

REPORT OF COLLABORATORS NETWORK DATABASE AND IDENTIFICATION OF LOCAL NEEDS

Intellectual Output 3, Activity O3-A5

Liliana Topliceanu, Petru Gabriel Puiu
„Vasile Alecsandri” University of Bacau, Romania

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1. INTRODUCTION

The successful development of the project IN2RURAL and the achieving of the objectives concerning the training of specialists in the area of renewable energy for rural development imposed the creation of a network of SMEs, capable to support the practical training of the students.

The competences of the students which will be developed with the help of the SMEs, will have to cover the identified needs at the local level, in the rural regions of project applicability.

2. IDENTIFICATION OF LOCAL SOCIO-ECONOMIC NEEDS AND THE DEVELOPMENT OF RENEWABLE ENERGY SOURCES

The geographic areas of IN2RURAL project implementations from the three partner countries (Hungary, Romania and Spain) have different specific characteristics and different **levels** of renewable energy sources development.

The discussions conducted during the Study on Training Needs (Intellectual Output 2) with stakeholders, SMEs and inhabitants, conducted to some conclusions concerning the socio-economic level of development, how much the renewable energy is accepted by the population of the three regions, which are the needs, the expectations and the possible future directions of development of these areas.

The results of this analysis are presented in the following paragraphs.

Castellon Region is a coastal province, with mountainous hinterlands, having an area of 6.631,8 km² and a population of 587.508 inhabitants.

Socio-economic status of Castellon Province is highlighted by the opinions of the people leaving in the area:

- The current situation described by all the respondents clearly reflects a perception of difficulty, regardless of the origin or activity to which it is dedicated.

- The sharp decline in population in recent decades was highlighted in several interviews, along with the fact that the population pyramid has clearly aged in small hinterlands towns, rather than in the big coast cities.
- Some of the people which were interviewed highlighted that the main cause of the bad situation of the agriculture and livestock is due to a lack of profitability, absence of skilled jobs (nowadays there are very few opportunities for those trained in universities to develop their profession in the rural environment) and poor communications and deficiencies in the basic infrastructure for citizens.
- Other causes that are discussed to a lesser extent are the dispersed population, the economic system which drives people to urban areas (as it is where the big market is), or dependence on European subsidies for projects that may have such a low return.

2.1 Implementation of renewable energy in Castellon Province:

- There are people which have general or specific knowledge in the field of renewable energies.
- There are user profiles interested in the subject: people with their own domestic equipment; project promoter; engineers dedicated mainly to biomass and solar energy; investors in large photovoltaic installations; teachers / researchers in a high schools or universities; institutional (local council) profile, business or simply personal.
- In general, biomass is the technology that raises more interest and in which a great untapped potential is seen among the interviewees and more people link it to rural development.
- Solar technology remains the best known and, in some cases, biomass is not seen like a sufficiently competitive technology due to equipment prices; so, they would continue focusing more on solar photovoltaic, which is considered to be more developed and competitive.
- Wind technology is conceived more suitable for high power installations, usually considered unattractive to self-sufficiency and only if used as backup power.
- The general feeling among respondents is, that renewable energies play an important role in rural development, but it is clearly below its potential.

Bacau County is part of the North East Development Region and has 6.621 km² and 616.000 inhabitants. As landforms, this area consists in: 34% mountainous region, 28% sub-eastern Carpathians, 11% Moldova Plateau and 27% Siret River Valley. Taking into consideration this distribution of the relief, 42% of Bacau County surface is represented by wooded area and 55% by agricultural land.

Socio-economic status

- The main activity in the rural area is agriculture, as people practise subsistence farming that cannot offer conditions for prosperity.

- The few companies that exist in the rural areas, in fields of constructions, wood processing, services, etc. are small and there are few jobs offered. These companies are diffused in the villages situated nearby urban centres.
- There are lack of services and utilities in rural areas. The same problem is also found in the case of services for water provision or sewerage: few villages benefit from these facilities.
- The majority of the participants to the survey consider that, in the future, this situation may be improved through the coming back of people who are abroad. This would be possible by accessing EU funds and by offering better support from the state to the agricultural and animal husbandry activities.
- While the infrastructure is in a poor condition in most rural areas, the internet and mobile phone services have a better status.

2.2 Implementation of renewable energy in Bacau County

The implementation of renewable energy in area of Bacau County just started, there is no example of good practice in this sense, there is no important exploitation of renewable energy, but only some isolated cases, with no impact on the community. The conclusions drawn during the discussions in the context of the project are:

- The people from the area showed a good knowledge of the rural environment protection and proved to be informed about renewable energy sources and their importance.
- Some scepticism was shown, related to the real possibilities of implementation of these resources in rural environment.
- The only form of renewable energy frequently used is biomass, under the shape of wood, wood waste, and vegetable agricultural waste, which is used as source of thermal energy in individual households.
- Although the area has good potential of renewable sources, the local administration didn't take firm measures to valorise these resources. Two reasons underlying this situation: lack of information and low budgets of the rural municipalities.
- The link between the implementation of renewable energy sources exploitation and rural development has been met with favourable appreciation from the majority of respondents.

Heves County is located in Northern Hungary, it has 3.637 km² and a total of 305.336 inhabitants.

Socio-economic status:

- The area of Gyöngyös and its surrounding smaller settlement mainly live on agriculture and job opportunities provided by the city. The situation of rural areas of

Gyöngyös micro region is quite reasonable, and it could be improving in the medium and the long term with the help of government and EU funding.

- The infrastructure of the region is in a good situation (M3 motorway), its agricultural conditions and touristic facilities can also be considered to be reasonable on a national scale. Also, the grape wine cultivation and winemaking, with long tradition in the area, are subscribed to the same main idea, to connect viniculture with tourism.
- The number of people with higher education degree is favourable in Gyöngyös region, but a lot of people commute to other micro regions for work. The settlements' population is ageing, the demographic tendencies are unfavourable.
- The dominance of agriculture in economic activity is declining, instead the tertiary industry is growing somewhat. This situation can only be changed at the earliest in the medium term with the development of new factories and the renewal of former industrial sectors related to agriculture.
- To sum it up, it can be said that population in Heves County is slowly decreasing while labour market can be characterised by stagnant employment and medium scale unemployment. Economic activities in the region are stagnant and threats to competitiveness. In the social fabric are distortion of demographic composition and slipping away middle-class.

2.3 Implementation of renewable energy in in Heves County

The range of the implementation of renewable energy is presented in the next paragraphs:

- The role of renewable energy today is much less than its real potentials, so its role and utilization level should be increased.
- A dynamic strengthening of the RES sector is envisaged in the near future. It is in productive and services sector. Generally responders think that RES sector will be highly appreciated in the future.
- RES should play an advanced role in the short term, and they should represent an increasing proportion in energy production both in the medium and the long term because of environmental and economic reasons.
- The role of renewable energy resources (similar to other social and economic decision) needs multifocal awarding considering the short, medium and long-term conditions simultaneous.
- To sum it up, there is demand for RES. Primarily the spread of solar energy use is typical. On the other hand, economical biomass utilization also has perspectives in the future. Unfortunately rural regions are in a highly disadvantageous position;
- RES could generate high number of jobs. Furthermore there is an existing demand for cost effective energy resources not only in rural areas but in all sectors and regions to enhance competitiveness.

2.4 Conclusions of the socio-economic needs and the development of renewable energy sources

Analysing the results of the study concerning the socio-economic needs of the rural areas involved in the project (Hernández et al., 2017), some conclusions could be highlighted.

First, the territory of Spain, Castellon Region, and Romania, Bacau County, included in this analysis, have approximately the same dimension of territory (6.631,8 km² Castellon Region and 6.621 km² Bacau County), while the area of Heves County (3.637 km²) represents a little over half of these two regions.

In terms of population density, the territories are very similar: 83,6 inhabitants/ km² in Castellon, 83,9 inhabitants/ km² in Hungary and 93 inhabitants/ km² in Bacau County.

In all this regions the main occupation of the population is connected with agriculture, with some differences imposed by the specifics of the territory: wine cultivation in Heves and livestock in Castellon.

All these three territories have difficulties in offering interesting and diversified jobs to the young and in all these regions the aging of population determines a negative demographic tendency.

Concerning the renewable energies, in general, the people are informed and consider that this could be a source of well faire and a possibility to attract young people to stay in the border of rural communities. The better known renewable sources are biomass, solar and wind energy and in individual homes or in small new production industries, these technologies were implemented.

It has to be mentioned that there are also some sceptical voices, especially concerning the financial possibility of local authorities to develop renewable energies exploitations. They consider that only through national or European Union dedicated programmes will it be possible to implement RES in rural areas.

Concluding, the analysed rural areas have an important potential of renewable energies and there is great expectation concerning the use of these resources for the economic and social development of these territories, for the wellbeing of people, for the diversification and attractiveness of job offers, especially for the young generation and in this way, for the revitalisation of rural communities.

3. THE NETWORK OF COLLABORATORS

The practical training of the students in the area of renewable energies for local development will be realized with the help of a collaborators network from each country. These supporters of the project offer to the students the possibility to improve their knowledge in a concrete way, working in real cases.

According to the project demands, the network of collaborators from each country is required to have a minimum number of five companies which are ready to host the students and which

have the necessary technical and linguistic competences to train them. Starting from this number, each partner has the possibility to enlarge its national collaborator network during the project's lifetime. It is expected that the activities of the project will raise the interest of different other companies, NGOs, municipalities, etc. and a group of supporting partners to join to the initial team of the project collaborators.

Short information concerning the network of collaborators, the area of activities and domain of training offered to the students is presented in the next lines.

3.1 Spanish network and the area of competence

1. Heliotec



Main activities	renewable energy sources, sustainable development and innovation
Area of the training	rural development, project management
	http://www.heliotec.org/en/index.html

Heliotec is a company located in La Vall d'Uixó, Castellón, with a great experience in renewable energy technologies. It is considered as a relevant company of the photovoltaic sector in its region, thanks to intense activity performed in this area. The company had collaborations in different other counties, less experienced in photovoltaic energy exploitation and also with universities and vocational training centers.

Nowadays Heliotec is interested to extend the domain of its activity and develops studies and research concerning the utilisation of biomass in the area of Castellon. In this way, the company meets the social needs of the region, will give a better utilization of the wood waste and acts in accordance with the sustainable development government policy. These studies will be conducted firstly in Vistabella del Maestrazgo (Castelló), then will be extended in other part of the region.

The company has the intention to involve students from IN2RURAL project in its new activity area, contributing to the development of new competences concerning the connexion between rural development and the efficient utilization of the renewable energies resources.

2. Forestal Del Maestrazgo



Main activities	rural and forestry development, and biomass energy
Area of the training	rural development project management
	http://www.forestaldelmaestrazgo.com/

Forestal Del Maestrazgo is an enterprise having the headquarters in Els Ports and acting at the beginning in the agriculture and forest field. Starting from these activities, the company has diversified its interested points and has developed investments in thermal applications of biomass energy. Now, it performs all types of biomass supply, installation, maintenance and operation of equipment for biomass.

Through different type of activities as fairs, exhibitions, etc., the company promotes the efficient use of biomass as source of thermal energy in region.

Company offers to the students the possibility to analyse different solution of biomass utilization, to understand the concept of forest protection and sanitation.

3. Cooperativa de Viver



Main activities	agricultural development
Area of the training	rural development project management
	http://www.aceiteolivavirgenextra.org/

Cooperativa de Viver was founded in 1990 to bring together small oil presses of the population. During the years the association grew and has now over 500 of partners and associations and also diversified the activity domains.

The cooperative is structured in four sections:

- oil press;
- dried fruits;
- common agricultural activities;
- renewable energy and environment.

All this activities are well connected, the renewable energies being often used for fruit drying process or as power source for driving oil presses.

Cooperativa de Viver sustains the principle of sustainable agriculture and the valorisation of natural resources of the area, starting from biomass and the waste of technological processes, until the sun and wind.

The offer of the cooperative to the students is to teach them about the rural development project management.

4. Implica´t



Main activities	energy efficiency and renewable energy
Area of the training	energy monitoring, energy audits, energy optimization
	http://www.implica-t.com/

Implica´t is a company specialised in energy efficiency and renewable energy. It performs many services in this area:

- energy monitoring as: gas consumption, electricity, water, etc. in order to calculate the total energy costs of a building or a company;
- energetic optimisation - optimization of consumption, negotiation of tariffs, etc.
- thermal solar energy – to produce sanitary hot water for, thermal energy industrial processes for swimming pool, etc.

- biomass –also for hot water and industrial processes ;
- consulting services to obtain financing for energy efficiency measures and for development of renewable energy;
- energy audits
- photovoltaic energy for the own consume of the company or persons and for energy independence;
- efficient air conditioning.

The company developed many projects with industry, local administrations, hotels or individual people on many of the directions indicated above.

Sustaining the activity of educational institutions Implica´t offers support for the training of young persons and frequently collaborates with schools, vocational training and universities.

5. Ingevinci



Main activities	energy efficiency and renewable energy
Area of the training	rural development project management
	http://www.ingevinci.com/

Ingevinci is an important company in Valencia Region and one of most important enterprise from Spain acting for development of renewable energy. The company has a large spectrum of activities but its involvement in IN2RURAL project is generated by its three main directions:

- energy efficiency;
- photovoltaic energy;
- energy from biomass.

Ingevinci was involved in the development of photovoltaic parks from Los Arcos (Navarra) with a power of 2.8 MW and Valhemoso de la Fuente (Cuenca) which generates 1MW.

The company has a major contribution to the implementation of renewable energy and joined to IN2RURAL project in the efforts to offer a practical training to the students.

These five companies signed the collaboration agreement with UJI at the begining of the project, the ideas and principles of the project IN2RURAL being in line with their concepts and activities.

After that, two other institutions expressed the willing to colaborate and sustain the implemantation of the project: Mas de Noguera and Som Energia.



6. Mas de Noguera

Main activities	environmental education
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Area of the training	rural development project management
	http://www.masdenoguera.coop/

Mas de Noguera is an Environmental Education center able to work with students of infantile, primary and secondary school and also capable to offer training to the teachers from these educational levels. Mas de Noguera are open to being part of the education system in Universities and vocational training institutes and on this line the agreement with IN2RURAL project was signed.

Another direction of activity is dedicated to promote the agrotourism and to develop plans and project with the respect and rational exploitation of environment. The groups and people involved must be aware of the potential impact of their activities on the environment and rural culture. The association acts to the conservation of ecosystems and rural economies.

The Mas de Noguera has been conforming over the years as a center for dissemination and demonstration of agricultural and environmental activities, and in general, sustainable rural development. Starting from these values it promotes the conservation of traditional rural activities under the principles of organic farming and sustainable development.



7. Som Energia

Main activities	commercialisation and production of renewable energy
Area of the training	renewable energy: wind energy; photovoltaic; energy commercialisation
	www.somenergia.coop/es/

Som Energia is a non-profit green energy cooperative which has as main activities the commercialization and production of renewable energy. The cooperative is committed to promoting a change of the current energy model to achieve a 100% renewable model. The energy is produced from renewable sources as: solar, wind, biogas, biomass, etc.

The cooperative was born in 2010 as a citizen participation project. After only a few months from the establishment of the cooperative, during 2011 the activity of commercialization of certified 100% renewable electricity and the commissioning of the first renewable generation projects began.

It has to be underlined, the activity and the diffusion of Som Energia in territory is based on local groups. The Local Groups of Som Energia are formed by people who voluntarily make the Som Energy project take shape, grow and take root to the different local realities throughout the territory. Local Groups are the heart of the cooperative. Any individual, company, organization, entity or public administration that shares the values of Som Energia, can join the cooperative.

Som Energia manage, buy and bill the electricity used by people who have wanted to hire it as a trader of 100% renewable electricity, according to the certificates of guarantee of origin of the National Commission of Markets and Competition (CNMC).

Concerning the renewable energy, nowadays the cooperative manages the wind farm from Viure de l'Aire, in Pujalt, Barcelona, which generates 2.3 MW and has under study a hydroelectric and photovoltaic power plant.

3.2 Romanian network and the area of competence

1. General Electric S.R.L.

Main activities	design and execution of electrical installations of low, medium and high voltage automation systems, telecommunications and data transmission
Area of the training	transformator stations for wind park, procedures and maintenance activities for wind park
	http://www.general-electric.ro/

General Electric was founded in 1994 and was one of the first private companies acting in energetic sector.

The main activities in which General Electric performs from the beginning are:

- designing and executing electrical installations of low, medium and high voltage;
- automation systems,
- telecommunication and data transmission.

SC General Electric has important clients as Electrica SA, Transelectrica SA, Hidroelectrica SA, Orange SA, LukOil SA, Rompetrol SA, Dedeman SRL, Selgros Cash@Carry, E.ON Moldova, Kaufland Romania and Siemens Romania.

In the last years the company orientated its activity as well to the area of renewable energy, being interested especially in the domain of photovoltaic and wind parks.

In this moment General Electric assures the maintenance activity at the wind park from Vutcani village, finished in 2012 and having 24 MW installed capacity.

General Electric has the necessary experience to contribute to the development of renewable energy in the rural area. Some new projects are preparing now for photovoltaic streets lighting and for isolated small consumers.

2. Electrotehno S.R.L.

Main activities	production of compact substations, electrical equipment of low and medium voltage
Area of the training	equipment and electrical systems related to renewable energy sources

<http://www.electrotehno.ro/>

Electrotehno is an electric company established in 2000 with domestic and abroad activity, situated in a top position in the national chart of the companies with the same activity.

Electrotehno is specialised in:

- complete solutions for power supply,
- electrical equipment of low and medium voltage,
- concrete or metallic sandwich compact substations meant for consumer connection to grid;
- concrete or metallic sandwich compact substations meant for producers connection to grid (hydro, wind-farms, photovoltaic parks)

Since June 2010, Electrotehno started to produce transformer stations for photovoltaic parks. The posts are made in two variants of 500 and 1000 kVA.



3. DTV project

Main activities	engineering and technical consultancy activities
Area of the training	equipment and electrical systems related to renewable energy sources
	http://dtvproject.ro

DTV project is a company founded in 2008 with the headquartered in Onesti, Bacau County.

The main activities of the enterprise are:

- designing activities of medium and low voltage networks;
- aerial or underground electrical lines with nominal voltages of 0.4 kV ÷ 110 kV and transformer consultancy;
- power stations and installations belonging to the electrical parts of power plant;
- mono-phase and three-phase electrical wiring, interior installations civil and industrial;
- consulting in obtaining permits, agreements;
- solutions for increasing the efficiency of public lighting.

The company is able to support the efforts of regional communities for renewable energy systems development.

4. Electro Standard



Main activities	design, production and maintenance of power transformers; repairing electric motors; design of small wind turbine
Area of the training	design, production and maintenance of power transformers; repairing electric motors; Design of small wind turbine
	http://www.electrostandard.ro

Electro Standard Bacau is a private company, specialized in:

- manufacture and repair of power transformers;
- repair of electric motors;
- production of spare parts for electric cars, owning specialists with 30 years of experience in this field.

The company is also interested in renewable energy and designed its own wind turbine prototype which will be tested and then experimentally used for its own production buildings firstly.

Electro Standard could be a valuable partner for the implementation of renewable energies in rural area and could transfer knowledge to the interested students and workers.

5. Bacău Local Development Agency



Main activities	Sustainable Development, strategies and programs
Area of the training	Sustainable Development, strategies and programs
	www.adlbacau.ro/

Bacău Local Development Agency is local public institution with legal personality, subordinated to the Local Council of Bacau.

The institution is involved in many activities in the benefit of the local community:

- initiating and supporting programs and projects for socio-economic development of the municipality and for public infrastructure;
- supporting the activities of small and medium enterprises;
- stimulating and implementing public-private partnership mechanisms;
- any other activities which can contribute to the development of local communities.

Bacău Local Development Agency was involved in the realisation of SEAP of Bacau city and participated in many European projects:

- Achieving SUSTainability through an integrated approach to the management of CULTural heritage (SUSTCULT) financed through SEE East Europe Programme;
- "Building Healthy Communities" thematic network sustained by URBACT II Operational Program
- Management Plan for the Natura 2000: Buhusi-Bacau-Beresti lakes and public awareness campaign developed through Sectoral Operational Program Environment

The large experience achieved in the management of different programs and the interest in environmental protection, make from ADL Bacau a good partner for implementation of renewable energies projects in the region and for the training in project management of young generation.

6. Bacău Chamber of Commerce and Industry



Main activities	Sustainable Development, strategies and programs
Area of the training	Sustainable Development, strategies and programs

Bacau Chamber of Commerce and Industry is the largest organization of entrepreneurs from Bacau, being recognized as the voice of the business community in Bacau. As an organization of public utility, it ensures the interface between companies and public authorities, acting for sustainable development of Bacau County.

The main activities are:

- supporting entrepreneurs in starting and developing business services;
- promoting the economic potential of Bacau County on national or international level through its collaborators: Enterprise Europe Network, Chambers of Commerce of other countries, external international organizations;
- informing entrepreneurs about the legal and legislative updates;
- organizing training courses for various professions required by labor market;
- encouraging and supporting measures for climate protection, energy efficiency and development of renewable energy.

Bacau Chamber of Commerce and Industry is an important and constant partner of Vasile Alecsandri University of Bacau and participated directly or as support organization in projects as: RURENER, 100% RES communities.

3.3 Hungarian network and the area of competence

1. GEOLIN Bt



Main activities	rural development, planning biomass management
Area of the training	rural development, biomass management project management

Geolin Bt is a spin-off company very active in rural development and higher education. The team of Geolin Bt has numerous research **articles** on biomass in important national and international journals.

The company is familiar both with EU-funded projects and education-related activities. Geolin Bt is also a member of the European Ecocycles Society, an international NGO dealing with sustainable development and environmental sciences, with special regards of biomass production and utilisation.

2. DAVINO Bt



Main activities	rural development, planning biomass management
Area of the training	rural development
	http://davino.hu/

DAVINO Bt is a company located in Gyongyos and having as main activities:

- implementing tourism and cultural heritage strategies and action plans;
- producing realistic, practical business plans for partners large and small, from international to local level;
- consulting services in sustainable tourism development and management.

DAVINO has almost 10 years' experience of providing consultancy services and during these years it had a large number of collaboration with high schools and universities.

3. TARNA91 Kft



Main activities	rural development, planning project management
Area of the training	rural development, project management
	http://tarna91.hu/

Tarna91 Kft is specialised in project design and management and all of their aspects: technical preparation, implementation, the provision of funding for the project. The company works has a large number of partners: companies, local governments and non-governmental organizations from Hungary or abroad and has 25 years of activities.

Through its experience, the company can design and conduct any type of project dedicated to rural development and renewable energy exploitation.

4. ÉMAVI Észak-Magyarországi Vállalkozásfejlesztési Betéti Társaság

Main activities	design and implementation of installments
Area of the training	vocational training

ÉMAVI is a company having as main activity the design and implementation of installments and taking in consideration its experience, the enterprise organizes vocational training for young and unemployed people.

5. CAMPUS közhasznú Egyesület

Main activities	rural development, planning project management
Area of the training	rural development, planning project management

CAMPUS közhasznú Egyesület is a non-profit association specialised in rural development and planning project management, ready to transfer its knowledge to the students through organized vocational courses. The activities of the association are orientated to the sustainable development of rural areas and the valorisation of its natural resources.

6. GAIA Alapítvány

Main activities	organic products biomass, planning and utilization
Area of the training	biomass planning and utilization
	http://gaiaalapitvany.hu/

Gaia is a foundation which nearly 20 years of work to support the activities of public interest and social purpose businesses. It consistently operates theoretical and practical studies for the realization of a sustainable eco-village.

Some elements of a sustainable settlement model have now been fully realized in practice and the foundation would like to transfer to the citizens, stakeholders, local administrations and interested people the experience it achieved, using different dissemination ways as: training centers, lectures, symposiums, articles.

7. European Ecocycles Society

Main activities	sustainable rural development
Area of the training	sustainable rural development
	http://www.ecocycles.eu/

European Ecocycles Society, located in Gyongyos, acts for a responsible use of the earth's resources so that the Ecological cycles, the self-regulating process which recycle the earth's limited resources, as water, carbon, nitrogen, and other elements, to have time to be accomplished. Understanding how local cycles fit into global cycles is essential to make the best possible management decisions to maintain ecosystem health and productivity for now and the future.

European Ecocycles Society has been created by researchers studying these cycles with the main goal to promote scientific dialogue in order to allow for scientific collaboration, to unify scholars, coordinate research in the area of ecological cycles, exchange information, publish works.

The society publishes scientific journals in a large area connected with environment protection: agriculture and fisheries, climatology and climate change, ecological cycles, environmental economics and environmental sociology, waste minimization, management, and pollution prevention, water resources and wastewater management, etc.

4. ANALYSIS OF COMPETENCES PROVIDED BY THE NETWORK

The network created to sustain the practical activities of IN2RURAL is composed by members with different and complementary competences, having different organizational structure but being governed by the common interest for a sustainable development of rural area, which includes the exploitation of renewable energies.

Concluding, the network created has: 20 organisations, distributed in the three countries (Romania, Spain and Hungary):

- 7 Spanish companies;
- 6 Romanian companies;
- 7 Hungarian companies.

The fields of activities of these network members are presented in the fig 1.

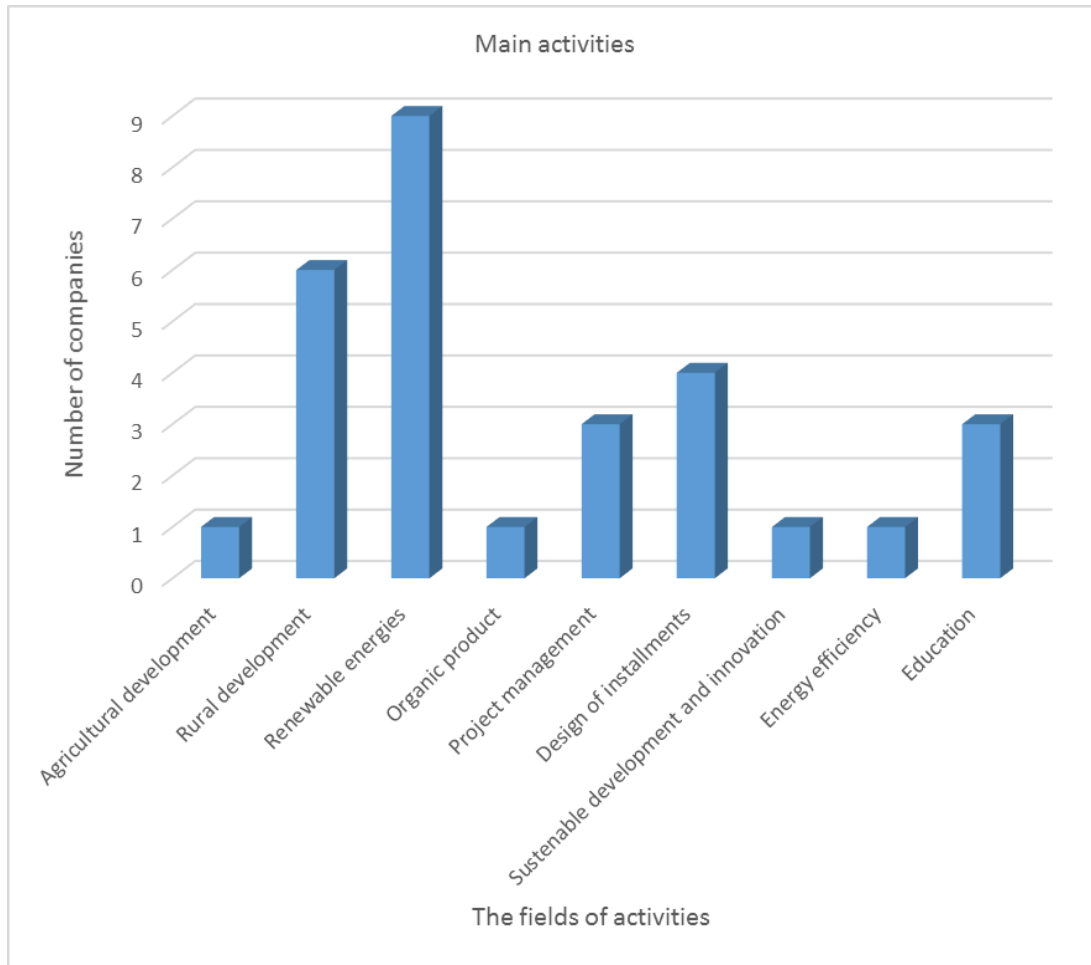


Figure 1. The distribution of main activities of network members



Figure 2. Area of training offered by companies



Figure 3 Training area of Spanish companies



Figure 3 Training area of Romanian companies



Figure 4. Area of training offered by Hungarian companies

As it could be observed from the figures (fig.1-fig.4), the companies participating in the project network cover a large area of activities. The majority of them are specialised in rural development and project management, four work especially in renewable energy, one in energy efficiency and the other two in agricultural development and respectively, in organic products biomass.

According to their main field of activity, the training offered to the students (Fig. 2) could cover a strong practical formation in the problems of rural development through renewable energy.

5. ADDITIONAL SUPPORTING NETWORK

The identification of the problems in the rural area and the training needs to improve the employability of the students were made also with the help of other institutions and companies which participated in the surveys conducted by the three universities.

In this action UJI received the support from:

- Municipality of Benlloch
- Municipality of Todolella
- NETPLC

- Som Energia
- Farmers Union
- Secondary School Alto Palancia
- Espadán Centre of Studies
- Natural Park Sierra Espadán

Vasile Alecsandri University of Bacau was helped by:

- URBIOLED
- Itesti Fruit Growing Association
- “Gheorghe Asachi” University of Iași
- Technical College of Communications “N.V. Karpen
- National Environmental Protection Agency
- “Ion Ghica” Economic College

Karoly Robert University collaborated with:

- KPMG Counselling Ltd.
- Associatio Ugar
- Egererdó Plc
- Sustainable Innovation Centre
- Municipality of Gyöngyös
- Gyöngy Energetikai Ügynökség Ltd
- Szent István University
- Vidék Profit Ltd
- Department of Social Geography and Regional Development University of Debrecen
- MÁTRA Secondary School (Forestry)
- Hi-Tech Sport base.

Meanwhile, from the moment when the project activities had visibility, many other companies, municipalities, associations, etc. expressed their interest for the project and joined to the supporting network:

- Conselleria de Agricultura, Medio Ambiente, Cambio Climático y Desarrollo Rural
- Municipality of Atzeneta
- Municipality of Vistabella
- Municipality of Serra
- Municipality of Segorbe
- Natural Park de la Serra d’Espadà
- CO-INCIDE (University Association)
- La Unió de Llauradors (Farmers Union)

All these institutions contributed with opinions and advice to design the formation of the students in order to satisfy the rural needs and showed the availability to sustain the future efforts of the project partners.

6. CONTACT DATABASE OF IN2RURAL PROJECT

In order to assure a large impact of activities of IN2RURAL project, a strong database was created. Every person or institution from this database will receive information regularly, concerning the progress of the project and can also send its opinions, questions and suggestions.

The two-way relation between project and the interested parts is dynamic and profitable for both parties: the project will have a greater impact and will receive a feedback from its recipients. On the other hand, the people who will receive the news will be informed, can ask for more details, and finally will be prepared to implement a renewable source exploitation using the model developed through the project.

The created database is structured in four parts: European addresses, Spanish, Romanian and Hungarian addresses.

The European part has 81 contact addresses (from a minimum of 50) which include: offices of European Commission and institutions, environmental associations, energy association, research institutions, associations on sustainable development, universities, vocational and formative centers, agricultural associations, NGOs, small and medium enterprises, people involved in renewable energy and environmental protection, educational centers, etc., all from different countries of Europe.

According to the project requirement, the national databases have to encompass a minimum of 133 contacts. In fact, the dissemination databases are much larger, having at the beginning of the project:

- 234 Spanish addresses;
- 133 Hungarian addresses;
- 137 Romanian addresses.

At this initial contact database the new addresses collected during the multiplier events have to be added, a minimum of three series of multiplier events by country with at least 30 participants. In fact, considering the connections of universities in their area and also the interest of their own students on the project topic, the number of addresses will be higher. So, it can be concluded that at the end of the project the number of contacts will much more higher.

7. THE MATCHING BETWEEN THE SME CAPABILITIES AND LOCAL NEEDS

Analysing the competences offered by companies from the collaborators' network and also the needs and especially the renewable energy available in the areas of project

implementation, some ideas concerning future possible projects have been sketched by partners and network collaborators together.

The selected ideas could be a good inspiration source for the development of the renewable energy in rural areas and also good subjects for the future student's projects.

Taking into consideration the specific of **Castellon Province** and the identified needs and requirements of the area, the following projects were proposed to be developed:

- ❖ *Comparative study between the use of district heating and individual heating systems, based on biomass.* The main idea of the project is a comparative study concerning the advantages and disadvantages of using district heating or individual heating systems for different municipal buildings. It is important to underline that this subject is in line with local government's plan to take advantage of the forest waste, which appears in the surroundings of the town, in order to produce biomass for self-consumption energy. The study will take into account the technical, economic, social and environmental factors.
- ❖ *Study and design of renewable energy installations for isolated buildings without connection to electric, potable water and sanitation grid.* The proposed project is very important to assure the comfort for people living in isolated areas and has a great potential to be replicated in other regions and countries. Starting from this idea, an analysis concerning different renewable energy solutions to assure the needs of these constructions was proposed, in order to find the most sustainable and economic solution. The study will have to take into consideration the available renewable energy sources from the location which will be chosen.
- ❖ *Comparison of different solutions based on photovoltaic panels as provider of electric energy to water pump in rural environment.* The project proposes a comparative study for the following proposed solutions:
 - PV cells with fixed support and without batteries;
 - PV cells with fixed support and batteries;
 - PV cells with solar tracking system and batteries.

The results of the study will be very important as a starting point for the future projects which will be developed in rural area to assure the water requirements for the zones without a distribution system.

- ❖ *Development of renewable energy models for children education.* An important component of rural sustainable development is the education, the transfer to the people of the concept of environment protection and the renewable energy sources. For this reason it was proposed to design such type of project which can assure the population support and acceptance.

Bacau County is an area which benefits by wind, solar and biomass, as energy sources. Because biomass was adopted in the last couple of years for individual heating systems the,

other two types of renewable energy were proposed to be promoted through demonstrative projects. So, the partners in the project and the network of collaborators suggested:

- ❖ *Photovoltaic panels for power supply of a farm.* The Bacau County being an area with an important agriculture and livestock potential, it is important to find solutions to cover the energy needs of these consumers, sometimes placed far away from the energy grid, in an economic and sustainable way. The solution with the photovoltaic panels mounted on the roof of the farm buildings could be in important model, replicable for the other cases. An analysis will be made for the specific conditions of the Bacau area, which are in fact the conditions of almost the entire North-Eastern part of Romania. The project will search for the best solution and will take in consideration the financial aspect of this investment.
- ❖ *Study concerns the efficiency of wind energy in the area of Bacau County.* The proposed study will search to analyse the possibility to use wind energy in order to assure the energy for a farm or for individual buildings of a pension and also for a number of water pumps which has to irrigate vegetable crops. The territories of Bacau County include some important hillside areas which have a good wind potential and the project intends to study the efficiency of this potential. For the isolated groups of buildings or for farms without network connection, this could be a good and efficient solution for power supply.
- ❖ *Study concerning optimization of photovoltaic lighting system.* Some villages from Bacau County developed in the last years, thanks to Rural Development Program and the support of LAGs, photovoltaic lighting systems. The solution adopted in these cases is that each lighting pole is a standalone system. The study proposed by partners' consortium is to design a centrally managed system for a street without public lighting, system with photovoltaic panels and with an intelligent controller (dimmer). The solution proposed will offer some important advantages: modernization, comfortable solution, all systems check up at the same time improvement of the intervention to each system. In this study all these presumed advantages will be analysed, but also the disadvantages and the costs of this system. The results of the study will permit the modernisation of the systems with LED developed in the last years in Bacau villages and not only.
- ❖ *Design photovoltaic - wind hybrid system for energy supply of an isolated consumer.* The idea of this project was born from eco-rural tourism. The North-Eastern part of Romania, (known as Moldavia) and of course Bacau County, benefits from a very beautiful landscapes and a lot of pensions were developed in the area. The concern to keep a clean environment and the difficulties and cost of the connection to the national grid in the case of isolated buildings, suggested this subject. The project will analyse different type of solutions taking into consideration the sun and wind energy which have a good potential in this part of Romania. The sizing of the installations, the economic efficiency and the cost of different alternative will be also presented in the study.

Gyongyos area and Heves County has, as main renewable resources, biomass and solar energy. The last one is less developed and accepted by the local population, biomass being much more used in the region, even if not always in the most efficient way. Taking into consideration these aspects the project's suggestions will be especially in the field of biomass:

- ❖ *The role of biomass and its utilization in the process of organic food production.* The partners from Gyongyos and the network of collaborators proposed that this study be conducted in the *GAIA Eco-village*, an area where the biomass is an important renewable energy source. The use of biomass in heating system is beneficial because it uses agricultural, forest and industrial residues and waste to produce heat with less effect on the environment than fossil fuels. The study proposes a deep analysis concerning: the system and needed equipment in order to keep the character of eco-houses of the villages; the advantages and disadvantages of the proposed solution; the cost and the return of investment. An important point of the analysis is to find the best solution such as the qualities of organic food are not affected.
- ❖ *Possibility of the installation of a biomass boiler in one of the buildings of Budapest County Forest Management Company.* The proposed study has to analyse the best biomass solution for heating system of the company. The advantages of the biomass are well known but the study has to analyse the needed number of boilers for an actual situation and for possible future extension of the company, the costs of the investment, the workplaces –temporary and permanent- produced, the impact of the construction on the environment.
- ❖ *Utilization of biomass in the energy supply of Pland Diversity Centre in a Hungarian village.* The main question of the proposed study is to analyse if the use of biomass energy for heating green houses and buildings in a site of Pland Diversity Centre in Tápiószele (Hungary) is a good solution. The advantages of biomass as a source of energy supply are undoubtedly, one of the most important due to the production of heat and electricity with less effect on the environment than classical fossil fuels. The answer that the study has to give is if the biomass fits in the case of Pland Diversity Centre in Tápiószele or another renewable energy source has to be chosen.
- ❖ *Production of bioenergy feedstock and integration of bioenergy into small and medium-scale renewable energy-systems.* In an area with an important agricultural sector, the idea to produce bioenergy and valorise in this way the raw materials comes natural. The systems proposed to be design has to be with small capacity in order to be used by individual consumers.

The development of all proposed projects will be made with the common support of partners and SMEs which show the availability to be involved in the sustainable rural development and a larger exploitation of renewable energy of their area.

The dissemination of the results of the projects will be a good source of inspiration for other local communities, stakeholders and private investors.

8. CONCLUSIONS

The rural areas have an important potential of renewable energy which started to be known and appreciated by the population. The exploitation of this resource could improve the economic development of these territories, could contribute to rise of the living standards of the population, could enlarge the job offers and could stop the young leaving.

The implementation of renewable sources exploitation is conditioned by two aspects: financial support and human resources. On the last direction, IN2RURAL project with the help of SMEs Network, will play an important role in training young specialists for the development of RES in the specific conditions of rural environment.

The training of the students has to have a theoretical part and a practical part. If the theoretical courses modules are easy to be delivered by universities, the development of real projects requires the participation of different actors from real economy. For this reason, in each partner country, were created networks of collaborators which include SMEs, associations, consultancy agencies, etc.

The involvement of the network of collaborators is very important for the practical part of the students training in order to offer them the possibility to analyse, to find solutions and to design real cases which could be then realized by any investors or municipality. If initially 20 companies signed the cooperation agreement with project partners, the number of interested institutions has grown and an alternative support network with around 34 members was created. All this local, regional and national collaborators are very interested in the project's results, expressing their willingness to help and to participate in forming these students.

The partnership between project partners and collaboration networks will assure a good theoretical and practical formation of young students, adapted to the rural areas and it will develop passion and responsibility for the environment's protection, for the future sustainable development of rural communities.

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ANNEXES

Annex 1 Romanian databases