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ENVIRONMENTAL EDUCATION IN HUNGARIAN HIGHER EDUCATION

László VALKÓ and József GÁL

Department of Environmental Economics
Budapest University of Technology and Economics
H–1521 Budapest, Hungary
Fax: 36/1-463-1149
Phone: 36/1-463-1179

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Abstract

The new conditions in economy bring radical transformation in our surroundings and question the common, traditional forms and functions. New changes have started which will make the systems introduced up till now perfect for the new demands and form the established systems. The higher education has to face this changing going on. This article shows the present situation and the future of environmental education in Hungarian higher education.

Keywords: environmental education, higher education.

1. Introduction

In our always changing world, where we are studying the high stage of progress in technical and society processes, we often must ask the question: does our present consumption ruin the essential living-conditions of the new generations? In order to be able to use nature reasonably and to protect our environment new knowledge are required and approach of the bases which should be produced in education.

Especially the higher education plays an important part because it has to shoulder '*double-function*'.

1. During compiling the subject-matters of instruction and education we have to consider that most of the students admitted into colleges and universities have the minimum knowledge and outlook, therefore the higher education has to undertake to produce in an up-to-date manner and mobilize environmental attitude, which is provided for students through public education in countries with strong environmental deliberation.
2. Higher education cannot disregard its original function. It has to provide the society with enough number of experts in quantity and quality. The special segment of this mentioned education means training the environmental experts who work for the environmental education, environmental-technics and – technology and also for environmental – economics.

The another considerable requirement in our age is to assert *complex approach*. Substantial feature in the environmental problems is being interdisciplined that means comprehensive approach of the knowledge and complex access of the environmental questions. This namely means the complete management of the connections in scientific – ecology, – society, – economy and technical-ecology.

Education, especially the higher education can not dispense with the *scientific demanding care*. One of the basic demands in the environmental education is to compose the concepts and processes precisely and scholarly.

The concept-system of the environmental sciences has rather been open. The expected complex agreement has been missing even in the interpretation of the elements.

Realizing this agreement postulates further scientific debates. We have to encourage the scientific associations of trade and also the educational institutes to shoulder.

The general process of modernization includes the following factors: growing institutional autonomy, spreading the universitas character, rethinking of line specialization, etc. Confirming the justification of the environmental training in the Hungarian higher education *from the side of possibility*, without doubt and there are factors (i.e. insuring the international equivalent of degrees, preparing professional line and institutional accreditations, making credit system general) reinforcing the justification of the environmental education in the Hungarian higher education *from the side of necessity*.

From these the followings seem to be important:

a) *Institutional autonomy* guarantees the possibility of the individual elaboration, the environmental-trade specification and integrative material of knowledge.
b) Colleges, universities, research institutes, universitas and associations established on the ground of real cooperation give considerable possibility for realizing the 'minimum criteria' of technical and contents in environmental education like complex approach, inter-discipline material of knowledge, attending lectures in an other faculty and partial education in an other institute.
c) Having given up the extension of specialization, the environmental special lines start with good chance of success to create *new special line specifications* following the scientific and practical demands.
d) *The international equivalent of degrees* supposes to regulate them from their issue side. The execution of this claim demands the Hungarian educational institutes to consider issue degrees from the view point of the given degree of the competent education of the West-European universities increasingly has got great advantage. Types of connection are similar with *special line and international institutional accreditations.*
e) The evaluation of the students' study work in *credit system* can bring disciplines of environmental science into benefit competitive situation, developed on base of professional demanding much care and of adequate educational science just because of being inter-trade.

f) The aim of the entire Hungarian higher education *trends towards West-Europe* recently. We can have the possibility to obtain the sufficient orientations in the common environmental attitude and professional training by joining the international environmental programs and taking part in them. Mainly TEMPUS and PHARE programs seem to be effective over the years besides the direct institutional connections.

2. Social Environmental Deliberation

The environmetal deliberation in the Hungarian society is far backward from that of those societies found on the west side of the environmental break line, but it is also backward from that level that the environmental state would require in our country.

We do not aim with this article, but must note that *the weak capability of social movements and the specialized agencies of local administration to enforce the environmental interests and also the social common way of thinking emphasize short term respects having set back sensibility of the education for environment.*

Since the 90s the higher education has undertaken a greater and greater part to increase the environmental deliberation through expanding the common environmental education and the professional training of experts in order to obtain up-to-date knowledge.

3. Evaluation of Environmental Education – Training in Higher Instruction

During the last years – apart some shorter professional articles – two extensive essays have been made in order to value the domestic process of the environmental education-training and to determine the tasks for the near future. One of them is mentioned in PHARE program ('Environmental Education, Training Study and Plan for Taking Measures' Sopron 1992-94) and the other one is on behalf of Environmental and Area Developing Ministry, Personnel and Educational Major Department ('Enrivonmental State in Domestic Agricultural, Economic and Technical Higher Education from the View of Curriculums of Studies – Gradual training, Budapest 1998 compiled by Imre Szebényi). Neither of the above works was given appropriate publicity.

The last study is more adequate to value the present situtation in generally. Contradiction can been found in this state. The environmental education in the Hungarian higher education 'can' show a number of positive and negative tendencies.

3.1. Positive Tendencies:

1. Environmental education exists in some forms and levels in each of higher educational institutes and shows a general improving tendency.

2. Besides postgraduate training the gradual environmental faculty and professional training have been grounded in more and more education fields. Pleasing that environmental faculty has been introduced in those fields where the assertion of the environmental view has greater importance in common like in teacher-, technical- and agricultural engineer training.
3. In the environmental education a number of developing innovations has been realized (written text-book and lecture notes, obtaining special materials from abroad, setting up self-sufficient educational units, developing the cooperation within the walls of the institute and among the institutes, etc.)

3.2. Negative Tendencies:

1. It has not been general that all the students in colleges and universities meet the basic environmental knowledge.
2. Effective cooperation among the ruling and professional associations concerned with environmental higher education has not been realized.
3. Applicable means in the environmental training research, developing work in environmental higher institutes, financial and moral appreciation have not been improved properly.
4. We can even find – inside the institutes and also among the professional fields mostly believed trade jealousy towards environmental education and research. That makes hard to come across the complex approach (inter – or multidiscipline) which is essential for scientific management of environmental matters.

In the followings some definite results can be read connecting with the above mentioned tendencies underlined from the environmental education – training in higher education.

4. Establish Environmental Faculties and Qualifying Demand System

From the beginning of the 90s the process of foundation and starting environmental faculties have been starting in more and more professional fields at gradual level in higher education, working out the qualifying demand system and being published in the Official Gazette of Educational Ministry.

We can consider as a unique event even in the international practice when the *environmental teaching line of study* was established – after having debates and trade comparison for years – in Hungary in 1992.

The line of study can only be picked up with in pair of biology as a second line at Gyula Juhász Teachers' Training College in Szeged and at Károly Eszterházy T. T. C. in Eger. Now this branch of study can be registered for a lecture by the students of other T. T. C-s and universities besides the above mentioned two colleges.

Licensing the start of this new line one has to note that independent and proper outlining of this subject has not been introduced that is a rarely exception in public education.

Some parts of the graduates do not take job in teaching career first of all, but in other jobs do. (In cultural institutes, natural protection official jobs, local authority jobs and in the field of administration).

At the same time of establishment the environmental teacher line, the environmental engineer training have also been started, in the University of Veszprém for the first time. Nowadays, almost every technical and agricultural higher educational institute provides the possibility for pursuing studies of *environment-engineer, environment-economic agricultural-engineer* in regular and graduate education system.

In the professional training of the universities we can meet *ecology teacher* line that can be taken up with together in pair of biology, geography, physics and chemistry, also the speciality of natural science faculty, the ecology science line which has realized the professional researcher training (started in 1999).

In the above only those faculties have been mentioned that are available in a basic regular line of studies. Besides the above branches the environmental basic faculties are also present in other forms (i.e. in university extension, tele-education through Internet, sections of postgraduate training).

Figures in 'Guide Book for Hungarian Higher Institutes in 2000' issue show that altogether 1836 new admitted students can start their studies in domestic higher institutions from September 2000 in one of environmental lines of studies. This number is a little more than 1640 of 1999 and the double of the registered 766 of 1998 and far higher than 650 of 1997. *Table 1* shows the figures describing the last four years of the entire higher education.

Orders appearing in series have tried to provide the environmental professional training mainly fitted for institutes with 'institutionally united' contents which determine the common and special qualifying requirements of the basic branches and specializing lines in higher education. Further on these documents can serve as ethalons for conducting the institutional and specializing accreditations.

In all cases of lines they include the followings:

- training aim of the given line,
- naming the qualifications level and competence,
- training period,
- outstanding study scopes and their offered rates, (scientific basic knowledge, professional skills)
- control system of knowledge (work for diploma, thesis, finals).

The demand system for the degree draws up those minimum parameters definitely that regard the given training. The Hungarian universities and colleges grasped the opportunity of starting environmental lines at once. By now most of our country is covered by introducing this faculty into the local and outlaid extensions of the educational institutes. The *Table 2* shows the variousness of it.

Table 1. Stated number of people in profession of the environment, the number of students admitted

Field of study, started numbers		**1997**	**1998**	**1999**	**2000**
And numbers of the admitted					
Environmental educator					
	university level (regular course)	27	91	175	216
	college level (regular course)	75	62	91	85
	university level (correspondence course)	0	0	25	25
	college level (correspondence course)	0	0	71	75
Sum total		**102**	**153**	**362**	**401**
Researcher of the environment					
	university level (regular course)	0	0	90	51
	university level (correspondence course)	0	0	20	23
Sum total		**0**	**0**	**110**	**74**
Agricultural engineer of environmental economics					
	university level (regular course)	55	87	140	140
	college level (regular course)	92	93	115	165
	college level (correspondence course)	0	0	100	100
Sum total		**147**	**180**	**355**	**405**
Engineer of the environment (technical)					
	university level (regular course)	214	235	338	406
	college level (regular course)	187	198	295	260
	university level (correspondence course)	0	0	30	40
	college level (open distance learning)	0	0	150	250
Sum total		**401**	**433**	**813**	**956**
Total number in the profession of the environment		**650**	**766**	**1640**	**1836**

Source: Guide of Institutions of Higher Education 1997, 1998, 1999, 2000

Table 2. Some significant universities and colleges specialized in environment

College of General Business – profession of business organizer, study of environmental manager
Berzsenyi Dániel Teacher Training College – profession of English teacher, study of environmental language
Economic University of Budapest – profession of economic teacher, study of environmental economy
Technical University of Budapest – profession of mechanical engineer, study of environmental technology and management of environmental protection
Technical University of Budapest – profession of chemical engineer, study of bioengineer and environmental protection
Technical University of Budapest – Faculty of Economical and Social Sciences, study of environmental management
Eötvös József College – Faculty of Technology – profession of engineer, study of water and environmental economic informatics, study of water and environment
GATE Agricultural College of Gyöngyös – profession of agricultural engineer, study of environmental economy
GATE Agricultural College of Nyíregyháza – profession of agricultural engineer, study of environmental economy
GATE Agricultural College of Mezőtúr – profession of agricultural mechanical engineer, profession of agricultural engineer, study of environmental economy
JPTE Department of Pollack Mihály Technical College – profession of environmental engineer with (optional) profession of engineering teacher
JATE Department of Science – profession of Physics – environmental educator, study of English technical translator
University of Horticulture and Food Industry – Department of Horticulture – profession of horticultural engineer, study of environmental economy, study of ecological economy
Hungarian College of Arts and Crafts – profession of visual and environmental culture teacher

Source: VALKÓ – KOHL – KULIFAI, 1999

5. Professional Training apart Postgraduate and Conducted Education

Postgraduate training is to be underlined separately as we can build up directly the contects-structure of environmental education in connection with those professional knowledges that can be obtained in other institutes. We also have to deal with conducted and trade teaching activity by the various scientific associations, enterprises running outside of school system.

5.1. Postgraduate Environmental Education

The postgraduate training undertakes to solve special tasks in our country. From one side it gives the possibility for those who have obtained a degree in some

higher institutes and needs the environmental knowledge for their work. It also provides a specialization possibility from an aspect where demand for experts can be satisfied. It is extremely emphasized from the view point of EU integration as this mentioned demand means that comprehensive skilled experts are required to meet the environmental requests in EU, to help the work with authorities and institutes whose profile is to deal with environmental problems besides those environmental management systems have been introduced more and more widely.

The forms of extension training brought in teacher, chemist, biologist, lawyer, agricultural engineer, physician, etc. education are providing the possibility for realizing environmental and preserve training (courses, course for diploma, PhD programs). We note that the environmental education has been started within postgraduate training in most institutes. The postgraduate line of 'householding economics-way of life was introduced in Commercial and Tourist College being thought a special one. On this training teachers are skilled at high level by acquiring the knowledge of the ecology subject.

Diploma works, passed stated exams present the application possibility of teaching skills on the basis of environmental education.

Environmental ecology and environmental management subjects are tought within the postgraduate training of Economics University in the Chemist-Economist, Lawyer-Economist and Company Economist Faculties. And within the part-time university there is education for students specializing in company ecomonics and financial studies.

Within the Economics University in Budapest (EUB) the Economics Postgraduate Institute starts environmental line for those who obtained economics degree and degree in other universities. During the training they can learn the basis of environmental protection ruling, the modern instruments of the environmental management. The training is inter-discipline and it has been completed for those whose job is to answer environmental questions at companies and for entrepreneurs who work for the environmental protection. In the program PhD of Economy of Science Faculty more than 50 students have been learning the environmental management.

The environmental education has become significant in our country since 1974. In the Chemist-Engineer Faculty of the Technical and Economy of Science University in Budapest there is a special engineer training in the field of utilization of waste, water-quality assuring, protection of air cleanness, environmental management and noise-reduction. Courses in Engineer Continuation Institute of Technical University in Budapest and in Teleeducation Centre are considerable in this subject.

New improvement in quality means that PhD training has been started in Environmental Ecology Department within Economy and Sociology Faculty.

The chemical University in Veszprém will also introduce a specialization of the environmental protection training.

The environmental education is also widely tought in University in Miskolc,in Mining Engineering, Mechanical Engineering and Metallurgical Engineering Faculties. Both running within graduate and postgraduate forms of education. Similar forms of training and education can be found in the agricultural higher education.

5.2. Training beyond Organized Education

Forms of training beyond organized education are very varied. Trainings and teaching activities organized by professional scientific associations and undertakings dealing with environment-protection can be placed mainly into two groups. The *Table 3* gives us a forestate of their variousness. Survey on those undertakings,

Table 3. Organized training out of education (not intended to be exhaustive)

Trainings of the *Hungarian Center of Clearer Production* of the Economic University of Budapest
Environmental Protection Teaching in training of qualified logistic manager of *Hungarian Logistic, Procuring and Stockpiling Company*
Different courses of *Hungarian Quality Company*, courses of the Hungarian Legal System and Standards in harmony of EC
Training courses of Environmental Enforcement coordinated by the *Institution of the Environmental Economy*, training courses of environmental examination study
Postgradual teaching at some universities (ELTE, GATE, Pannon Agricultural University) coordinated by the *Researcher Institution of Soil Science and Agrochemistry of Academy of Hungarian Sciences*
Conferences, Directing and auditor training programmes of *KÖVET-INEM HUNGÁRIA Environment Consciousness Business Directing Association* with the Hungarian Standardwatching Corporation
There is a great number of training in environmental protection organized by *Individual and Collective Companies* all over the country.

Source: VALKÓ – KOHL – KULIFAI, 1999

which take part in the environmetal education, is not complete at all. More than fifty undertakings could be found totally which act in the field of environmental education. The available information can provide only brief summary. In this publication we mention only those ones whose activity is wide.

6. Scientific Work, Talent Management

The effective environmental education needs the background that the scientific research developing work can supply. This scientific establishing development of environmental education work comprehends the methods and modernization of the knowledge of this topic.

Up till now only the effective raising tasks in environmental-pedagogy were in priority in our country (through the mentioned PHARE and W1/2/93 programs the possibility was assured to carry out developing work in some higher educational insitutes on the basis of skilled background, University of Sopron and Teachers' Training College of Eötvös L. Scientific University in Budapest). *A considerable*

and sufficient program has not been introduced into teachers' and extension training which could have provided the scientific-research background expediently in environmental education-training.

It does not mean certainly that some subsidizes (funds, endowments, programs) besides other special orientations were not available also for experts and institutions in environmental education – training. Most of these possibilities occured in the 90s like those ones which are shown in *Table 4*.

Table 4. Determinative financial factors of the environmental training and education

1. PHARE Programme
2. TEMPUS Programme
3. National Scientific Researching Programme (OTKA)
4. Soros Foundation
5. Pro Renovanda Cultura Hungaria Foundation
6. Higher Education Programme Financial Competition (MKM-OM)
7. Foundation of Environmental Protection
8. Foundation for Improving the training in environmental economy (KTM-KÖM)
9. 'Green Entry' (Academy of Hungarian Sciences)

Source: own collection

The above possibility for the program financing of environmental education was utilized by those institutions, their structural units and teachers who shoulder greater part in creating and improving the students' environmental-view and in education-training of environmental experts. These institutions can be valued to be the scientific research bases of environmental education-training. According to their opportunities they have a leading rule in *improving international relationships that prefer common benefits* (joint research, programs, students exchange, programs for invited teachers, conferences, joint taking part in international programs, etc.) where the aimed area is particularly the EU and its member countries.

The tendency represents the efficiency in the scientific environmental research work that more and more professors and scientists get scientific degree during their work in environmental-economy and – technics. PhD programs are organized and provide the opportunity to decide the subject of dissertation in more and more special fields.

In the light of the above survey we should like to refer to those misgivings which came from the lack of considering the 'Environment-science' as an interdiscipline independent scientific field. In several cases of projects the composers of environmental topics think being at a disadvantage compared with the other traditional special fields because of their competitions ranged with the traditional special fields and valued from their prime view-points.

The written and unwritten task of the higher education is the *talent manage-*

ment. One of these traditionally effective working spheres besides the PhD training is the instructive-self-instructive activity in students circles of science. National Higher Education Environmental Scientific Student Conference has been held in every two year for more than ten years by the current Educational Ministry and in calls of Hungarian Academy of Sciences. Furthermore International Environmental Scientific Professional Students' Conference is held in Mezőtúr annually. The following *Table 5* shows the hostess of those programs held till now.

Table 5. Places of Student Conferences of the National Higher Education of Environmental Science

1988	Technical University of Miskolc	Miskolc
1990	Agricultural University of Gödöllő	Gödöllő
1992	Juhász Gyula Teacher Training College	Szeged
1994	University of Horticultural and Food Industry	Budapest
1996	Agricultural University of Gödöllő	Gödöllő
1998	Technical University of Budapest	Budapest
2000	Kossuth Lajos University	Debrecen

Source: own collection

More than 200 of participants and students having read papers in forums and presented their successes within high level courses show the appreciation and justification of the conference.

On the eve of millenium the knowledge, information, continuous training and self-training, retraining, innovation and creativity seem to become pivotal question.

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