

2011

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Recommended Citation

Luda, Szilvia (2011) "Sustainable Rural Entrepreneurship: A Case in Hungary," *Journal of Environmental Sustainability*: Vol. 1: Iss. 1, Article 7.

DOI: 10.14448/jes.01.0007

Available at: <http://scholarworks.rit.edu/jes/vol1/iss1/7>

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Sustainable Rural Entrepreneurship: A Case in Hungary

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ABSTRACT: Hungary, along with the other member states of the EU, is making efforts to diminish the social and economic gap between the different regions of the country. EU cohesion funds are designed to serve this goal. However, the utilization of these resources is not efficient enough.

The problem is exacerbated by how the disadvantaged regions are supported. Support is provided on the basis of various indicators, such as per capita GDP, life expectancy, residents' educational status, etc. Omitted from this indicator set is reference to the environment or other structural characteristics of the region (such as proximity to big cities; cultural heritage, etc.). This is partly why these developments are not entirely successful.

This paper describes some positive cases that may serve as examples for the rural development of poorer regions, both in terms of economy and society. The description of the well-known case of Murau (Austria) is followed by a description of a new experiment which is taking place in the small village of Herencsény in Hungary. It is stated in conclusion that through the help of a guiding holistic vision not only the single issue of poverty can be targeted but a model is created which can facilitate the achieving of numerous ecological and societal goals.

KEYWORDS

Collaboration, Cohesion, Guiding Vision, Holistic View, Sustainable Rural Development

I. INTRODUCTION

The majority of sustainable development experts agree that, even though eco-efficiency usually positively correlates with economies of scale, globalization tends to have a negative effect on the state of the environment, as opposed to the positive impact of the appearance of self-sufficient micro-regions. From amongst all types of micro-regions, rural areas are of special significance. According to the European Charter for Rural Areas, the

expression “rural area” stands for a stretch of inland (in a broad sense) or coastal countryside where the agricultural and non-agricultural parts – including small towns and villages – form a whole both in economic and social terms, where the concentration of population and that of the economic, social and cultural structures is significantly lower than in urban areas and where the majority of territory is used for agriculture, forestry, natural reserves and recreational purposes (“European Charter”).

The “countryside” fulfills a number of environmental functions without which the healthy existence of human societies would hardly be possible. The preservation of cultural heritage is not the only reason why the existence of the countryside

is crucial. The “countryside” also creates economic and social patterns which might facilitate the recognition, and potentially, the healing of anomalies in the development of the global economy.

Studies of sustainable development devote special attention to rural lifestyles and the development of the countryside. Ecologists and sociologists have been trying for decades to establish self-sufficient model settlements, which could serve as an alternative to modern materialist lifestyles.

According to the literature, social support and the existence of a clear “guiding vision” have a crucial role in the success of rural development strategies. Lately, renewable energies have started to become such a vision in a number of regions. Späth and Späth and Rohracher (Spath and Rohracher) among others (Dierkes, Hoffmann and Marz), [4], demonstrate the necessity of such a “vision” in successful development programs (citing the example of Murau in Austria), and earlier, we also reported favorable experiences in Hungary, using Szedres as an example (Luda).

The context of sustainable development provides for a new interpretation of the urban / rural categorization. Partly because people in rural areas do not necessarily have to make a living out of agriculture any more, and the service sector has also grown in importance there. Concerning the population, two trends exist. There are people who live in the countryside and strive to move into a city (urbanization) and there are some who want to leave the city for the outskirts, or for some suburban town. The last couple of decades have witnessed an interesting tendency: a significant outflow of people from the big cities to smaller rural areas has started which later brought about radical changes in rural life and caused various conflicts.

Recently, people have begun, once again, to realize the significance of the country-city relationship – both in Europe and in North America. Even Michael Porter, the world-renowned professor

at Harvard Business School underlined in his article that rural areas now play a greater role in a countries’ competitiveness. The performance of rural regions is lagging behind, and the gap between the performance of the cities and the countryside seems to be widening, as well. This triggered serious efforts from the US government, which set aside billions of dollars in its budget for the revival of rural areas (Porter, et al).

Midgley et al. (Midgley, Ward, and Atterton) suggested that so-called urban regions, and more broadly, rural areas might be developed in two ways. Within a given region, one might develop the rural part by separate programs and initiatives aimed at reducing the differences between rural and urban areas. If we strengthen the separation of rural areas and fail to develop urban-rural relationships through well-focused programs, then the development of these rural areas will have no link to the cities and thus might even lead to an increased degree of separation. Obviously, the other alternative is to regard rural areas as an integrated and far more comprehensive and holistic form of regional development, which focuses on the bonds between rural and urban areas. In that case, one has to find those development opportunities which maximize common benefits for both (rural and urban) areas. The city and the countryside need to be treated as a whole, in an integrated, holistic way. They need development projects where both the city and the countryside can perform at their maximum. Instead of creating separate rural development programs, they accept existing links and implement integrated development strategies.

Naturally enough, these various positions are in competition with each other in Hungary, as well. Environmentalists talk about the importance of the population retaining ability of the countryside and of the preservation of rural lifestyles (Bodorkós, and Pataki), (Kelemen, Megyesi, and Nagy). Consequently, many would prefer that each service

(school, nursery school, post office, hairdresser, etc.) remain available in all townships. Others, on the contrary, suggest that a country child may only have a fair chance if they attend a school good enough to make them competitive in the education market, and later on, in the labor market. Accordingly, rural development should focus on smaller units, so-called districts (characterized by analogies in terms of size or functions; “járás” in Hungarian), where both the countryside and the city have their own specific roles (“niche”). One might also establish a good educational system by locating a school of appropriate qualities in one of the larger villages (whichever the communities can most easily access), while another township hosts the health care center and a third one provides some other service. If it has, for instance, favorable natural endowments (spectacular scenery, well-suited for excursions, etc.) then it will be home to restaurants and entertainment facilities. The main point is not trying to establish everything everywhere, as that will most probably use up all the resources and forego economy of scale benefits

The rethinking of rural development is inevitable, and if all projects focus on cities because of economies of scale, that will lead to villages being abandoned and slowly dying away.

One of the mistakes present in the majority of Hungarian ecological experiments was that most of them preferred the first model (“Separable Rural Periphery”) and did not want the countryside to change. They wanted it to remain as it used to be long ago. People should, as far as possible, live, work, earn a living, become self-sufficient and self-supporting in the very same place where they were born. Such initiatives, however, only represent an alternative to those fed up with today’s busy lifestyles (city people, that is), while they are totally unacceptable to the youth living in the countryside, who would very much like to join the whirl of city life.

Each and every idea born with sustainability

in one’s mind is worth of respect. Yet those formulating such sustainability theories usually live in big cities and imagine countryside life as an idyllic form of human existence (Cloke).

II. BASIC CHARACTERISTICS OF COUNTRY LIFE

According to a German study (Duenckmann), rural inhabitants can be divided into three groups based on what they think about the countryside. The first group has an “idyllic view” of the countryside. This is where “green” city leaders and politicians belong. After the day’s work, most of them return to their small, beautiful, quiet villages, to the suburban towns which we nowadays call sleeping towns. The second group (“reform-oriented view”) features those open to new initiatives and reforms, to organic farming. Those in the third group (“anti-conservationist view”), however, believe intensive agriculture to be the one and only hope for the countryside.

All over Europe, the proportion of elderly people is higher and that of the youth is lower in the countryside. Newcomers to rural areas do not usually come from the same region. An interesting fact about employment is that the proportion of self-employed people (private entrepreneurs) is much higher in true rural areas and significantly lower in urban areas.

A large number of urban employees work in the financial and business services sectors, while these professions can hardly be found outside urban regions. It seems strange, however, that the proportion of managers and senior officials is above the average among those living in the countryside. Some of the senior managers can already afford to work in a big city but live in a village. Which, in turn, leads to a contradiction: income is not generated in the countryside and it is not spent there, either. They live in the countryside but that is not where they make a living, which also means that their taxes go

somewhere else. A major share of regions' incomes comes from external sources.

Concerning development strategies, a remaining question is why a given town might become a tourist destination. It might not be the best choice, for instance, to locate the hotel in the city – even though that is what the majority of cities want. In a holistic approach, a countryside town, maybe a village that has tourists might count as a more suitable location. This could be an important consideration in evaluating development alternatives. It is a strange paradox that food products (vegetables, fruits, etc.) are often brought back to the countryside from “outside” – either because they are not produced locally or the supply chain does not allow for the local sale of locally-produced food items.

As we all know, a transport project may change the situation of rural areas dramatically. Transport developments do not necessarily improve employment locally, as it might very well happen that people convert to working (and maybe even shopping) somewhere else. Infrastructural development could eventually lead to the abandonment of villages. A radical increase in the prices of public utilities may also have a similar effect (Kerekes).

By now, the processes of urban-based globalization has made villages extremely vulnerable to these very same processes. The links of rural inhabitants – even those living relatively far away from the city – to cities are getting stronger and more numerous, thus they live a more and more urban life, and demand a matching standard of living. Through the development of the local economy, we need to create opportunities for rural inhabitants to live a more comfortable life, not to be citizens of second order (Kajner).

It is a common experience that even though rural development is focused on villages, it is specifically abandoned villages which are developed through various tenders – with not much success.

There should be no individual, special development strategy for the countryside, but it should rather be developed holistically, along with the nearby city. Newly announced government plans aim at re-establishing districts, which is indeed an effort to promote a more holistic logic.

III. REGIONAL INNOVATION SYSTEMS (RIS) AND SUSTAINABILITY

Back in the '80s, theories which examined the revival of the countryside usually focused on technology. They all started out from the issue that the most significant problem for rural areas is the lack of an appropriate economic background and the resulting lack of appropriate experts. In the beginning of the '90s, after the Brundtland definition (Brundtland) of sustainable development was established, everything that businesses had thought about innovation in the countryside changed. Consequently, they started to integrate all social and individual knowledge that seemed to be potentially useful in the region. This was also acknowledged by the various EU support programs which aimed at the setting of social, economic and ecological targets in rural development projects instead of the previously prevailing focus on technology only. While innovation, earlier, had been narrowed down to technical content, they then started to realize that increasing the potential for innovation in rural areas could only be achieved through integrated thinking and that focusing on a single element only (e.g., economy or technology) would not produce the desired results.

Because of the weak regional economy, there are no jobs for highly qualified employees, workforce mobility is low, and consequently, the country lags behind in attractiveness which again leads to a lack of qualification opportunities. This

results in a hard-to-break vicious circle. By analyzing the strengths and weaknesses of a region, one might discover the opportunities which may facilitate the development of the area (Gerstlberger).

Those authors (e.g. Danielzyk et al. cited in (Gerstlberger)) who have been studying regional innovations related to sustainable development usually take it for granted that so-called regional innovation systems, being focused on sustainability, indeed open up new opportunities for regional development and do actually differ from what has been experienced so far. The success stories described in relevant case studies, however, feature an incredibly high number of rare and favorable coincidences. It is coincidence rather than effort that decides whether a project turns out to be successful.

IV. THE ROLE OF A “GUIDING VISION” IN THE SUCCESS OF DEVELOPMENT

A very ambitious target has been set both on a national and on an EU-wide level; namely that the energy system needs to be steered in a far more sustainable direction (Spath and Rohracher). The target of securing the energy supply and ensuring the sustainability of the energy sector has stirred significant debate among both politicians and industry experts. Nowadays, renewable energy production is a popular regional development vision, upon which the future of an entire region might be built. If the guiding vision is accepted by the inhabitants of the region, it might guide the region onto a development path towards revitalization.

“Guiding visions” play a very important role in regional governance strategies. In transforming the social technical system, the (hopefully) guiding vision serves to steer the region towards an appropriate, desirable outcome. Dierkes et al. (Dierkes, Hoffmann and Marz) coined the concept “leitbild,” meaning “guiding image” in the beginning

of the '90s. The “leitbild” means the coordination of the participants of technical progress. It describes the coordinative and behavioral role of the key actors. They expected the “leitbild” to build a bridge between experts of highly differing professional cultures (Mambrey and Tepper; cited in (Spath and Rohracher).

V. THE LITERATURE CASE, MURAU (AUSTRIA)

Murau is a city of approximately 31,000 inhabitants, located in the Alps in Upper Styria. Its population is declining at a rate above the Styrian average. The region boasts enormous reserves of wood, with forests primarily in private hands. The area is highly suitable for establishing smaller hydroelectric plants and wind farms. Economically, the region is on the periphery, and the utilization of bio energies is at the heart of its development strategy.

In 2003, the Energy Agency of Upper Styria in cooperation with a few other experts developed a process based on community participation in order to realize the “Energy Vision of Murau.” They started out the process by recruiting energy activists (most of them representatives of organizations interested in local energy matters) who then developed initiatives for improving participation in the region’s various renewable energy and energy efficiency projects. The core idea was that an increased interest in biomass heating might be a decisive step towards a far more comprehensive approach to both the transformation of energy systems and regional development and that it might be able to create synergies in a wide range of projects.

Initiators invited organizations, businesses and residents to various workshops. In the beginning, this meant a mere 30 people. Participants formulated their ideas about the energy vision in order to ensure sustainability in the energy sector and in climate protection. These discussions revealed stories about the unique ability of fossil energies to literally cause

people's money to go up in smoke. Participating parties concluded that the amount of biomass the residents of Murau own is enough for them to become self-sufficient in heating and in electricity as well. Each participant had the opportunity to express their opinion. Active participation and the understanding of the objectives were facilitated by a moderator.

Basically, this process is what led to the formulation of the vision which, by now, means energy autonomy for the area. Five objectives were developed, all to be accomplished by 2015. The three most important of them are: (1) the district of Murau is energy autonomous with regard to heat and electricity; (2) the balance of renewables in primary energy consumption is positive, and; (3) a surplus of value is created by a net export of energy carriers. Residents are now strongly committed to maintaining a circular energy flow. The basic priorities and measures necessary to achieve Murau's energy objectives by 2015 have also been developed (Spath and Rohrer).

VI. THOUGHTS ON "GUIDING VISIONS"

Guiding visions, as regional development principles, are employed in a number of European countries and have already facilitated impressive achievements in developing certain undeveloped or less developed regions. A number of similar attempts were made in Hungary, such as the first Széchenyi Development Plan launched by the Hungarian government in 2001. In certain towns, thermal water spas were established, while others, more recently, opted to invest in biodiesel production: namely oilseed rape production and oil milling. Somewhere deep, one might recognize the presence of a guiding vision beyond these undertakings, yet it is only a couple of them which have become really successful. The Villány wine region might be cited as a

positive example. In this case, the product and the technology were well supported by society, thus implicitly making use of the wisdom from social sciences. The individual investors were not left on their own but realized that - even though from a strictly economic point of view they might even be considered competitive - the success of their own undertaking was still dependent on whether they were willing to strengthen each other's businesses. The decisive question is whether they cooperate and whether they realize that a cost/benefit analysis is not the only thing they should base their business decisions upon, but they also have to win the support and commitment of their local community. Additional values should finally be taken into account.

In a utility analysis, the expected profit still needs to be calculated, but it might not be the direct gains that make the project worth implementing. Instead, it might be some other effects (usually as "by-products") which result in a kind of additional value that the simple calculations in a cost/benefit analysis are unable to detect. Most probably, investors' profits will not be the same as they would be with some other type of business or with stock exchange investments, yet the area and the community where they live will enjoy benefits that compensate for the lesser profit. New employment opportunities, for example, might result. The streets become more livable, real estate values increase and thus the value retaining ability of the community and the population-retention capacity of the village improves.

Most Hungarian development initiatives lacked awareness of these dimensions, resulting in an abundance of alienated, left-to-themselves businesses. This kind of independence precludes generation of any additional benefits and additional welfare improvement potential, and most of the time, business success as well. A common characteristic of such undertakings is that they focus

too much on technology. There were a number of wineries, for instance, each one of which had nurtured a highly talented viticulturist (a “hero”) and managed to produce even nationally-ensured wines. The product had become marketable from a marketing perspective, yet their focus on technology drove the owner towards a high degree of automation. These businesses found themselves owning a whole lot of machines with low capacity utilization, and consequently, their capital ratio and labor productivity rose to excessively high levels. Countryside businesses should have taken a totally different development path. They should have, for example, created jobs for local residents. Instead of bottling machines, it would have been more beneficial to opt for “bottling humans”, thereby creating value for the village, as well. The majority of businesses concentrated on capital investments while ignoring the human side, which resulted in the burdens of underutilized capital equipment which caused the companies to become indebted.

Cooperation might become a kind of a vision. Collective benefits from collective efforts may turn out to be an integrating force. Interestingly, Western literature reports that business success (in Austrian Murau, for example) is brought about by priorities and action plans being determined by the community. It is the community that is able to focus on accomplishing the objectives. Commitment and the will of the community are of more value than can be revealed by cost/benefit analysis.

VII. THE CASE OF HERENCSENY – A BRIDGE BETWEEN CITY LIFE AND THE RURAL WORLD

Magyar Ökotársulás Kulturális Nonprofit Kft. (roughly translated: Hungarian Eco-partnership Cultural Non Profit Ltd.) was founded by 24

families from Budapest with the intention of using their financial and intellectual capital to establish, through gradual transition, an organic/biodynamic model farm in Herencsény, Nógrád County. The approximately 5 hectare plot is located in an agricultural area, bounded and sheltered on three sides by the village it; previously, it was used for conventional, primarily chemical-free farming. Today, multi-cultural organic farming methods are employed to produce native cultivated plants and native species of livestock. The principles of biodynamic farming are based on the rhythm and the repetition of life phases, observations of the cosmic world and the exploration of the relationships between all these. A biodynamic farmer intends to realize this organic system as a whole through the cultivation and the manuring of the soil, by using spraying preparations, by nursing the plants and by letting in herbs and even weeds (Mezei). In order to determine the exact date of the various farming tasks, they explore the scientific background of traditional countryside rules of thumb, and take into account the rhythm of cosmic constellations. Sowing, for instance, is scheduled according to the lunar cycle (Sántha).

The primary goal of the members is to receive, in return for their present investment, organic food products in the future. Their vision however, being the basis for their unity, has deeper roots and clearly points in one direction: the ecological and social balance of Hungarian society. Members form a community based on self-organization and mutual trust. They are everyday people who consider the following important priorities in their lives:

- Creating a livable, ecologically more harmonious future for themselves and their children
- Contributing to the world with their positive, constructive powers
- Supporting the unfolding of Hungary’s healing powers

- Reducing their ecological footprint
- The spiritual way, a healthy lifestyle and ecologically sustainable development being important cornerstones of their life
- Bottom-up social development and taking individual responsibilities are their own personal objectives
- Being open to forming communities with others
- Supporting not-for-profit undertakings, where making profit is not an objective, but the fulfillment of individual interests is. Community interest is the most important, and it is to become the basis for social interests in a broad sense.

The community intends to operate in cooperation with local residents and other regions. They plan on hiring the necessary workforce from the disadvantaged labor base of the region. The city-countryside cooperation results in a win-win situation, as it facilitates the production, processing and consumption of good quality, healthy local products. Thanks to the community's philosophy and its not-for-profit organization, local residents will not become servants to external capital. Owing to the continuous development and the mutual cooperation between city and countryside, local inhabitants do not need to fear that their own resources and opportunities will be utilized by others (Gyulai). This form of mutual cooperation provides a way for countryside people to earn a living. As the European Charter for Rural Areas states, the city and the countryside share the same fate, and the backbone of the countryside is agriculture.

Town hall meetings in the Bereg, the Borsodi Mezőség, in Nagykörű and in Szeged [19] suggest that actual farmers believe plant cultivation alone is not viable: animal farming has always been and will always be necessary. They clearly agreed that a structure similar to the sometimecroft system

(a form of small-scale agriculture called "háztáji" in Hungarian) would be necessary, yet stressed the need to avoid people incurring financial losses on it.

Lastly, I would like to refer to the thoughts of Klára Hajnal:

Thus the guiding principles for the realization of sustainable development are the principle of locality, and analogously, the principle of subsidiarity in addition to cyclicity, biodiversity and cooperation. The basis for implementation is the "local farm," being a local-regional farm: a small-scale operation processing local resources to satisfy local needs, in accordance with the principle of local responsibility (Hajnal).

VIII. ACKNOWLEDGMENT:

This publication was supported by TÁMOP Funds: REF: 4.2.1/B-09/1 KMR-2010-0005.

IX. REFERENCES

- [1] Bodorkós, B. and Pataki, Gy. "Linking academic and local knowledge: community-based research and service learning for sustainable rural development in Hungary." *Journal of Cleaner Production* 17 (2009): 1123-31.
- [2] Brundtland, G.H. *Our common future: the world commission on environment and development*. Oxford: oxford University Press; 1987. Print.
- [3] Broup, M.; Brown, N.; Konrad, K. and Lente, H. "The sociology of expectations in science and technology." *Technology Analysis & Strategic Management* 18 (2006): 285-98.
- [4] Cloke, P. *Country Visions*. N.p.: Pearson Education Limited, 2003. Print.
- [5] Dierkes, M.; Hoffmann, U. and Marz, L. *Visions of Technology. Social and Institutional Factors Shaping the Development of New Technologies*. Campus, Frankfurt/New York, 1996. Print

- [6] Duenckmann, F. "The Village in the Mind: Applying Q-Methodology to Reconstructing Constructions of Rurality." *Journal of Rural Studies* 26 (2010): 284-295.
- [7] European Charter for Rural Areas. Council of Europe. Doc. 7516. 12/04/1996. In: <http://assembly.coe.int/Main.asp?link=/Documents/WorkingDocs/Doc96/EDOC7516.htm> (2010.08.28)
- [8] Gyulai, I. *Gömörszőlős, a szerves kultúra szigete*. In Pálvölgyi, T.; Nemes, Cs. and Tamás, Zs. (eds.) *Vissza vagy hova. Útkeresés a fenntarthatóság felé Magyarországon*. Tertia, Budapest, 2009. Print
- [9] Gerstlberger, W. "Regional Innovation Systems and Sustainability - Selected Examples of International Discussion." *Technovation* 24 (2004): 749-58.
- [10] Hajnal, K. "Rethink" *A fenntartható fejlődés lényegi kérdései*. In Kiss, T. and Somogyvári, M. (eds.) *Via Futuri, Fenntartható fejlődés a gyakorlatban*. Interregionális Megújuló Energiaklaszter Egyesület, Pécs, 2006. Print
- [11] Kajner, P. *Végkiárusítás előtt - A magyar vidék elmúlt nyolc éve és egy vidékpolitikai fordulat körvonalai*. In: Lányi, A. and Farkas, G. (eds.) *Miért fenntarthatatlan, ami fenntartható? Környezet és társadalom XXI. századi foratókönyvek*. 2010. Print.
- [12] Kelemen, E.; Megyesi, B. and Nagy, K.I. "Knowledge Dynamics and Sustainability in Rural Livelihood Strategies: Two Case Studies from Hungary." *Sociologia Ruralis* 48 (2008): 257-73.
- [13] Kerekes, S. *A magyar gazdaság környezeti teljesítménye az átmenet korában*. MTA Doktori értekezés. 2003. Print
- [14] Luda, Sz. *A vision of sustainable regionalism*. Pannon Egyetem, Georgikon Kar, Keszthely, 2009. Print
- [15] Mezei, O. *Biodinamikus kertgazdálkodás*. Mezőgazda Kiadó, Budapest, 2000. Print.
- [16] Midgley, J.; Ward, N. and Atterton, J. *City Regions and Rural Areas in the North East of England*. Centre for Rural Economy Research Report, 2005. Print
- [17] Molnár, G. and Vágvölgyi, G. "A fenntartható tájhasználat felé. Gazdálkodók véleménye a fenntarthatóságról." Working paper, unpublished.
- [18] Porter, M.E.; Ketels, C. H. M.; Miller, K. and Bryden, R.T. "Competitiveness in U.S. Rural Regions: Learning and Research Agenda." Institute for Strategy and Competitiveness, Harvard Business School 25 Feb. (2004) In: http://www.isc.hbs.edu/pdf/EDA_RuralReport_20040621.pdf (2010.08.21).
- [19] Sántha, A. *Környezetgazdálkodás*. Nemzeti Tankönyvkiadó, Budapest, 1996. Print.
- [20] Spath, P. and Rohrer, H. "Energy Regions: The Transformative Power of Regional Discourses on Socio-technical Futures." *Research Policy* 39 (2010): 449-58.