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EUROPEAN EDUCATIONAL CONCEPT IN ENVIRONMENTAL- NATURE- AND CLIMATE- PROTECTION TO SAFEGUARD A CROSS BORDER SUSTAINABLE DEVELOPMENT. PROJECT ERASMUS+

ABSTRACT

In view of climate change and responding to political, economic and ecological challenges the number of “green” jobs are expected to rise. This will have an impact on education and training, and also on the long-life learning processes. The paper presents some works done in the frame of the Erasmus+ project “European Educational Concept in Environmental-, Nature, and Climate- Protection to safeguard a cross-border sustainable development.

KEYWORDS

Furthering education, environmental topics, green jobs, Erasmus+

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INTRODUCTION

In the face of significant climate change, decreasing of natural resources, reduction of biodiversity and growing environmental pollution, it is expected that the creation of so-called green jobs will help to counteract environmental degradation and reduce unemployment.

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The use of available human resources, e.g. people affected by unemployment in Europe, is becoming an important issue in this context. These resources can feed green jobs and become valuable employees by raising their qualifications. It will also have an impact on education. In Europe, the development of the so-called “green economy” focused on innovative and environment-friendly solutions will bring new qualification requirements and will help to overcome unemployment.

1. PROJECT ASSUMPTIONS

Project *European Educational Concept in Environmental- Nature- and Climate- Protection to safeguard a cross-border sustainable development. EUBILD-UNAKLIM 2016-1-DE-02-KA204-003254* has implemented since September 2016 by a consortium of 5 partners from 4 countries (Germany, Hungary, Poland, Romania), among them 1 public and 1 private university, 2 NGO, 1 public research institute there are under realization concept to design a European educational in the ERASMUS Funding Scheme. Partners work on an international adult-learning furthering education course that will take place in the four participating countries with training languages in the four national languages and English.

The main objectives of the research are:

- 1) creation a curriculum the professional advanced education area, in the topics: environmental-, nature-, and climate protection,
- 2) concept based on a research about existing furthering education programs, experiences, needs and requirements in the participating countries is realized,
- 3) design of innovative training methods and a combination of theoretical knowledge with practical key skills will be proposed,
- 4) works in a complex environment that requires an interdisciplinary approach are analyzed,
- 5) preparation of first test run of the course by exchanging potential trainers and trainees within the participating countries will be developed.

The following goals are to be achieved:

- 1) to carry the curriculum concept into the institutions of the participating countries,
- 2) to establish the curriculum in the countries’ national educational structures in the long run,
- 3) to open new chances on a future-oriented segment of the labour market for unemployed academic graduates, university dropouts and unemployed professionals, who have gained a multidisciplinary and yet very specific knowledge.

Under the Project five task-outputs are carried out:

- 1) study of national activities and funding opportunities for furthering education programs for unemployed academics in green jobs,
- 2) curriculum to the international course,
- 3) model Training Letter on Topic – Geothermal Energy and Photovoltaic,
- 4) online platform for e-learning tools and topics,
- 5) experiments of the model pilot plant to use as a field laboratory.



Photo. 1. Project Partners during a visit in Center for Sustainable Development and Energy Efficiency of the Faculty of Geology, Geophysics and Environment Protection, AGH University of Science and Technology in Miękinia

Fot. 1. Partnerzy Projektu podczas wizyty w Centrum Zrównoważonego Rozwoju i Poszanowania Energii WGGiOŚ w Miękini

2. NATIONAL STUDIES ON NATIONAL ACTIVITIES AND FUNDING OPPORTUNITIES IN FURTHERING EDUCATION PROGRAMMES

In recent years, the European Union has emphasized the so-called “green growth”. It is the result of commitments taken by the EU Member States in the “Europe 2020” development strategy for reducing greenhouse gas emissions by 20%, achieving energy efficiency increases by 20% and increasing the share of renewable energy by 20% in the perspective of 2020. It creates opportunities for job creation, and in particular the so-called green jobs (Europe 2020). Increasing the employment in environmentally friendly sectors is key to socio-economic governance. Green jobs affect resource and energy savings and their efficient use to reduce the climate change and environmental pollution. Green jobs are created in the sector of goods and services related to environmental protection.

For example in Poland the definition of green jobs has not been sanctioned but the fact is that they can emerge in every sector of the economy, provided that employees are directly or indirectly involved in the improvement of the environment in the concerned area and will endeavor to eliminate harmful effects, short- or long-term on the environment (Kryk 2014).

Lack of definition and supporting institutions makes it difficult to precisely define the actual and projected number of green jobs and to plan appropriate support measures. Cre-

ating green jobs have to require adequate support at all levels of management and policy decisions, both at the international, EU and national levels (Szyja 2015).

In the Polish market, the largest job portal is pracuj.pl but only one portal (regularly updated), specialized in green Jobs was found – portal www.teraz-srodowisko.pl. The total of 241 offers in the green topics was found in this portal between February and April 2017. Currently among all green job offers the most numerous were in the environmental management (21%) energy sector (20%), in industry and engineering sector (12%) and business management (11%). At present, the greatest demand on the market is on: environmental specialists (14 offers) and energy auditors (10 offers).

In the case of Germany, 16.778 green job ads were identified in 32 job portals. Around 15.100 genuine job advertisements were identified. This equates to 2,29% of the annual total job offerings reported by the German Federal Statistics office. The main portal for green jobs is www.greenjobs.de.

The Hungarian research was conducted on the www.profession.hu because there is no separate database for green jobs. The green topic is not big enough to get into larger specifications or to make separate statistics or to get attention. However, there is an aspiration to strike this strategy – but at the current labour market, there is no focus on it. There is a tendency to increase in this area. The size of the Hungarian job market is not comparable with the larger EU countries' job markets – especially not in green jobs.

In Romania, the market share has been taken into consideration. The search was made on the national level (national databases) and second – the offer for each country (42 countries in Romania). At the county level, the job offer is structured in two main directions. The first one is represented by job offers posted at the website of County Agency of Labour Force Occupation, which is state companies, the main activity is collecting offers from different companies (state or private). The second direction is represented by job offers from private media (online, media a.s.o.) which also provide job offers from different economy sectors (<http://hr.businesslive.ro/top-50-site-uri-de-job-uri-din-romania/>).

Under the task of National studies and activities, each partner conducted also a labour market analysis. The research included two main research methods to obtain necessary source data and information: quantitative (questionnaire surveys), and qualitative – open opinion, structural interviews. The questionnaire surveys enabled to gain required information from a large number of appointed Employers and also Financial Body & Educational Institutions in an efficient and standardized manner. The Employer Survey consisted of 27 questions, The Financial Body & Educational Institution Survey of 45 questions. Qualitative methods were used to emphasize experts' personal experiences and interpretation over quantification in an efforts to understand the meaning of the quantified social responses; to place and interpret the investigations and understand their results. The structural interview (five in each country) role was to objectively assess the state of national activities and funding opportunities for furthering education programs in green jobs. The structured interviews results were inserted into the statistics. The achieved reflux quota was 10%. An online questionnaire was sent out in five languages: German, Hungarian, Polish, Romanian and in English. It was

kept open from November 2016 until March 2017. A total of 1.866 targets were addressed, 400 in each consortium country was the goal. 112 questions were asked in total, thereof 20 open questions, 23 closed questions (only “yes” and “no” as answer possible) and 69 questions that could be assessed by “1 = totally unimportant” until “6 = very important”.

In the case of employer respondents, 33% were private enterprises, 30% NGO, Trade Associations 14%, and Public services 14%. Of minor percentage were Chambers, Employers’ Associations and Training and Research Institutions with 2–4%. The financing body respondents had 23% of NGO, 39% Furthering education and financing institutions. Unemployment offices, municipal bodies and other institutions each 11%, and some had 1% (Fig. 1 and 2).

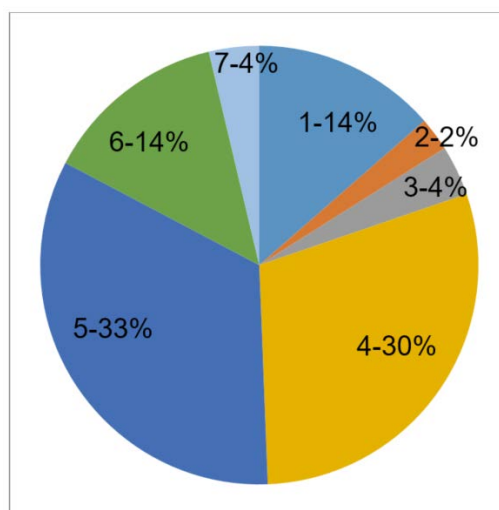


Fig. 1. Different institutions among the Employers (all countries).

1 – Trade and association, 2 – Chamber of Industry and Commerce, 3 – Employers’ Association, 4 – NPO/NGO, 5 – Private Enterprise, 6 – Public Service Authority/Ministry, 7 – Training and Research Institution

Rys. 1. Różne instytucje spośród pracodawców (wszystkie kraje)

1 – Handel i stowarzyszenia, 2 – Izba Przemysłowo-Handlowa, 3 – Związek Pracodawców, 4 – NPO/NGO, 5 – Przedsiębiorstwo prywatne, 6 – Urząd służb publicznych/ministerstwo, 7 – Instytucja szkoleniowo-badawcza

The objective of the questionnaires was to find if the curriculum would have to be adapted to the commercial and labour market environments. Significant country-specific differences and gaps between employer and furthering education provider/financing body respondents were found. According to that, the course design will put more emphasis on the topics which were important for the employers also by adding new modules, if necessary. A long-term goal will be establishing official certificates, acknowledged in the partner states or on a European scale if possible. The study of job titles in the job databases revealed a job ranking in which planned course will give a contribution.

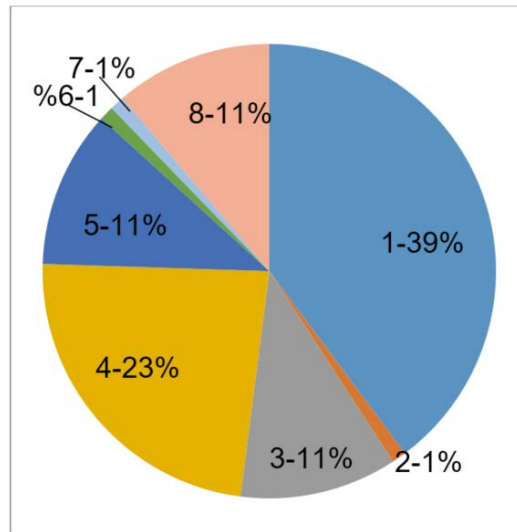


Fig. 2. Different institutions among the furthering institutions and financing bodies (all countries)
 1 – Furthering education/Educational Institution, 2 – Ministries/Governmental Authority, 3 – Municipal, communal, regional public institution, 4 – NPO/NGO, 5 – other, 6 – Programme initiating institution, 7 – Public Service/Public Administration, 8 – Unemployed office

Rys. 2. Różnicowanie wśród instytucji wspierających i instytucji finansujących (wszystkie kraje)
 1 – Edukacja uzupełniająca/instytucja edukacyjna, 2 – Ministerstwa/Władze rządowe, 3 – Miejska, komunalna, regionalna instytucja publiczna, 4 – NPO/NGO, 5 – inne, 6 – Instytucja inicjująca program, 7 – Administracja publiczna/Administracja publiczna, 8 – Urząd Pracy

3. CURRICULUM TO INTERNATIONAL COURSE

The aim of the Project is to develop a course to train and qualify professionals in Climate-, Environmental-, Nature- Protection and Renewable energy are the charge of issues in the practical areas of these aspects. Elaborated under project curriculum concept based on research about existing furthering education programs, experiences, needs, and requirements in the participating countries Germany, Hungary, Poland and Romania and respect to the future needs of an UE-wide approach. The design of the curriculum set up innovative training methods in combination with theoretical knowledge, case studies, and practice key skills. The Programme Structure is presented in Figure 3.

EUBILD-UNAKLIM Course Overview													Erasmus+					
„Environmental-, Nature- and Clima Protection – Professional“																		
Mod.No.	Module	ECTS	Month 21 days/m = 168 hrs/m									Workload = 1.512 hrs			Workload 40 Credits Credit = 30 hrs			1 contribution to final certificate
			1.	2.	3.	4.	5.	6.	7.	8.	9.	on campus hours	group work in projects	self-study hours				
Section I – Fundamentals, Methods and Tools																		21,7%
M 01 – 01	Introduction to Sustainability in Environment, Renewable Energy and Grow	0	16											12		4	1,1%	
M 01 – 02	Urban Sustainability Assessment Framework	1	32											20	4	8	2,1%	
M 01 – 03	Green Marketing and Services in Environment and Renewable Ennergy	1	24											16	4	4	1,6%	
M 01 – 04	Career Opportunity in Green Economy / Job Coaching		8	4		4								8	4	4	1,1%	
M 01 – 05	Sustainability Finance and Funding in Urban, Environmental and Renewable Energy Projects	1	24			8								16	8	8	2,1%	
M 02 – 01	Project Management in Environmental and Renewable Energy Projects	3	64	16										32	32	16	5,3%	
M 03 – 01	GIS in Urban, Environmental and Renewable Energy Projects	4		64	32	32								48	48	32	8,5%	
Gesamt		10	168	84	32	44	0	0	0	0	0	0	0	152	100	76		
Section II – Clima- Environment and Nature Protection																		22,8%
M 04 – 01	Facts in Environment and Nature Protection (EU- and National Framework)	0		8										8			0,5%	
M 04 – 02	Circular Economy – Act and Law	0,5		16										8	8		1,1%	
M 04 – 03	Ecological footprint	0		8										8			0,5%	
M 04 – 04	Water management, Protection and Law	0,5		16										16			1,1%	
M 04 – 05	Waste Management, Separation and Recycling	1		32										20	8	4	2,1%	
M 04 – 06	Soil Management, Protection and Law	1			32									8	16	8	2,1%	
M 04 – 07	Emission and Pollutants in soil, air and water	1		4	28									24		8	2,1%	
M 04 – 08	Environment in Logistic and Packaging	0			4									4			0,3%	
M 04 – 09	Landfill – Management and Law	0			4									4			0,3%	
M 04 – 10	Environmental criminal law	1				16									8	8	1,1%	
M 04 – 11	Nature protection – Management and Law	1			32									16	8	8	2,1%	
M 04 – 12	NATURA 2000 Directive, Water Framework and Stakeholders	2			36	28								32	32		4,2%	
M 04 – 13	Project work in Environment and Nature Protection	2				80								8	40	32	5,3%	
Gesamt		10	0	84	136	124	0	0	0	0	0	0	0	156	120	68		
Section III – Sustainability in Renewable Energy																		21,2%
M 05 – 01	Introduction to EnergyDistribution, SmartGrid and Future Mobility	0					16	16						20	8	4	2,1%	
M 05 – 02	Introduction to Photovoltaics and Storages	1					40							24	12	4	2,6%	
M 05 – 03	Introduction to Solarthermal Energy and Storages	1					24	8						24	4	4	2,1%	
M 05 – 04	Introduction to Wind Energy and Power – to – Gas	1					24	8						20	8	4	2,1%	
M 05 – 05	Introduction to Bioenergy, Bio-Fuels and Storages	1					24	8						20	8	4	2,1%	
M 05 – 06	Introduction to Water flow energy, Hydro Power and Storages	0						8						8			0,5%	
M 05 – 07	Introduction to Geothermal Energy, District Heating, Climatization and Cooling	1					32	8						20	12	8	2,6%	
M 05 – 08	Sustainability in green energy-efficient building	1						32						24	4	4	2,1%	
M 05 – 09	Sustainability in energy-efficient production with energy management	1						32						24	4	4	2,1%	
M 05 – 10	Study project in green energy and energy-efficiency	3						40						8	24	8	2,6%	
Gesamt		10	0	0	0	0	160	160	0	0	0	0	0	192	84	44		
Section IV – Profile and Practice – Internship																		33,3%
M 06 – 01	Company Project / Internship	10								168	168	152		16		472	32,3%	
M 06 – 02	Course Final / Project Kolloquium	0											16		16		1,1%	
Gesamt		10	0	0	0	0	0	0	0	168	168	168		16	16	472		
Workload / month			168	168	168	168	160	160	168	168	168						98,9%	

Fig. 3. Course overview

Rys. 3. Przegląd programu nauczania

CONCLUSIONS

The Erasmus+ project presented designing an international adult-learning furthering education course. It will take place in the participating countries: German, Hungarian, Polish and Romanian. Training languages will be the national languages and also English. What is more, environmental and cross-sector topics will be addressed, so it can help in exchange of experiences, the use of good practice and bilateral exchange the participants from the project partners. These activities contribute to the development of the knowledge and improve teachers collaboration.

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REFERENCES

- Europe 2020, European Commission, 2010 [Online] <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:PL:PDF> [Accessed: 2018-08-01].
- Kryk, B. 2014. Czas na zielone kołnierzyki. *Ekonomia i Środowisko* 3(50), s. 10–20. [Online] <http://hr.businesslive.ro/top-50-site-uri-de-job-uri-din-romania/> [Accessed: 2018-08-01].
- Szyja, P. 2015. Zielona gospodarka w Polsce stan obecny i perspektywy. *Nierówności Społeczne a Wzrost Gospodarczy* nr 41 (1/2015), ISSN 1898-5084.

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STRESZCZENIE

W obliczu znacznych zmian klimatycznych oraz rosnącego zanieczyszczenia środowiska oczekuje się, że tworzenie tzw. zielonych miejsc pracy pozwoli przeciwdziałaniu degradacji środowiska oraz zmniejszyć bezrobocie. Będzie mieć także wpływ na edukację. W artykule przedstawiono niektóre prace wykonane w ramach projektu Erasmus+ pt. *Europejska koncepcja edukacyjna w zakresie ochrony środowiska oraz klimatu w celu zapewnienia zrównoważonego rozwoju transgranicznego*.

SŁOWA KLUCZOWE

Edukacja, ochrona środowiska, zielona miejsca pracy, Erasmus+