RENEWABLE ENERGY, AS A TOOL OF ECONOMIC INNOVATION IN RURAL AREAS

Honvári P., Kukorelli I.

Doctoral School of Regional- and Economic Sciences, Széchenyi István University H-9026 Győr, Egyetem tér 1., Hungary

E-mail: honvari.patricia@rkk.hu

ABSTRACT

The objective of the study is to analyse different European and domestic models, and to demonstrate factors of the success and obstacles regarding the environmental investments, and especially the use of renewable energy sources in rural areas. This study was issued in the frame of the Hungarian Rural Research 2012-2013, with the main qualitative method of personal interviews. It can be established, that the use of renewable energy sources is able to create economic innovation and prosperity in rural areas. Main success-factors for environmental investments are the local innovator, the knowledge base, the creation of an appropriate recipient space and the focus to the local production and local processing. However, by analysing the case studies, besides the success-factors, more difficulties were also observed, like the missing know-how network, the complicated tender application-systems, the lack of financial sources and the low attention from national authorities. It is important to consider the obstacles, in order to increase the use and potential of renewable energy sources. In Hungary, determinant proportion of the renewable energy can be produced in rural areas. This is why the environmental investments should play an important role in rural development issues in the future.

Key words: rural development, renewable energy, economic innovation

INTRODUCTION

Presence of the economic innovation in rural areas is more often linked to the environmental investments and to the use of renewable energy sources. The objective of the study is to analyse European and domestic models, and to demonstrate factors of the success and obstacles on the basis of the case studies.

The environmental investments, the growing significance of the renewable energy sources are not a novelty today. The global international community, the European Union and the nation states are paying more and more attention to alternative energy. The population have become environmentally aware, the new ways of energy-production are getting recognized and accepted. However it is need to be mentioned, that the application is still below the realizable rate, according to the renewable energy potential. The European Union has already defined the demand to increase the utilization of the alternatives.

In Hungary, determinant proportion of the renewable energy can be produced in rural areas. (HCSO, 2012) This is why the environmental investments should play an important role in rural development issues and in economic innovations.

MATERIAL AND METHODS

This study was issued in the frame of the Hungarian Rural Research 2012-2013. The project has more subtopics, from which one is examining the connection between the social and the economic innovation in rural areas. We wanted to analyse, if the renewable energy sources would be able to cause economic innovation in a rural settlement, and if yes, what are the pushing and pulling factors.

The main qualitative method was personal interviews with mayors of three rural settlements. The aspect of choosing the settlements was the using of environmental investments and renewable energy sources. After the interviews both the European and both the Hungarian current situation considering the use of renewable energy was analysed. Finally, the three domestic and one European model was compared, and the consequences were established.

To understand the need of the examination better, it is important to mention a few words about the current renewable energy situation in Hungary. The country is in a similar situation regarding the energy import dependency, than the European Union average; however the Hungarian rate is a little bit higher: 58% in 2010. (HCSO, 2012) This means that is crucial in Hungary – similar to the Union – to increase the supply-security and to diversify the energy sources.

In accordance with the European Union directive (2009/28/EC), Hungary has to increase the rate of the renewable energy sources to 13% in the whole energy-consumption. The country has raised this number to 14,65% in his own national action plan.

In Hungary, the rate of the produced primer energy from renewable sources was 7,4% in 2010. This number is twice as much as 10 years before, however it is still only the half of the 2020 target. It is also a fact, that the most significant factor is biomass, giving almost 80% of the produced renewable energy. The use of other alternative sources is increasing slightly, but their adaptation is still slow. (HCSO, 2012)

During the study, three good domestic examples were chosen, to analyse the use of renewable energy (or other forms of environmental investments) in rural areas. These examples contribute to the implementation of the EU 2020 target on the national level, but they also contribute to rural development. The examined settlements with different conditions and facilities are trying to achieve the same goal: they want to switch to the use of renewable energy sources.

After analysing the domestic models, one European model was also chosen for comparison. More consequences and experiences can be drawn. It can be established, that the use of renewable energy sources is able to create economic innovation and prosperity in rural areas. (For example by creating workplaces, using local sources, decreasing the council's expenses, etc.) But, there are also differences between the Hungarian and the Austrian examples. In order that environmental investments could play a bigger role in the future, both the success-factors and the obstacles need to be mentioned and considered.

RESULTS AND DISCUSSION

It is clear from all of the case studies, that the economic innovation could not be realized without an innovator, more specific without a local innovator. In all of the examples, the mayor was the main actor, who has started the developments at the given settlement. It is essential for a mayor to have a conception, a theory and willingness. All of the innovators in the case studies have seen the environmental investments as a way out from the economic stagnation.

It is also a fact, that the mayor was not responsible for the expertise and the know-how. It needs to be enhanced, that in case of the environmental innovations, a respective knowledge base is essential, which aim is to realize the idea. This knowledge base can be another innovator-actor, an organization or another good example. In one of the domestic case studies, there was no knowledge base, no helping hand behind the mayor, although the willingness was given. This was the main cause, why the investments got stuck in this settlement.

Creating an appropriate recipient space is also important for the success of the innovation. Although the environmental investments have awareness-raising effect on their own, it is essential to inform and prepare the local population about the innovation. In other words, a social innovation has to be achieved before the realization of the economic innovation. In case of the Austrian model, lot of attention was paid to this factor. (Krantz, 2010) Changing the mentality of the population is a longer process, and great deal of energy needs to be invested. It turned out from the Hungarian case studies, that the mayors acting as innovators do not have enough time and capacity for this. The public information has to be continuous and systematic, but there is no opportunity to this without an office organization.

However, good examples were also seen in the domestic case studies. In one of the settlements the mayor has installed the first solar panels in the primary school. If there is not always capacity to inform the whole local population, in case of the younger people it is even more crucial. This primary school has won the eco-school prize in 2008, so the settlement is heading over the target: growing up an environment- and energy friendly new generation.

One of the important factors of rural innovation is to focus on local production and local processing. Renewable energy sources can be used most effectively on a local scale. Besides this, they also mean a significant added value. Positive quality of the environmental innovation is, that they can be easily adopted. There is no need for original innovation ideas. In all of the Hungarian case studies, the provenance of the innovation was mentioned. However, cooperation is also an important factor. In case of the Austrian model, not only the settlement, but the whole region altogether realizes the use of the renewable energy sources. This is an essential edification for the Hungarian rural areas, because it is easier to adopt an innovation through cooperation.

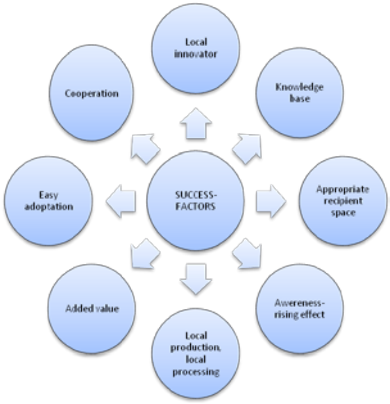

Fig.1.: The success-factors of the environmental innovations

By analysing the case studies, besides the success-factors, more differences were also observed. The Austrian model settlement has started from a bad economic situation, but presently it is a well-known innovation centre and a renewable energy knowledge base across Europe. But this can not be mentioned regarding the Hungarian examined settlements, which has more reasons.

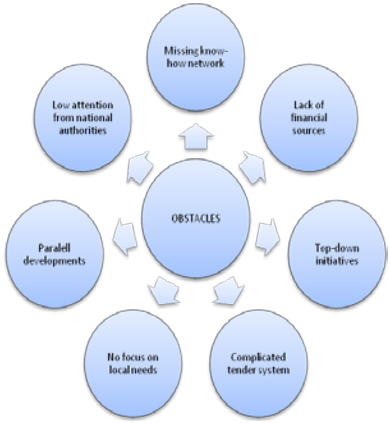

Fig.2.: Obstacle-factors of the environmental innovations

First of all, the know-how is missing from the rural areas. The expertise is given, but the network is not well evolved, so the knowledge does not find the needs. The only opportunity for the break out is to use the domestic or the European subvention system. But these tenders do not always consider the local facilities, for example the most effectively useable renewable energy source at the given area.

Rural settlements are not able to implement different investments without external help. There is no opportunity for a settlement to make an own decision about the use of the financial sources. Most of the tenders are created according to the European Union's development policies, and these are often different from the Hungarian rural development needs.

It is important to mention, that the basis of the Austrian model settlement was given by bottom-up initiatives, with the involvement of local innovators. This opposes the practise that the domestic rural areas have to adjust their own, local needs to the top-down initiatives. However a tender can be successful, and numerical measurable, it will be purposeless, if the crated development trend does not range with the local demands and facilities. It also occurs as a problem regarding the use of financial sources, that the tender application systems are complicated. Skilled application-writers should have been employed, and during the execution a lot of administrative obligations have to be fulfilled. Subsequent financing is also not favourable.

It should be stressed out, that local councils and communities need to focus more on cooperation, in order to avoid parallel investments and developments. Regarding environmental innovations and especially in case of renewable energy sources, collaboration is particularly important, because joint investments can be more effective.

Last, but not least, higher attention is needed from the national authorities also. The Hungarian energy production is based on the nuclear power plant in Paks, while the biggest proportion of energy-import is made of natural gas and fossil fuels. (HCSO, 2012) Hungary has a long-term National Energy Strategy until 2030. This document notices the increasing of renewable energy sources in the total energy-consumption, but it do not wants to change on the present trend. The energy strategy according to the strategy is based mostly on the nuclear energy and on the coal. However, a clear renewable energy strategy would be needed, where different support-systems and utilization plans are formulated.

CONCLUSIONS

To summarize the case studies, it can be seen, that in order to adopt an environmental innovation, lot of factors has to be taken into consideration. Success-factors are able to help the realization, by determining those factors, which are easier to change and to focus on (like the election of an agile mayor, or the systematic information of the local population). On the other hand, they also indicate the positive qualities of an environmental innovation (like the easy adaptation, or the local production). Changing the obstacles can only be a result of a longer process (like the national strategy or the subvention system). It need to be stressed out, that both the success-factors and the obstacles need to be considered. However, further researches and analysis is needed in order to widen the determining factors.

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