

## Concept of the Research: Grounding Long-term Rural Development Planning with Scenarios<sup>1</sup>

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### Abstract

*The purpose of this study is to present the Author's research into rural development namely a set of possible future scenarios for the Hungarian countryside in 2050. One of the aims of this research is to prove the lack of future orientation in the practice of Hungarian rural development planning, while the other aim is consequently to ground future awareness. Hungarian development praxis today disregards the needs and circumstances possibly occurring in the far future concentrating only on the present and because of financing difficulties it is more support oriented than it should be. Our goal is to explore some of the possible future scenarios and to integrate the resulting new knowledge into the planning methods.*

*The structure of the research:*

- 1. Grounding the issue from the aspect of planning methods and future studies*
- 2. Possibilities of connecting the two areas of science*
- 3. The Hungarian countryside and its driving forces*
- 4. Long-term scenarios for the Hungarian countryside*
- 5. Conclusions drawn based on the planning methods*

*As a result of the research we expect the collective knowledge generated by our inquiry to strengthen the grounding of the origins of scenarios as well as that of the new and exploitable knowledge, extending the future planning methods in a completely new direction. The output of this paper is a general planning system proposal, which has significance in practice as well, to give an answer to the challenges of creating 21st century local and regional rural development strategies.*

**Keywords:** rural development planning, scenario

**JEL Classification:** R58

### 1 Introduction

The purpose of this study is to present the first phase of the Author's research into rural development namely a set of possible future scenarios for the Hungarian countryside in 2050. One of the aims of this research is to prove the lack of future orientation in the practice of Hungarian rural development planning, while the other aim is consequently to ground future

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<sup>1</sup> This article was written in the spring 2014. After that the research finished in August 2014 with the last two step (how it was planned). The utter scenarios and the methodology was presented by the Author with the title "The Hungarian long-term rural development planning grounded with scenarios" in Košice, Slovakia 05.10.2014.- 08.10.2014. at the 5th Central European Conference in Regional Science.

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## 2 Presentation of the Research

As for the research methods first we summarised the theory behind the question raised based on specialized literature then the driving forces for the countryside based on Hungarian country estimates of situation. With the help of the STEEP and SWOT analyses 176 key factors have been identified that have appeared in situational analyses describing the countryside in the past 10 years. Based on their effects and chances of occurrence (the two factors providing its “driving” nature) 58 of them have proved to be potential driving forces even in the future. The 118 factors left are considered to be less effective or will undoubtedly occur in the future which makes them insignificant from the point of view of scenario-building (the aim of scenario-building is to reveal such future domains that are beyond the scope of forecasting). Based on the driving forces identified we can build scenarios according to scenario-building rules and develop them further with a version of the SEER method (several rounds of question based surveys among non-professionals and experts). The driving forces included in the study have been categorised into 20 groups for further analysis based on their different features (e.g. demographical factors, innovation factors, etc.). We subsequently gave the motives different values and importance (based on effect and likelihood of occurrence) depending on the scenarios they appeared in, therefore we got different results according to factor groups and scenarios (with use of weighted average). This method helps us reveal internal interactions because it provides a possibility for professional ‘circular reference’ as there is a chance to modify other elements as a result of changes made in the value of any factor. The intended survey of the non-professionals will be aimed at the missing items, modification of weighting, and finally the indication of the value of the item. The survey of experts will be directed towards the evaluation of ready scenarios.

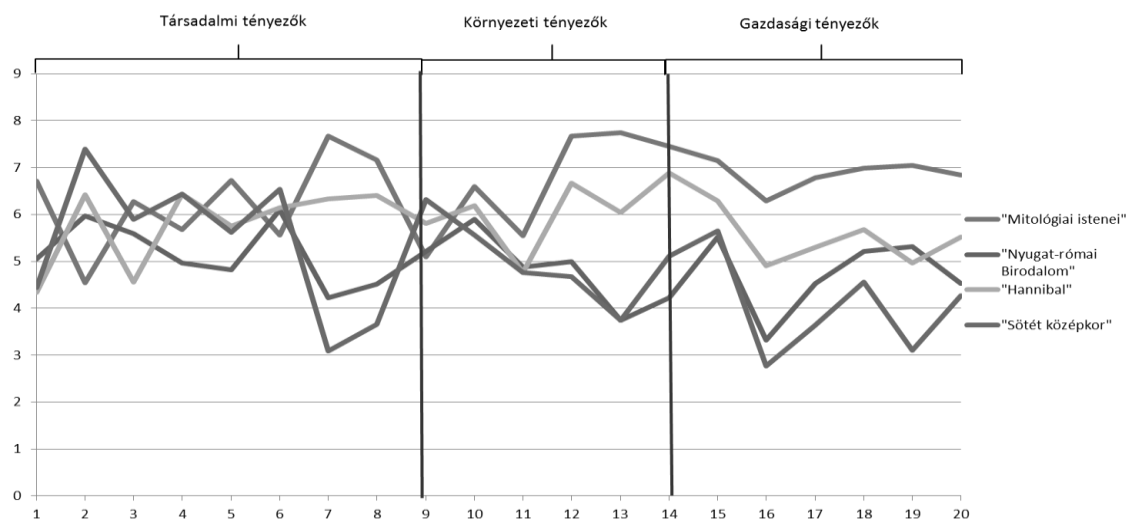
From the identified driving forces subject to interaction studies it was easy to pick the two factors ‘distorting’ the scenario, namely the scenario axes. Based on future studies methodology concerning driving forces the axes of the possible scenarios we determined to be the **spread of innovation and poverty**.

(We would like to refrain from the justification of our choice of the two driving forces due to size limitations, as specialist literature on both areas describing the ‘functional mechanisms’ of driving forces would fill a whole library.)

Scenarios assume the following ‘states’:

- strong spread of innovation and low poverty rate: Mythological Gods (1),
- weak innovation capacity and low poverty rate: Western Roman Empire (2),
- strong spread of innovation and high poverty rate: Hannibal (3),
- low level spread of innovation and high poverty rate: Dark Ages (4).

The ready scenarios can be best understood and followed with the interaction study above. In compliance with the research plan the first version includes the Author’s expert estimation with average values assuming the following forms:



**Fig. 1 The shaping of the four scenarios in the first version, based on individual expert estimation (personal editing).**

Without presenting each ‘item’ one by one, the (subjective) logic of the estimation together with the crucial points can be described as follows:

- In favour of the research into weak signs in the ‘Mythological Gods’ and ‘Hannibal’ scenarios the possible occurrences of technological results and their effects have been reinforced.
- It is an important aspect in the ‘Dark Ages’ and a little less in the ‘Hannibal’ scenarios that the widespread and durable deep poverty of the rural areas that reaches back to the past, forming strong micro communities (family) applying old ways of sustenance is considered as a possible consequence.
- In case of the ‘Hannibal’ and ‘Mythological Gods’ scenarios the strength of innovation and consequently that of science results in the rural development professionals taking part in it, therefore the growth of inequality in local processes – although innovation operates towards concentration – is smaller than the ‘pure’ innovation driven processes would imply. Owing to the spatial segregation of the Roma this compensating effect in the ‘Hannibal’ is weaker.
- In case of the ‘Western Roman Empire’ and the ‘Dark Ages’ scenarios local differences do not grow, but the rural areas are equally and homogeneously underdeveloped.

- In the international integration of the economy there is a difference in quality between one high value and the other. While in case of scenario (1.) and (3.) it represents a value generating partnership, in (2.) and (4.) it means exposure and export dependence.
- In case of issues regarding the size of factories in agriculture the two axes alter the scenario in a way that innovation helps the small and medium sized farms, while poverty affects big farms (the exact opposite could also be realistic).

In the following we will present you with an outline of the four scenarios to give you a picture of the 'four types of Hungarian countryside' in 2050.

### **„Mythological Gods”<sup>2</sup>**

In 2050 the Hungarian countryside will enjoy the 'privileges of late comers'. Delayed modernisation will result in such scientific standards where – similarly to developed countries – producers' goods will be available for everybody.

The Hungarian countryside, even if only with a little delay, will get hold of new technology embedded into international research and the economy. Connected to global and European centres of innovation applied knowledge and products will appear also in rural Hungary, which will still not be the centre of the continent, but a significant supporter of them in certain professional fields. Hungarian regional centres of innovation pass on new procedures which flow into the Hungarian countryside.

As a result of nanotechnology we will have a quantum computer at hand by the year 2050 with the help of which production of objects with virtually unlimited changes of form and self-replicating machines combined with super sensors could become the finest research tools. Nanotechnology makes the production of industrial products in unlimited amount possible resulting in low production costs. The new generation of objects will be similar to today's softwares, because by buying them we can update our existing objects attributing new physical functions to them. As a consequence amortisation and obsolescence will not make sense anymore. The countryside will have access to the latest technology that will affect

- urbanisation, as people in the country will have the same opportunities as those living in the city without a loss of time. Robots will provide the same standard of healthcare services (and circumstances) and media technology (lifelike holograms, musical performances) will open the door to the same entertainment possibilities as in urban areas. The only thing missing will be the crowd, the buildings, and the atmosphere.
- rural economy, because hard manual labour, maintenance, and mechanic repetitive tasks will be carried out by robots in all sectors. This will be realised in agricultural production, food industry, forestry, landscape maintenance (the diversity of the landscape in the Pannon eco-region will be preserved), mining, building and construction, light and heavy industries. Only workers with jobs requiring creativity, common sense, and shape recognition (not even in 2050 will robots be able to carry out such tasks) will be able to keep their positions (if they want to, see social situation below). Such activities in agricultural practice include pruning, grafting, and labelling for cutting; quality assurance in the food industry, marketing in tourism etc. In addition computerised contact lenses will provide us with the latest news and information wherever we are.

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<sup>2</sup> With this name I would like to bow my head before Michio Kaku, author of the book „Physics of the future” where he uses these words to describe the effect of science on humanity. He interviewed nearly 300 leading scientists about their technological expectations for the next 100 years. All the 'predictions' appearing in the scenarios are based on the scientific forecasts contained in this book.

- energy supply of the rural area. In spite of running out of fossil fuels, the energy crisis will be over owing to the widespread usage of fusion power providing us with pure and cheap energy. With the help of superconductors (e.g. ceramics) power resource will be conveyed without loss of energy, but in order to satisfy the capacity needed, fusion power plants will also appear in many parts of the countryside. Renewable energy sources will only be necessary in places where the construction of superconductor lines would cost too much (or in case of an insignificant number of consumers, large distances or physical obstacles). In these cases geothermic and solar energy will be used in Hungary. Such mini power stations will be found in Hungary too. As modern food production is mostly a question of energy (hatching and germinating machines etc.) Hungarian food production will overcome this obstacle satisfying even a higher demand than needed (see society).
- the transport system. Superconductors and unlimited energy sources will bring us the era of magnetic field. As a considerable amount of energy has always been used to defeat friction, transport with the use of magnetic field will become faster (and more energy-saving). This new form of transportation will first be realised only along main transport routes, while due to the lack of infrastructure vehicles will stay on the ground in rural areas. Quantum and super computers deprive us of not only the fun of driving, but of traffic jams too. Computer controlled transport system will conduct mobility in the best possible way.
- the environment. Nanotechnology and genetic surgery will be able to produce a special type of plant with the ability to absorb large amounts of CO<sub>2</sub>, and the amount of waste will be reduced to a minimum level (our possessions transform and recycle themselves). A good example of this could be clothes adjusting themselves to the weather and/or occasion, and our mood, with also enough space for a body scanner inside.

Social changes are of a similar scale to technological ones. With robots and replicators around, most of the products will be available for free, so most people will not have anything to do. Possessions for the desired standards of life will be possible to acquire without work resulting in unemployment on the one hand, but a decrease in inequality on the other. It is important to know, however, that scientific, innovative, and human relationship driven activities will be still needed and honoured with a higher salary. Another consequence of this will be that fears (of bankruptcy, of existential problems) hindering the starting of a new company will cease completely, therefore giving place to new and innovative undertakings. New types of social innovation evolve. A new network of institutions will come to life to help the people spend their considerable amount of free time, strengthening social bonds and creating a strong service providing sector at the same time. Work becomes a hobby as everybody will be free to choose any activity within the above mentioned network of 'undertakings'. Leisure companies and communities will not be fixed to a place because real time technologies will make the activity available for everyone and level of knowledge or transportation will not be a problem. A rather widespread and special way of spending one's free time is the participation in religious and spiritual groups resulting in the spread of a higher level of advanced intellectual state. There will also be demographical changes taking place in rural Hungary as through the sudden development of the healthcare system

- complete human genome map,
  - tissues and cells renewed and re-grown by DNA robots,
  - super sensitive household appliances that indicate malfunctioning body cells at an early stage,
  - spread of calorie restriction etc.
- life expectancy will grow significantly, people living two or three times longer than now.

This means that the aging of the population will be statistically higher, but will not lead to depopulation. What is more urbanisation of the countryside will promote (im)migration. However, demographic explosion is not to be expected either in Hungary or in other countries (higher rate of education for women, increase in the middle class of developing countries etc. lead to lower birth-rate), so the demand for food products will not grow significantly either (spreading of low-calorie diet goes to the same direction).

As a consequence of the above, rural poverty will change in quality. Relative poverty will take the place of absolute poverty. People living in peripheral areas as far as the spread of innovation is concerned will have limited access to new common goods as a result of spatial segregation (small settlements, isolated places). The most disadvantageous social group will still be that of the Roma, although due to changes in the contents and methodology of education more and more of them can break out from this undesirable situation. The change in the quality of poverty reduces the burdens of the economy leaving more in the budget for carrying out other tasks.

The new type of education of the new era will deal with bringing skills to the surface to bring up as many creative minds as possible. Development in psychology will help select talents at a very early stage to assist their orientation towards sciences besides improving their skills. The main occupation of the crowds of unemployed will be the maintenance of social interactions and relationships. A growing number of volunteers and the increase in taking social responsibility imply comprehensive trust, which makes the countryside equally liveable as the towns.

### **„Western Roman Empire”**

Not even technological developments could arouse Hungary from its stagnant state. Following in the footsteps of international social and economical changes the Hungarian countryside is going through a very slow change showing signs of decline. There are no outstanding or internationally notable results, but the standards of living are relatively high with regional differences neither growing nor decreasing.

Some economic sectors like tourism or cultural economy are improving, but the traditional key sectors like light-, car-, and construction industries are not competitive enough on a multinational scale, therefore the economy is in a stagnant state. Technological standards are a constant 3-5 years behind which affects production as well as agriculture. Our food industry is built on local consumption producing a surplus for export in raw material only. Robot technology is in general use, but not widespread, and nanotechnology has not yet had any effect on production. People living in the countryside know about advanced technology having seen some pilot programs realised (one or two railway lines transformed into magnetic ones; a sample fusion power plant; DNA based treatments in private hospitals), but do not make use of it hence not feeling its real effect.

Social problems concerning rural Hungary persist with a slow but constant aging of the society and depopulation. It is a disadvantage to live in the country, because neither the scale of urbanization nor opportunities are satisfactory compared to urban life. The degree of village poverty does not change, long-lasting and deep poverty also stay invariable. Food and energy supplies are of a low standard, wasteful and over thrifty at the same time. In favour of the production of expensive, outdated, and ineffective energy sources, the proportion of cultivated land is reduced, and on the cultivated land left the proportion of tiny and small holdings that are uncompetitive because of their sizes (but provide employment and complementary income at the same time) is too high. The small number of large scale industrial farms provides provisions for the urban areas or produces goods for export.

Catering risks are small because of the lively local economy and the short but functioning food chain. Our diet and general consumption reflect a traditional taste.

The environment is well managed as the relatively big number of inhabitants provides enough resources for landscape maintenance. In addition the countryside has other functions which provide employment locally, like

- farming,
  - agriculture,
  - energy production,
  - forestry,
  - tourism, recreation,
- that create satisfactory division of labour with towns.

Education is also unchanged. Competency based pedagogy is not often applied, but secondary and vocational education is widespread and knowledge based. Educational, social, and healthcare systems are well organized, but outdated just like the skill levels of the personnel. Owing to the calm progress and the slow but steady development of the healthcare system, life expectancy and quality of life are growing.

### **„Hannibal”**

Hungary is taking risks and the country does not win. Taking risks here means that the spread of innovation will have unexpected effects, and the danger of strengthening innovation capacity with weak regulation and national financing ‘will not work’. The spread of the highly field concentrated innovation is going on only in certain sectors and centres. Innovation and research-and-development profile includes only the further upgrading of internationally developed models and products without any independent research or results. The main driving forces of the spreading are the huge multinational companies taking advantage of the difficult economic circumstances carrying out resource and raw material production. Large-scale industrial farming is especially widespread and economically effective embracing all the areas with excellent potential working with advanced technology and virtually without human power. Animal husbandry is mechanical and robotised with special genetically modified species feeding on non indigenous GMO crop – drought resistant and high in calorie – adapted to the Hungarian climate. Hatcheries and fattening facilities will be replaced by tissue engineering stations where only the body part needed will be mass produced with the help of nanotechnology.

As a result of the exposure and adapting new technologies without strict government or social control, the number of risk factors will grow. Food will constitute a more serious health hazard as the food production industry applies uncertified genetic technologies that have not been proved to be safe making the country lose its GMO free status. Not to mention its dangers to the environment as water balance and soil erosion factors intensify creating more waste as a result of monocultures and one-product-industries (although fusion power plants will provide pure and cheap energy). Keeping the above risks under control, even if only in a small scale, means significant burden to the government budget not leaving anything left for other purposes.

Within the society there will be big differences in income and huge inequalities in opportunities. Outside regional functional centres and their catchment areas deep and long-lasting poverty will be segregated. As environmental maintenance and agriculture can be operated easily and cheaply from the centres (cheap transport, robots using GPS coordinates), unemployment becomes overwhelming in villages that have been left behind with only some

with special (e.g. touristic) attractions and driving force standing out like islands from the rural space. Both absolute and relative poverty is high, small vegetable gardens supplementing big factories are not enough to feed the poor just to complement allowances. Poaching and gathering (mushrooms, forest fruit, etc.) flourish. Some regions are inhabited only by the Roma, creating ghetto villages with their own law and operation characterised by interdependence and the Harlem-effect, where crime against the majority of society is totally acceptable. Social mobility is negligible as there is no movement between classes of society without migration into towns, which is only available for the few lucky ones. Weak governmental institutions with low finances provide only specious solutions and the rise of a bigger crowd of people and the standards of living is impossible.

### **„The Dark Ages”**

Rural Hungary will reach back to its roots under new circumstances. The 'Hungarian wasteland' is completely different in character from the urban regions. It works as a social, economical and environmental counterpart to it. The country is the primary source and field of:

- migration towards urban areas,
- food production,
- renewable sources of energy providing for urban regions (water, wind, solar, and geothermic energy, biogas).

The main problem is still the falling number of farmers in spite of the demographic and land programs, fair tax and income policies initiated by the government to stop it not having been able to cancel the biggest obstacle: the urbane attitude (negative prestige of the countryside and farmers). With the growth of the urbane population the government started to include more and more land in cultivation to manage the growing food demand, and maximised the proportion of areas to be used for energy plants. So the role of the countryside in the division of labour was listed above giving thus a solid ground to the urbane economy and the local non agricultural and non energy producing sectors provide only production and service providing factors that are indispensable to the two branches, but even those with robots:

- to keep labour force locally you need:
  - social and healthcare services,
  - basic economic (financial, processing industry) services
- helping the agriculture and energy production:
  - machine and spare part production,
  - technical assistance,
  - running power line facilities,
  - forwarding.

Within the economic structure producers for local markets can be easily separated from organisations producing for 'export' to urban regions. Local employment is not resolved leaving a circle of people getting a minimal provision from the government to prevent mass migration and depopulation. Agriculture is dominated by farms with huge factories producing raw materials carrying out mass production in a cheap but low quality way as far as food safety is concerned. Food processing has ceased almost completely in this country, strategic dependence on international economy is complete, but because solvent demand is also low, only the cheapest goods of the worst quality arrive into Hungary. The only touristic attraction of the country will be the environment, but without the infrastructure low cost one-day trips generating low income are very popular.



According to the tendency of the 20th century professional knowledge needed for production and the weakening of the social network took a visible turn owing to the high rate of poverty. Closed communities appear again within the settlement. Its constructed environment adapts to the lower density of the population, in some cases to more generations living together and to the requirements of the smaller energy consumption. Strong economic and social interdependence demands the revival of traditional forms of culture. Working and spending free time together creates a strong social network in this circle. Scattered settlements and homesteads come to life again as a result of poverty culture. Communities mostly built upon family relations are self sufficient, do not have a surplus, but preserve traditional cultural heritage with a mundane attitude. Their way of cultivation is adapted to the landscape, but access to social infrastructure available in the centres is not resolved. Access to education is not possible for them either, so distant teaching is carried out using outdated communication channels, and focusing only on practical production advice and knowledge. The backwardness of the country is considerable and homogeneous resulting in the subsistence of emigration, aging, and depopulation processes.

## Acknowledgements

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