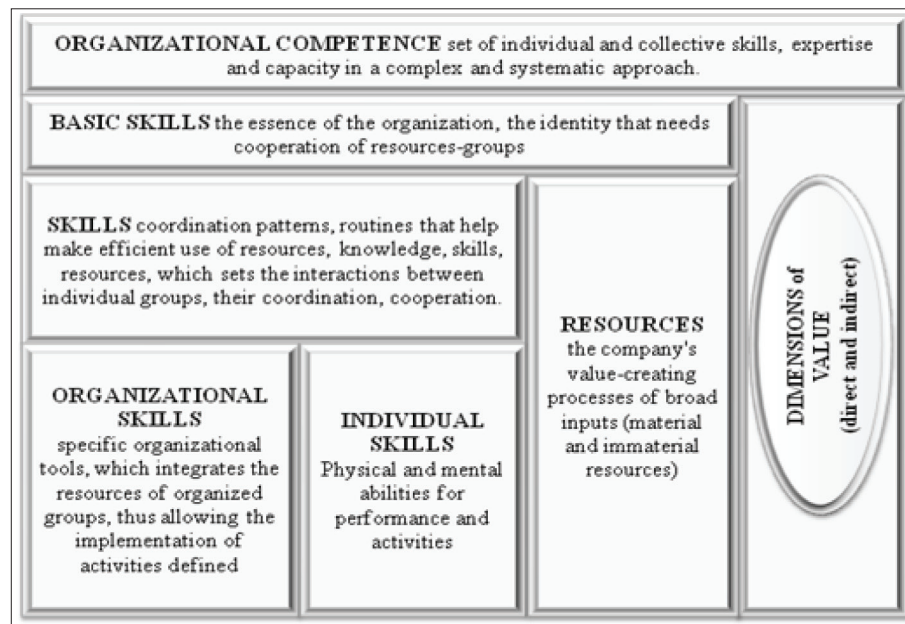


Figure 1. Organizational competence

Source: Somosi, 2011: 12

Measuring and developing competences are key factors of organizational development. Individual and organizational competences shall be harmonized in order to increase the business competitiveness. Knowledge, readiness, preparedness of people as workers has significant effect on the organizational performance as well. Elementary and higher education system shall prepare the knowledge of students for the successful work but most of the requirements come from the employer. Some elements of knowledge, ability and skills are to be learned only in the organization.

Economic science interprets the concept of competence for the organizations as well. The basic idea is not brand new but the modern information technologies and management tools give the actuality of rethinking the content of the topic.

2.3. Environmental competence

Environmental questions, problems and approach are often pushed into the background. Both people and organization are selfish. The satisfaction of needs and the limited access to resources are the main barriers because in case of less money, time etc. resources are available for the 'classic' processes and interest:

- 'business-as-usual' approach overshadows the environmental interest,
- there are problems of information flow, i.e. it is difficult to judge the relevance of information.

Environmental competence is a horizontal competence i.e. it shall be integrated into factual and other competences. Solving the environmental problems requires the cooperation of various sciences and fields of operation. There is a growing interest in global environmental problems from the 1960's. The principle of sustainable development (Brundtland, 1987) gives a general approach to the global problems by taking the economic side into consideration but it does not define the concrete way of actions. The principle shall be filled up in the mirror of the local problems and possibilities.

Varga (2006) analyses the environmental competence in harmony with the eight EU key-competences. His explanation is obvious and it justifies the accuracy of the concept that environmental competence has a horizontal characteristic. It is not possible to express our ideas neither in oral nor in written form without the competence of communication. Of course the environmental aspects and information are not to acquire without appropriate communication. Communication in foreign language spreads the possibilities. Mathematical and scientific competences are necessary because there are natural and mechanical processes and events in the background of environmental pollution and problems.

3. Developing environmental competence

3.1. Comprehensive model of environmental consciousness

Systematically developing environmental competence needs a framework that allows monitoring and evaluating the progress. A comprehensive model (Figure 2) gives frame of both evaluation and development actions that is suitable to describe behaviour of both people and organizations. Moreover the environment and the environmental problems are common; those are over people or organizations. Environmental consciousness can be defined as a quality indicator of the activities in the mirror of the values of sustainable development.

The comprehensive model (Figure 2.) uses a different approach from the usual models of environmental marketing. The core of the model is based on the process of decision making. Decision is a critical point of the actions. Field of decisions displaces the disposition of other models. Management science has professional methods for analysing the ways and whys of decision making, instead of accepting the unreliable introspective reports.

Disposition to actions is not an outlaw but it shall be interpreted in a specific way. Some characteristics of 'how to make decisions' are the following:

- People have specified objectives and a specified level of knowledge: conception about good and bad, handsome, useful and ugly etc. The opinions and the actual knowledge may be difficult to change. These factors shall be handled as enablers.

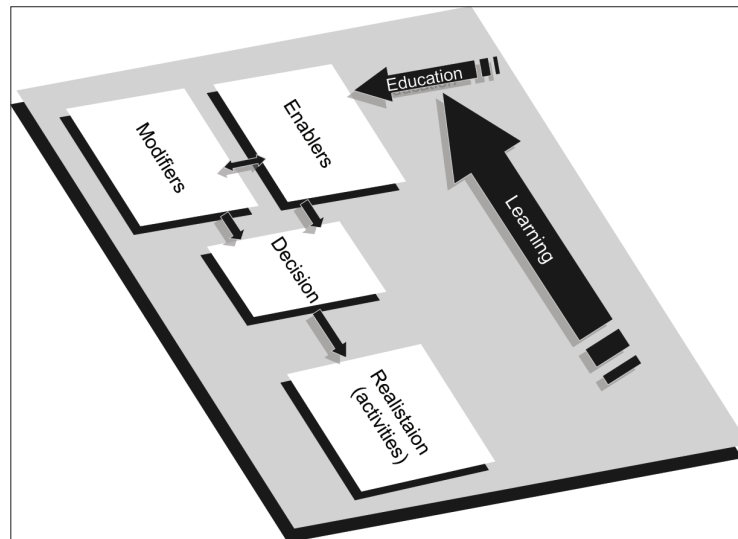


Figure 2. Comprehensive model of environmental consciousness

Source: own edition

- There are situational circumstances. Our behaviour may be different depending on being alone, with friends, with family or at work. Sometimes these circumstances motivate people to decide inconsistently. This is another conflict between financial possibilities and desires.
- Decision making means choosing between the known possibilities. Realisation is the accomplishment and evaluation of the selected solution.
- Learning is based on the evaluation. New experiences will confirm or overwrite the factors covered as enablers in my model. Next time our decision may be different in a similar situation.

3.2. Management tools of developing environmental competence

Teamwork, creative decision-making support methods (brainstorming, 6-3-5 etc.), business intelligence software can be useful support tools of developing environmental consciousness. Using management standards (ISO 14001 for environmental management system), EU directives (EMAS) represents more sophisticated tools. Of course there are specified tools for developing environmental performance: Eco-mapping (Engel, 2000), due diligence (Nafti, Miller, 2000), environmental accounting and environmental performance evaluation (especially ISO 14031 standard) can be highlighted.

The positive correlation between environmental competence and the size of organization seems to be obvious but the practical experiences draw up a more complex situation.

4. Size of organization and environmental consciousness

4.1. Objectives and research sample

The quantitative sample of analysing the relationship between environmental competence and the size of organization contains 81 producers, service-oriented and public service organisations. 6 times the size was unidentified. Results in this paper are based on the answers of the 75 identified organisations. Distribution of the sample is shown in Table 1.

Table 1. Distribution of the sample

	Small-sized	Medium-sized	Large-sized
	organizations		
Total	18	27	30
Producer	3	10	20
Service Oriented	13	11	7
Public Service	2	5	3

Source: own edition

4.2. Management system and commitment

Commitment of the management can be represented by proposing objectives for the organisation and establishing management standards. Another problem is whether these are in order to reach a certificate or these are the elements of the scale of value. From the point of view of excellence it is encouraging that most of the organisations try to establish factual objectives.

Figure 3. shows that there is a positive correlation between the existence of quality/environmental objectives and the size of the organization. Results on corporate vision may be surprising at the first sight but knowing the cultural and management characteristics of small organisations the relation is obvious. A small sized one has determinant function and mission (e.g. the independence of the entrepreneur or earning familiar bread). On the other side – because of its largeness – a large organization can not exist without a regulated scale of values in details. A medium sized organization may be on a dynamic way of enlargement. This may cause the uncertainty and changes in objectives.

The most popular management standard is the ISO 9001. In average 49 % of the respondents have build a system on the requirements of it. The popularity of environmental management system (ISO 14001) is lower, except large organisations. The number of EMAS users is at a low level, but in a few years increase is to promise. The usage of ISO 9004 designates that there are some organisations that would like to reach a higher level than the minimum requirements.

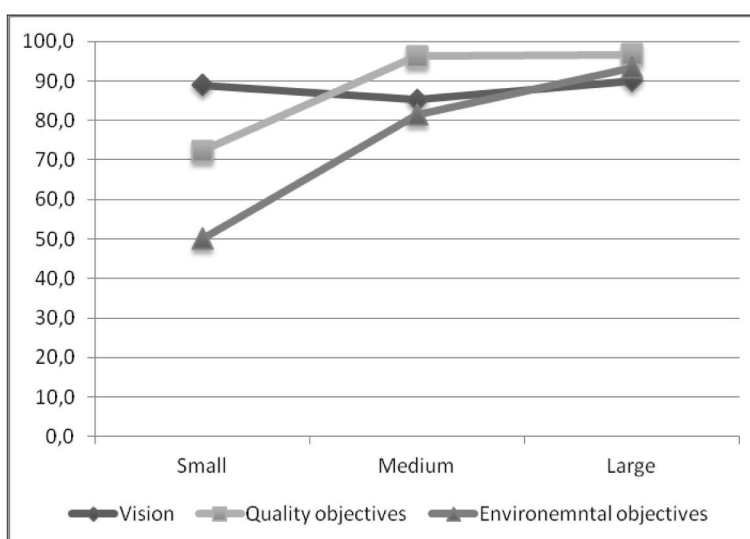


Figure 3. Commitment of the top-management by the size of the organization

Source: own edition

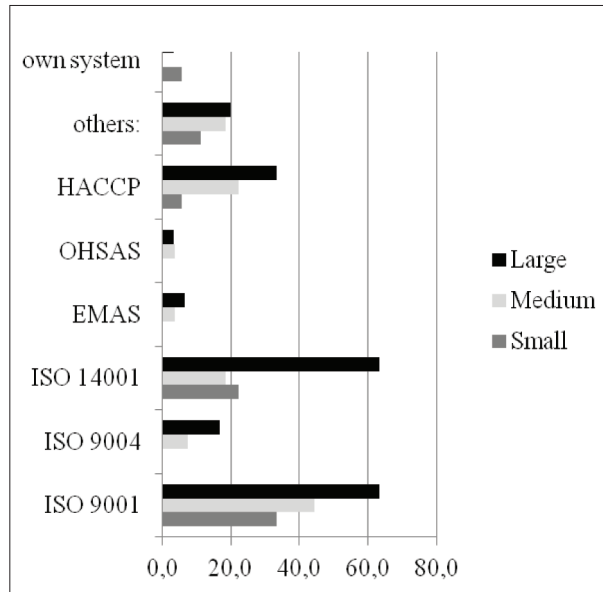


Figure 4. Management system usage by organizational size
Source: own edition

4.3. Environmental information and communication

Collecting relevant environmental and business information is determinative in order to establish environmentally conscious actions. Organisations primarily try to collect information from the official journals and from state institutes. Conferences are quite popular, but environmental and management journals are represented at a low rate. It is interesting to note that these journals play a featured role for the small sized organizations.

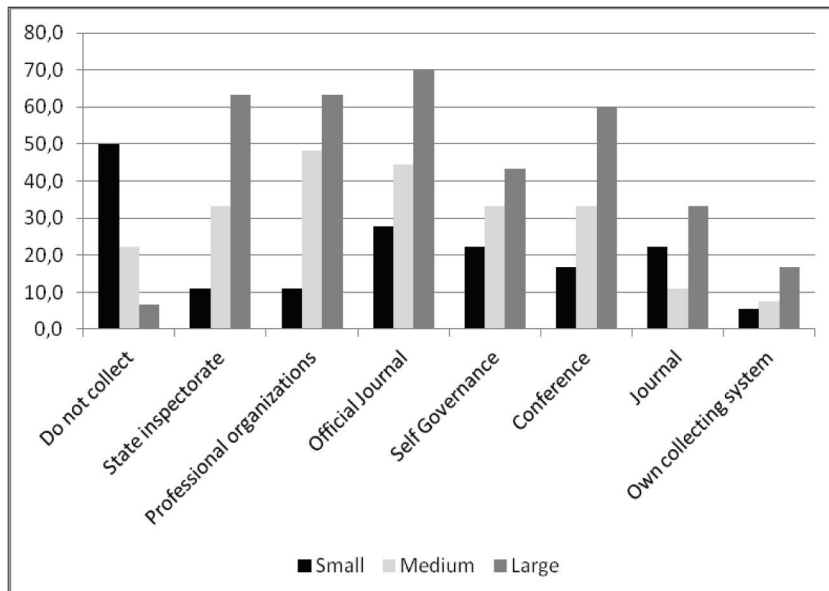


Figure 5. Information sources
Source: own edition

Conferences and exhibitions are visited by most of the managers. Workers are sent only by the 50–60 % of the organisations. This rate must be increased because each worker must get known the new technologies and processes to be able to adapt them successfully.

Table 2. Most popular Internal Communication-Solutions by the size of the Organization

No.	Small sized		Medium sized		Large sized	
	Tools	%	Tool	%	Tool	%
1	Informal communication	87,2	Small groups	76,8	Intranet	77
2	Small groups	80	Internet	66	Small groups	71,8
3	Internet	66,6	Informal Communication	61,8	Wall-newspaper	62,2

Source: own edition

Internal communication has a determinant role on giving and collecting the relevant information. The research collects the possible and used methods of doing that. The three most popular solutions are summarized in Table 2.

In connection with external partnership the research focused on the quality of the partnership by self-report of the answerer organizations. Higher values (max. 100 %) in Table 3 show better quality. Average partnership with environmental institutions is at a medium level. Large enterprises represent the highest value but their performance shall not be over-estimated. The reason for this is that they are the real winner of the partnership from a business perspective even though they are the dartboard of the environmental demonstrations as well.

Table 3. Results on partnership

	Small	Medium	Large
Local environmental activists (%)	48,9	55,0	67,3
National environmental activists (%)	40,0	58,8	64,0
International organisations (%)	46,7	58,5	61,5
Media (%)	54,5	71,8	76,5

Source: own edition

4.4. Environment-oriented management tool set

The core task of environmental management is the performance evaluation. 17 % of small organisations, 36 % of medium ones and 70 % of large ones claim that there are proceedings for regular environmental performance evaluation. Services of external specialists are used by most of small and medium organisations and by less than half of the large ones. External support is necessary for small sized ones because they do not have accurate technological, methodical and HR background to be able to achieve the evaluation. It is interesting to analyse the areas of environmental performance evaluation and furthermore the rate of 'it would be useful' answers.

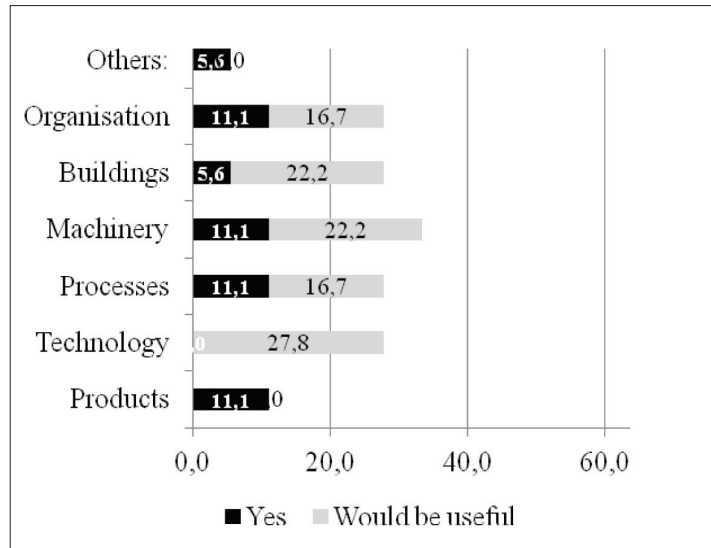


Figure 6. Usage of performance evaluation by small organization (%)

Source: own edition

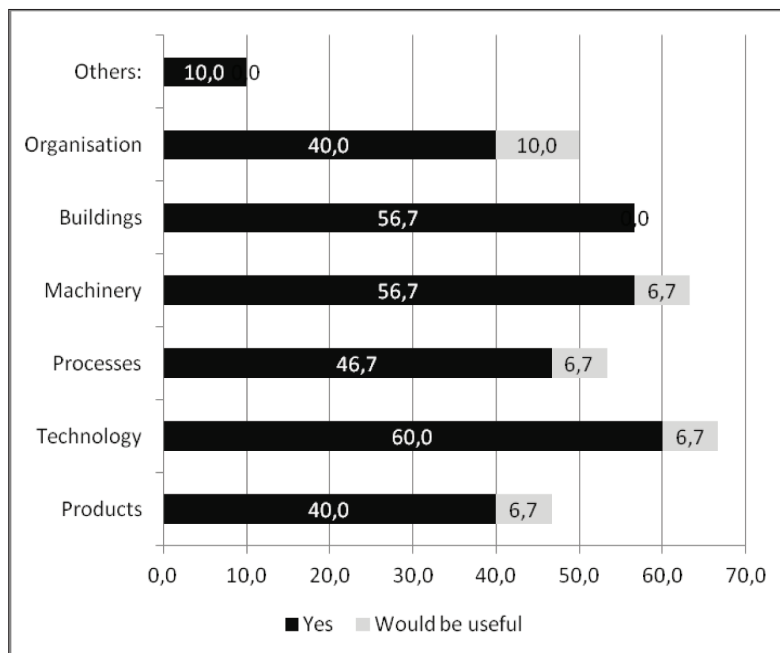


Figure 7. Usage of performance evaluation by large organization (%)

Source: own edition

Conclusions

Developing environmental competence can not be achieved without the organizational aspects and context. Empiric results in this paper draw up some characteristics of various organizations that may ground the successful development actions.

A practical and important question is whether the larger organizations with management, technological and financial wider possibilities were greener. Results presented above implicate that there is a positive

correlation between the indicators of environmental consciousness and the size of the organisation. But the problem is more difficult because of the following reasons:

- the representation of SMEs is extremely high in Hungarian economy (over 95 % of the organizations, 70 % of the employment);
- the business, financial etc. possibilities are different in these organisations.

Governance (local and national) and large organisations must support their development by factual and financial aid. Having the right information and right circumstances – because of the variegation in activity and culture – the smaller organisation can become the motors of the environmental management development.

Based on the competence-based approach individual and organizational actions of developing environmental consciousness may be successful. Sustainable development designates the targets but the way is hard and not always clear. Results in this paper help to build up the acceptable and effective development programs and actions.

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APLINKOS APSAUGOS KOMPETENCIJOS UGDYMAS

LÁSZLÓ BERÉNYI
Miskolco universitetas (Vengrija)

Santrauka

Vis svarbesniu uždaviniu tampa aukštesnio lygio darnaus vystymosi siekis. Individų ir organizacijų aplinkosauginio sąmoningumo ugdymas gali būti sėkmingas tik taikant stabilią metodologiją. Čia galima pasitelkti kompetencijų valdymą. Šiame straipsnyje aprašomas aplinkosauginio sąmoningumo matavimo modelis, kuris suteikia reikiamų empirinių duomenų aplinkosauginio valdymo priemonių ir organizacijos dydžio analizei. Tyrimas atliktas kaip projekto TAMOP-4.2.1.B-10/2/KONV-2010-0001 dalis, remiant Europos Sąjungai, kofinansuojant Europos Socialiniam Fondui.

PAGRINDINIAI ŽODŽIAI: *aplinkosauginis valdymas, sąmoningumas, organizacijų vystymas.*

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