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Structural and land use change of farms in the periurban area of Budapest – case study of Veresegyház subregion

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Vandenbroucke, Perrine²

Abstract

During the last decade 80% of municipalities in Pest county recorded population growth – of which a significant part is as a result of people moving out from Budapest (KSH, 2009). Accordingly, areas in the vicinity of Budapest face high levels of urban sprawl. This has significantly contributed to the transition of farm systems in this periurban area, which in the Hungarian post communism context was and still is a challenging issue and has led to several socio-economic and environmental problems. Based on an in-depth analysis of the transformations of the agricultural production system and its environment (markets, institutions, policies and social changes) in the LAU1³ area of Veresegyház, this paper identifies the conditions required to develop and maintain farm systems in periurban areas in a sustainable fashion.

Keywords

Farm system, periurban area, agricultural policies, rural development

1. Introduction

Periurban areas⁴ will represent one quarter of the entire European Union (EU) territory in 2020, 80% of the population will live there and 40% of European farms will be located in such areas. The sustainability of those areas is a crucial question (EEA, 2006). The current challenges and possible future of sustainable agriculture production in peri-urban areas is discussed in detail by Poppe et al., (2009). Land speculation, the coexistence of rural and urban properties, and abandoned land are important images reflecting the difficulties of regional planning in such complex areas (Swinnen, 2007). The role of agriculture in those areas is emphasised in order to maintain open fields and produce landscapes whereas the competition for resources and land puts farmers in precarious situations (Pecqueur, 2004). The transition of farm systems in periurban areas in the Hungarian post communism context was particularly difficult (Timár, 2001). It had to deal with the issue of private ownership explosion using compensation notes, restructuring of local governments and the transformation of the entire agricultural sector from a collectivised system to a competitive, market based one which soon became part of a larger integration called the EU. As a consequence, in the Veresegyház sub-region for example, three images emerged from the landscape analysis: waste lands cover about 50% of open fields⁵ causing health problems such as the diffusion of ambrosia (*Ambrosia artemisiifolia* L.) and environmental risks such as soil erosion; agricultural areas are taken over by residential areas and cultivated gardens are embedded in a very fragmented way.

The situation in the periurban area of the study creates a claim for new framework for agriculture, with new demands, but also with a competition for resources: labour, water and land in particular. The area is marked by very strong demographic growth, with significant spatial differences. The population in Pest county has increased by 14%, and in the Veresegyház region by 40%

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⁴ Areas where urbanisation is continuous (without enclaves) and a minimum of 40% of the population works in the main urban centre or another municipality of the ring (OECD, 2009)

⁵ Evaluation established from observation

since 1990. At such levels, we can really speak of “colonisation” of rural areas. The role and even the existence of farms in those areas are questioned. They are actually under a high land demand pressure, and concurrency considering the use of resources, but can we really say that there are “no more farmers?”

The objective of the study was to get a view on the change of agriculture in areas under urban sprawl (Schuchmann, 2000) and to measure the bases of those changes in order to propose agricultural or land use policies which could help to achieve sustainability. The LAU1 region of Veresegyház (Figure 1), which was chosen for a detailed analysis of the historical and current situation of farms, is a sandy hilly region located 30 km from Budapest on one of the main axes of urban sprawl of the capital city. This area is characterised by a high urban pressure (“dormitory towns” are indicated by a house symbol, and significant industrial activity by a chimney in Figure 1), and increasing abandonment of land. These changes are challenging several social, economic and environmental issues such as the development of invasive plant species, erosion and management of natural resources in general. In the long term, the region could even be threatened by desertification. Actually, agricultural and land planning policies do not take into account the importance of farms in the area (Vitalis, 2003) and many of them could disappear in the next few years because of increasing construction of residential areas.

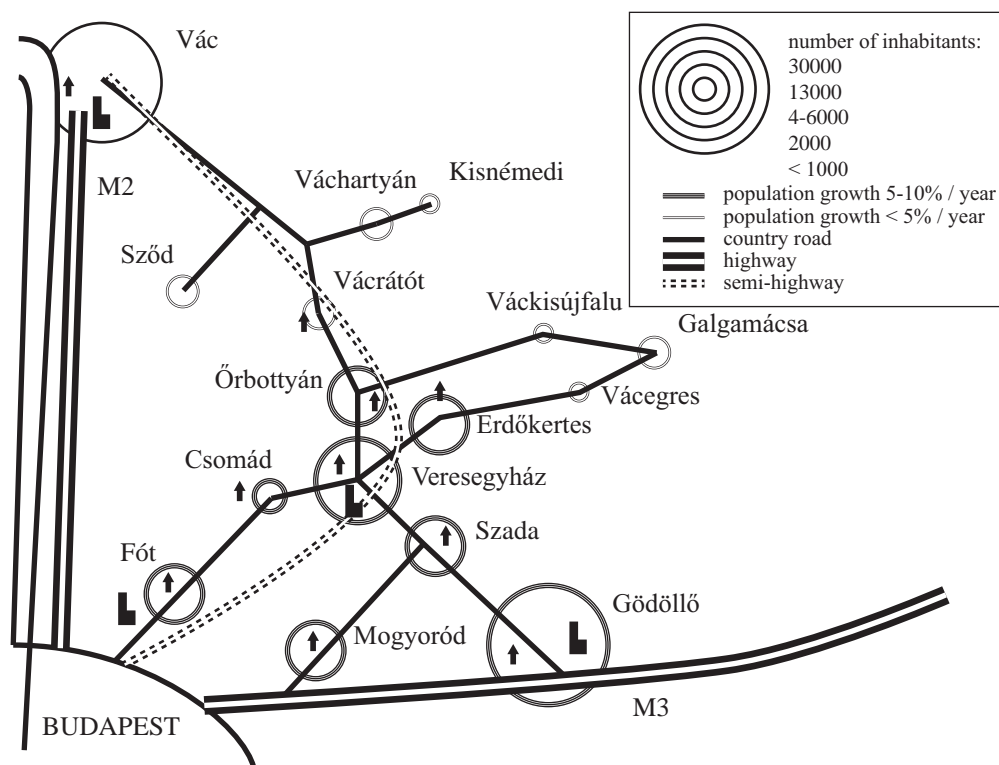


Figure 1: Overview of the study area

Source: own illustration

The study area is located on the east side of the river Danube (Duna), about 30 km north east of Budapest. It covers approximately 100 km² and nine communities from which seven were studied in detail. It is characterised by a dense hydrographical network, low agronomic potential (6-20 AK⁶) and the whole ecosystem is fragile and sensitive to erosion. The region is particularly interesting as the population has increased by more than the average in the surroundings of Budapest (+40%). The size of the study area was limited to one LAU1 in order to get a view on the diversity of farms presented. This also fits to public administrative points and historical coherence.

The area is characterised by high population densities and the landscape is highly transformed by human interference. Forests are located on hilltops and they cover about 34% of the space. Originally composed of oaks and beeches, these forests were later planted with acacias, chestnuts (17th-18th centuries) and fir trees (second half of the 20th century). The habitat of the area is grouped in villages located on the slopes next to the wetlands. The organisation of these villages is rather characteristic: dwellings and long individual gardens of different size village by village between 1,200 and 3,000 m² are organised along a principal road perpendicular to the slope, even if the land pressure modifies this original organisation of space. The landscape is different along a north-eastern south-western gradient on an axis of urban sprawl and characterised by different ecosystems.

2. Methodology

The method of analysis can be summarised in five steps:

- Historical analysis of the transformation of agriculture over 50 years through interviews of pensioners and former farmers and through local history books (Estók et al., 2004; Horváth, 1995).
- Landscape analysis in order to understand the interaction of farming activity with the ecosystem.
- Following a broad overview of farm systems present (60 interviews), a sample of 35 farms was chosen to cover the diversity found in the area. A typology of farm systems was established according to technical, historical and economic criteria.
- Thorough technical and economic analysis of each type of farm system to understand the logic, difficulties, opportunities and perspectives for development.
- Detailed estimation and comparison of farm revenues of different farm types.

The ecosystem and the proximity of the city were the first two factors of differentiation of agriculture in the study area (Bernard et al., 2006). The difference in the density of the farmers by village seems today to be explained on the one hand by the external factors (dismantling of distribution chains, land pressure and competition for resources, withdrawal or not of the co-operative of the area) described hitherto and on the other hand according to internal factors depending on the systems of production (production costs, market, water). In order to understand the current situation one has to understand the past which was leading to the joint evolution of the individual systems of production and the systems of co-operatives. This ultimately defines the existence of a real differentiation between the villages in terms of systems of production and in terms of density of farmers which would not be justified otherwise (e.g. based on environmental conditions).

⁶ The “taxable net income” of each parcel of land registered in the land cadastre was established in the execution Act VII of 1875, and was later converted to Gold Crowns, the monetary unit of the Austro-Hungarian Monarchy. The Arany Korona (Gold Crowns) therefore AK is still serves as a basis of valuating agricultural land rents and prices. (Szabó, 1977)

The typology of the farms was established according to the system of production, the level of equipment, the size of the enterprise, the function of agriculture in the system of production and consequently of the interest of the owner. The economic survey was carried out starting from a sample of 35 complete investigations of farms. Given the diversity of the encountered cases, such a sample is insufficient with regard to representativeness. Nearly 20 additional partial investigations made it possible to check the validity of the established model; simply as a quick study at the borders of the area (Gödöllő and Vácátót in area B, Sződ in area A, and Váckisújfalu in area C in Figure 2).

Once this typology was established, the second phase consisted of characterising each of these types of system of production, and more particularly of identifying their conditions of access to the factors of production (land, labour force, capital, water); and to characterise the technical and economic operation of these farming activities. The following points were considered:

- Basic information such as the legal statute of the activity, the age of the owner, size of the farming activity.
- Access to resources and their use:
 1. Land: surface, number of plots, localisation, strategies of land management, security of land tenure, private property, co-operative, etc.
 2. Labour force: number of people working in the enterprise, work schedule of the availability of labour, labour productivity and organisation of work. The peak periods of work starting from this study were identified.
 3. Capital: Characterisation of the level of equipment of the enterprise: level of mechanisation, buildings, irrigation infrastructure and means of transport. Analysis of the means of access to the capital: conditions of access to credit, access to subsidies; sources of financing of the development of the enterprise.
 4. Water: The conditions of access to water were also studied: systems of irrigation in place, direct access to water (brook) or indirect (well).
- Analysis of the history of the farm: under which historical times and conditions was the farming started, how did the farming evolve (process of accumulation of the capital, evolution of the choices of production, evolution of husbandries, etc.) in relation to the external socio-economic conditions. Analysis of projects and trajectory of the enterprise, the prospects, the strategies and the interests of the owner.
- Analysis of various systems of crops and animal husbandry present in the enterprise. For the cropping systems the applied technology, intensity of production, crop diversity and rotations, and the timetable of different activities were analysed. Similarly, activities related to the system of animal husbandry were analysed.
- Analysis of the interactions between the cropping and animal husbandry systems and analysis of raw and processed products in relation to the conditions of access to market and mode of marketing.
- Calculation of the economic performance of the farm from the information collected (evaluation of the price of the various tools and calculations of depreciation according to their real duration of use, etc), and work on the systems of taxations and subsidies applicable to the farmers. Evaluation of the added value of the different productions and calculation of an average agricultural income from the enterprise.
- Considering the importance of the double activity (pluriactivity) in the case of this peri-urban area, the systems of agricultural production were embedded to the entire activity done by the same enterprise/people.

- Economic modelling of the performance of each system of production starting from the economic results of the studied enterprises: creation of a “standard” model, economic performance evaluation of this system of production and characterisation of a “field of existence” of this system with a minimal threshold below which one does not find this system with this level of equipment, these husbandries; and a threshold maximum corresponding to a limit of existence of this system (management of the labour to the peak of work, another factor limiting the existence of the system beyond this threshold). The results of this modelling are then used to compare the various systems of production in the study area (Dufumier M, 2004).

3. Results

Characteristics of natural resource endowments

Along the axis identified above, we can differentiate three distinct areas by their physical characteristics, by population densities and by the type of system of agricultural production found there (Figure 2).

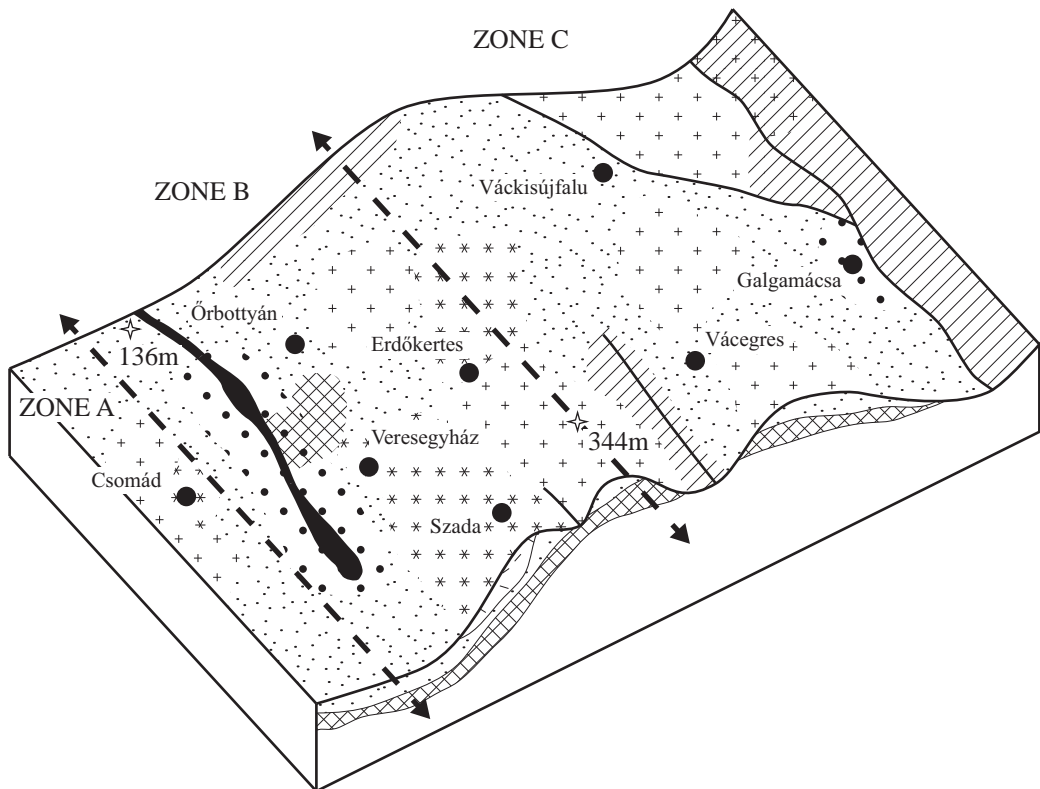


Figure 2: Overview of zones in the study area

Source: own illustration

Area A: Low lying area, sandy soils of the corrugated alluvial plain of the Danube

In the west - western south part of the study area, there is a identifiable alluvial plain at an altitude of 150-170 m above sea level of small hills with the highest peak at 200 m altitude. In this area, the soils, of sablo-muddy sandy nature, are of very low agronomic quality (6-7 AK). As a result, while certain very clayey soils are used for cereal production, most of this area is waste land connected with a landscape of dunes. Forest occupies a large part of the space. The systems of production of this area are dominated by animal production (bovine) and cereal crops. The population density is around 70 hab/km². In the neighbourhood of the single village of the area – Csomád – land is very fragmented into 1 ha or smaller pieces, but the main part is characterised by relatively large parcels (50-100 ha). A large orchard, with large number of individual owners, used to belong to a co-operative. This area is very close to Budapest (15 km), and the access by road is very easy. It is located today between two lines of urbanisation, the first coming from Budapest and the second separating area B. Urban pressure has been very strong since the beginning of the 2000s with in particular the establishment of industrial parks.

Area B: Wetlands around the brook Sződ patak and Southern slopes of the hills

This second area starts from the south-west and is characterised by the presence of a small stream, Sződ patak (alt 135 m) flowing from hills of an altitude of 250-300 m. Its source is a dense network of small secondary brooks. These wetlands with clay and sandy soils near Veresegyház are very favourable for market-gardening and are organised in very small parcels (1,500 m²) dominated by maize and sweet corn, cucumbers, beans, peas, celery, etc. The presence of a system of lakes and of a source of thermal spring water contributes to the attractiveness of this area. Therefore arable land is in competition with recreation related activities. Downstream, between the villages of Veresegyház and Órbottyán, a clay outcrop is exploited for the production of bricks. At this level, the too argillaceous wet soils are not exploitable and form a marsh. Along the brooks there (near to Órbottyán) are larger parcels. This is the only irrigable part of the area, where mainly maize and alfalfa are cultivated. The slopes of the hills are characterised by sandy or argillaceous soils. The high water table (1-3 m) allows access to water at low depth. They are very well suited to berry fruits and wine production in particular. This area is also marked by a rapidly increasing population density (200-300 hab/km²), historically from the manpower needs for wine production and market-gardening, and since the beginning of the 20th century, the periurban pressure has been very strong. It is located only 20 km from Budapest from which it easily accessible by road and rail as the transport infrastructure is good. The systems of production are principally fruit production or market-gardening, but the agricultural activity is very strongly competing with the residential pressure. The tops of these sandy hills, historically forested areas, are now under strong pressure of urbanisation too.

Area C: "Rural" hills and the Galga valley

The peaks of the hills of the area B mark the transition towards a more rural, and more remote area. The slopes are steeper and the brooks, Egres patak and Galga, are in more marked valleys. The Galga marks the limit of this sandy alluvial delivery point. From south west to north east one finds initially a great percentage of forest (80% of the lands of the village of Vácegres) and, at the border with the area B, an area favourable for the fruit production. There is a large de-collectivised orchard (nuts, apricots, apples, grapes, cherries), and some niche agricultural activities: seedbeds of fir trees and aromatic plant production (lavender). The sablo-muddy soils are light, low in humus and erode easily. Moving towards the south west, land is used to grow cereals. On the northern side of the Galga soils are richer in clay and in humus. The land use systems of this area C are especially used

for cereal crops and livestock production (bovines). This area is clearly different from the others and marks the limit of the urban development. Located 30 km from Budapest, access is much more limited. The population density of these more rural areas is lower (50-60 inhabitants/km²).

Specificity of the agrarian system in a peri-urban area

The historical analysis showed that a gradient between peri-urban and rural villages emerged clearly at the beginning of the 20th century. The development of Budapest and its urban market, the development of horse drawn carts (1873), the construction of residential houses and the railway of Veresegyház (1911) contributed to creating a potential for a local market for villages located in the area (Figure 1). Peasants benefited from higher prices for products than in rural areas and could strengthen their political and economic positions. The socialist-communist period deeply transformed the agrarian structure and the use of the ecosystem. The roots of the social and spatial organisation lie in the farming structure before 1945 and sometimes before 1848. For instance, the long individual gardens along the slopes remain an important element of land management, whose roots lie in the feudal fragmentation of land.

Today, most of the farm systems look toward the local market and use its potential by developing close relationships with consumers, local restaurants and hotels and by widening their range of products. For example, farmers organise exchanges with local bakeries (eggs for bread) or set up 'pick your own' systems. Moreover, possibilities for local jobs also help to maintain small farms through pluriactivity. The mixed social composition of periurban areas thus appears as an opportunity to maintain farming activity. The periurban situation and the low quality of land also contribute to the rapid growth of goats milk production because of two local opportunities: the free grazing on the large areas of waste land and the high price of goats milk and goats cheese on the local market (about 0.92€/litre). This trend is interesting to note as really specific of those periurban areas.

However, the competition for water, labour and land is high and has caused the disappearance of some production systems. For instance production of tomatoes and paprika under greenhouses is gradually disappearing from the area as the water capacities of individual wells has declined by 50% in ten years⁷, increasing the costs for this form of production which is highly water demanding. Moreover, with unemployment rates under 3% in this periurban area, the lack of labour force has also contributed to the reduction of market-gardening. The competition for land is particularly high for those family farms whose fields are concentrated inside or at the edge of villages. Finally, farmers also face constraints on animal husbandry, application of pesticides and vehicle movements. They develop new tracks through the fields for traffic, modernise or delocalise their cattle installation and change their labour schedule, working at night when this is possible. The periurban localisation thus presents both advantages and handicaps for farmers, but the residential pressure and land speculation are critical determinants and without stronger regulation most of the farming activities in the area are very likely to disappear in the long term (Swinnen, 2007). The new market opportunities are only available to those farms that are able and ready to adjust.

⁷ From interviewees' statements in the village of Szada.

The typology of farms

Based on the approach given earlier, a typology of the farms was established. The main characteristics of the different farm types identified can be summarised accordingly:

- The first category is mainly pensioners cultivating a piece of land with very little equipment mainly for own consumption. This category is likely to decrease with social change.
- The second category is households or families combining farming with a local job or individual enterprises in other sectors. Those specialised and equipped small systems have the economic potential to survive and develop but the development pressure on family lands located near to residential areas could lead to their disappearance.
- The third category is family farms working with old equipment and producing many different products. Their survival in the area is due to high prices on the local market and EU subsidies but their situations are often precarious, especially because of land and financial barriers. In villages located in more rural areas, the opportunities for development are higher.
- The fourth category is large family farms. Those were the main target of EU programmes (SAPARD, AVOP) and developed on the basis of owned land and modern equipment. Those farms combine high production performances (9,700 l milk per year per cow) and exploitation of local opportunities (direct delivery of milk, educational visits) and develop in different fields such as energy production from biomass.
- The fifth category is the successors of cooperatives. Those enterprises survive and modernise thanks to EU subsidies but after 2013 their situation could be much more precarious and they could be integrated by agro-business firms.
- The sixth category of farm system is the successors of state farms. Land and infrastructure (machinery, buildings, etc.) were privatised and often integrated into business enterprises often involved with external trade.

Table 1

The main farm system and their perspectives for development

| Type | Size, cattle | Products and services sold | Market | Proportion in the total area | Revenues* AR AR/R |
|---|---------------------------------|---|---------------|------------------------------|-------------------------|
| Subsistence/semi-subsistence. farms | 1-2 ha owned | Fruits and vegetables | Local | 55% | 1,5-2,500 €/y 12-40% |
| Complement to other incomes | 1-6 ha owned | Mainly fruits, wine | Local, global | 25% | 1,5-5,000 €/y 10-50% |
| Small-size family farms | 30 ha owned/rented 5 cows | ~All products +Agricultural services | Local | 15% | 4-6,000 €/y 50-100% |
| Large-size family/entrepreneurial farms | 300 ha owned/rented 200 cows | Milk, cereals, agricultural services | Local, global | 2% | 75K€/y 50-100% |
| Successors of the cooperatives | 1000 harented | Cereals, crops | Global | 2% | 20K€/y - |
| Integrated capitalistic enterprises | 45 ha owned | Aromatics products, import-export | Global | 1% | - |

* AR = average agricultural revenues, including subsidy revenue per active person (~ full time) and per year. It was calculated from the method for agrarian diagnosis (Dufumier, 2004). The ratio AR/R represents the part of the agricultural revenues among the whole family revenues. In case of enterprises, AR correspond to the annual average revenue (no direct link with fiscal revenue).

Source: own calculations

According to the observations and statistical data concerning the study area, the distribution of the various systems of production in the study area can be evaluated as follows:

Table 2

Comparison of arable land quality, price and rent for different system of production (SP)

| System of production | Share of area | Expected future changes |
|----------------------|---------------|--|
| SP1 | 30% | Decreasing |
| SP2 | 40% | Unchanged, but decreasing in the long term |
| SP3 | 10% | Unchanged |
| SP4 | 10% | Unchanged |
| SP5 | 9% | Unchanged |
| SP6 | | Unchanged |
| SP7 | | Increasing |
| SP8 | 1% | Increasing |
| SP9 | | Decreasing in the long term |

Source: own compilation based on KSH

Thus, 80% of the area is cultivated by small farms. The various types of medium sized family farms account for 9% and the large farms account for 1% of the farms.

Once this typology was established, the second phase consisted in characterising each of these types of systems of production, and more particularly to identify their conditions of access to the factors of production (land, labour force, capital, water); and to characterise the technical and economic operation of these farms.

The special issue of land market: consequences of an institutional vacuum

Land issues are the first and most important question in periurban areas. In the study area, it can be observed that following the restitution process, land gradually concentrated under various owners who participate in local governments and make a profit from the transfer from agricultural land to residential land. This type of land speculation, broadly shared in periurban areas across Europe, is a real issue as urban sprawl, planned at a municipality level⁸ is under the control of private interests. The institutional vacuum for land regulation during the transition period and the difficulties of dealing with a very fragmented ownership are some of the reasons explaining the significance of waste land. There are certainly also economic reasons behind this phenomenon, e.g. the very low profit level of farming in general.

Actually agricultural land can be used for free or at very low prices by farmers but without any guarantee from the owner and any institutionalised rent contract, thus farmers cannot get access to credit or subsidies to modernise their operation. In order to handle this situation, some land planning tools inspired from French best practice for example, could be used, such as the protection of fragments of agricultural land by public acquisition or through territorial projects involving every local actor (Charvet and Poulot, 2004). This kind of project is already in place in the south western hinterland of Budapest through regional natural parks. However, considering those issues over the whole periurban area could be a priority to give farmers a long term view and thus to promote the valorisation of open fields. Moreover, a land planning regulation at higher level than municipality

⁸ Urban planning is based on a map indicating the location of land pieces established by municipalities every 10 years (1997, 2007).

(township or region) would also be an effective way of controlling speculation. Whereas such planning and orientations should be officially led at township and regional scale, the efficiency of this control may need to be reviewed.

Table 3

Comparison of arable land quality, price and rent

| | Quality of land (AK) | Price of arable land | Price of residential land | Rent for arable land |
|-------------------|---------------------------------|---------------------------------|--------------------------------------|---------------------------------|
| Hungarian average | 17.5 | 1,000-1,800 €/ha | - | 50-100 €/ha |
| Area A | 6 AK | 12,000 €/ha | 15-20 €/ha | 20 €/ha (or free) |
| Area B | 6 AK | 12,000 €/ha | 15-20 €/ha | - |
| Area C | 15 AK | 8,000 €/ha | 10-12 €/ha | 50 €/ha |

Source: own compilation based on KSH

These figures given in Table 3 and their comparison with the Hungarian average highlight the existence in the area of a speculative land market. The process of restitution was followed in the areas A and B by very significant land speculation at the beginning of the 1990s, implying today a very unequal structure of property distributed between urban small holders who do not cultivate the land (1 ha), of peasants who do cultivate the land (1 to 6 ha for the great majority of them), of peasants who also do not cultivate the land (20 to 30 ha of property), some big landowners, owners or speculators land (500 ha) and the town hall of Veresegyház (more 800 ha). Only these last two categories of owners can today buy land while granting them planning permission, and even by building dwellings there. Thus, we can estimate that only 5 to 10% of the land belongs to those who actually uses it, including less than 1% of land used by small farmers. Even in these circumstances, it is possible to rent land for very a low price or even free but:

- They do not have any lease of enterprise and are limited in the subsidies which they can receive from the EU.
- Their precarious land tenure is a brake to justify any sustainable project and to obtain subsidies for investments.
- The future insecurity (in particular near the villages) leads to the blocking of any investment in long-term plantations.

A precursory sign of the progression of urbanisation, which appears in the analysis of land prices, is that this process gradually moves towards area C. Problems with land are amplified by the periurban situation. According to the many “for sale” signs, it seems that the land market is more active. The prices are quite striking, 12,000 €/ha is ten times higher than the average value of agricultural land in Hungary, about 1,000-1,800 €/ha (according to quality), and this is in spite of the very low agronomic quality of land. The decision of the owners to sell/buy is inspired by speculation on the future of this land market: the urban development and the possibility that this land is granted planning permission (leading to a 20-fold multiplication of the value of the land).

4. Discussion

Systems of production (SP) SP1 and SP2 are mainly dedicated to subsistence farming. Interestingly, these family based “enterprises” have usually existed for several generations and have their own tradition regarding what and how they are doing. Those SP have been in decline since 1990 and could disappear in the short or medium term with the social changes within the families and the loss of the agricultural knowledge by the younger generations. On the other hand, in the category of the specialised enterprises “doubles active” (SP3) or of the middle size farms (from SP4 to SP8), the owners are between 30 and 60 years-old, there are many installations of young couples (in particular in double activity) and the renewal for the generations of the middle size enterprises is often considered. In this periurban area, the share of an agriculture of “subsistence” is falling and leaves room to an agriculture “oriented towards the local market” in growth.

In this periurban area, one of the most characteristic and notable phenomena is the importance of double activity. This causes a complete change in the analysis of the viability of a system of production. There are five types of double activity in the area:

- active pensioners: this is an extreme case of the definitions of double activity. The result is however, that due to their agricultural activity, these people have two sources of income. SP1
- double active having a paid job without any historical background in agriculture and farming during their spare time (SP2, SP3).
- enterprises holding agricultural activity and other rural activities in other sectors, services or industry (SP4, SP8)
- double activity by the provision of agricultural services (SP5, SP6).
- double activity in households (SP7)

The double activity provides several functions in the households:

- security of incomes and guarantee against the climatic risks and of market, in particular for the fruit production and market-gardening productions.
- financial resources for the purchase of the inputs as the year progresses.
- source of capital for the enterprises
- optimised use of labour

It is important to note that this phenomenon is particularly developed in Hungary. Beyond the historical character of double activity in Hungarian history; this evolution seems to be the result of an evolution of the farms during the transition period characterised by 15 years of economically unstable and non-targeted subsidies. Moreover, double activity is today particularly significant for the less subsidised systems of production, i.e. fruit and vegetables. It is also related to a possible combination of these systems with other systems of activities which are particularly favourable for the farms in fruit production and market-gardening. However, one could suggest that double activity would be presented in the form of a reaction of survival for the farms on an assumption without subsidies.

The system of subsidies, the system of credit, the structures of accompaniment such as they currently exist in Hungary, aim “to support the development and the modernisation of viable systems”. Considering the results of the economic analysis, the definition “what is viable” as “a system of big size” can be discussed; because it appears that the large operations which are successors to the co-operatives which are subsidised are precisely structures which are viable in the long term

only under condition of subsidies. One may also add that especially in a periurban setting these are not the ones best suited from an ecosystem sustainability point of view. For example the use of the ecosystem in area A for cereal crops is definitely not an optimal use of the given ecosystem. Without falling into the extreme reverse to carry the maintenance of microenterprises/small-scale farms in a situation of survival, our analysis makes it possible to affirm that there are other types of “viable and reproducible systems”, even without subsidies (systems SP5 or SP6 for example). These systems of small- and medium size are all more viable within the analysed area, as they answer a local demand for products (SP3, SP5) and services (SP6, SP7, SP8). It would consequently be interesting to identify what could be the proposals for a necessary adjustment so that the farms can develop in a sustainable manner.

A first crucial characteristic of this agrarian system is the diversity of the systems of production in a given area. If this diversity bases its origin on the ecosystem, it seems that the situation in a periurban area takes part in the diversification of the trajectories of the farming activities. These areas indeed benefit from more advantageous conditions than a rural area in terms of access to the markets and they adapt to a local demand in products and services.

The pluriactivity of the farms is the second essential element of comprehension of logics of operation of farms in such an area. The structure of the agrarian system appears as dual with large farms, successors to co-operative structures, turned towards the competitive world market which go towards increasing integration based on production; and a multitude of enterprises answering to demands other than the single production of commercial goods. These “enterprises” are frequently mixing agricultural and non-agricultural activities which are embedded in the local economy. The role of these “farms” in the area appeared very clearly during this analysis. They fulfil an environmental and landscape function with the maintenance of specific landscapes which give an added value to the area: maintenance of open spaces, with the effective battle against erosion, and with the fight against the proliferation of ambrosia. These enterprises are also the “fuel” of the local economic dynamics of these “dormitory towns” with an offer of local products and with the maintenance of small employers in double activity.

Thus, agriculture has its place in this territory and the dual structure of agriculture, specific of the Hungarian agriculture throughout its history, seems sustainable in the periurban areas, with the condition of a certain number of adjustments in the agricultural policies and the policies of regional planning. The measures suggested in the study would have a positive impact on the small and medium sized farms turned towards the local market of goods and services, which would be also able to adapt to face a new world context for agricultural produce. Indeed, climate change could involve a geographical reorganisation of agricultural production on a worldwide scale with periods of crises and “transition periods” (adaptation) related to the readjustment to a new situation. Increase in the cost of energy and the concerns about the ecological footprint could be arguments of valorisation of the local production. Also, the increase in the food pressure for the planet to nourish 9 billion people by 2050 could change, in the long term, the current balance of an agriculture which produces above its capacity. These three factors remain still variables likely to modify the agricultural production context.

5. Conclusions

This paper showed that the peri-urban situation can be an advantage for a farming system because of the high potential of the local market, but that the future of most farmers depends on an efficient local governance able to deal with all actors and lead toward a sustainable local project. The competition for land use is actually a determinant factor which could lead to the decline or even disappearance of many farming activities, whereas the analysis also showed the role of the diverse type of farm systems for landscapes, local economic and environmental benefits. Orchards and goat breeding are two distinct types of production which could offer opportunities for sustainable development in the study area if their development is framed by local institutions and accompanied by specific extension programmes.

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