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RECONSTRUCTION AND REVITALIZATION OF THE ALLOTMENT GARDENS NETWORK IN HUNGARY

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Abstract: The allotment garden is a type of rural land originally designated for agricultural use, such as vineyards, orchards, gardens, or arable land, typically divided into small plots. These areas are often used as hobby gardens, weekend retreats, or recreational spaces, and in many places today, they also serve as permanent residences. Allotment gardens in Hungary are not only of agricultural or social importance, but play an important role in preserving the natural environment, contributing to the household economy, and promoting sustainable development. The Hungarian government announced tenders for the development of allotment gardens in 2018, 2019, and 2021, for which a total of 540 applicants applied. The research was aimed at assessing the current status of these gardens, to analyse their main characteristics, and to evaluate the results, impacts, and further needs of the Allotment Garden Programme. To accomplish these goals, we developed an online questionnaire, which we administered in 148 settlements. We find that the most important future goal of the applicants is the development of various infrastructures (e.g., roads, ditches) and the creation of public utilities (e.g., electricity, water supply). The future of gardens largely depends on how well their different functions can be integrated. Effective promotion of allotment gardens means ensuring they can produce healthy foods, improve the environment, preserve biodiversity, and integrate traditional gardening practices, while also offering attractive recreation and useful leisure activities.

Keywords: allotment gardens, alternative residential homes, suburbanization, development policies, Hungary

Highlights

- Allotment gardens serve key roles in food security and biodiversity preservation.
- Suburbanization shifts garden use from agriculture to residential/recreational.
- 668 projects in 504 settlements were funded under the national support program.
- Infrastructure (roads, utilities) is the top priority for future development.
- Garden functions must be integrated to sustain heritage, food, and recreation."

1. Introduction, aims of research

The issue of allotment gardens has come to the fore in recent years. These gardens can be found in many countries in Central and Eastern Europe, despite their wide variation in appearance and regulation. Allotment gardens (in Hungarian: zártkertek) are gardens in the outskirts of rural or urban settlements. Historically, their function has been agricultural, in which people in towns and villages could produce or partially supplement their own food needs, mainly by growing vegetables and fruit (for more details, see Szelényi, 1988). Their role is becoming increasingly important for several reasons. They can play a role in reducing climate change and conserving biodiversity, helping people to become self-sufficient in healthy food production, and reconnecting urban people to the natural world back.

Preserving the ecosystems of both rural and urban areas is an increasingly important task. As such, allotment gardens are an important green space feature of European landscapes, which can provide a range of social and biophysical ecosystem services in addition to food production. The research findings of Speak, et al. (2015) suggested that there may be a need for a more formal recognition of the ecosystem services provided by allotment gardens in local government policy in the European Union. Allotment garden owners or renters have an important role to play in biodiversity conservation and climate change adaptation, which are commonly cited objectives of local authorities (Speak et al., 2015). Other researchers emphasize the recreational functions of the allotment gardens. Sovová and Krylová (2019) found their interviewees used their gardens for individual recreation, valuing the peaceful atmosphere

and quiet surroundings. In addition to the value of relaxation and privacy, some gardens can also have lively social functions. The study of Teuber, et. al (2019) examines the role of horticultural gardens in two regions of industrialised south-west Germany. The authors found that recreation is an important motivation for gardening in both regions, but food production is less important in urban gardens.

The large number of developments implemented and the need to continue the Allotment Garden Programme motivate this scientific study of the impact of the programme, the results of which can help to formulate and fine-tune the future objectives of the programme. The main objectives of this research were to analyse the main characteristics of allotment gardens and assess their current status, to evaluate the developments carried out as part of the Allotment Garden Programme[2] and to measure their results and impact. Additionally, we hoped to develop a set of recommendations for strengthening the role and function of allotment gardens across a range of municipal contexts.

2. Delimitation of the public gardens, their characteristics and development trends

2.1 Background, legal regulations

The development of allotment gardens did not happen without precedent. From an agrarian and social historical point of view, the system is rooted in centuries-old traditions, but they were created in a different era and under different legal regulations compared to these past formations (Illés, 2022). Although the concept of 'allotment gardens' (zártkert) is currently not specified in legal terms, it was a legally defined territorial category in the second half of the twentieth century. Under socialism, allotment gardens played an important role in backyard farming, complementing centrally controlled production (Table 1). After the change of regime, many allotment gardens became neglected or changed their function. As a result of legislative changes and other influences, a mosaic-like but well-defined spatial structure emerged with agricultural, residential and recreational functions all present. Local socio-demographic trends determine which of these functions tends to be dominant. However, it can be stated that due to the favorable location and lower prices of allotment gardens than urban plots, they can represent an attractive alternative where any of the three development and utilization needs arise.

Tab 1. The history of the development of allotment gardens in Hungary. Source: Csirszki (2017)

Time Period	Characteristics of Allotment Gardens Over Time
Late 19th century – early 20th century	Emergence of allotment gardens, were primarily created for the purpose of growing grapes, fruit, and small gardens, outside of villages and fenced off.
1955–1967	Increasing appearance of the term allotment garden (in Hungarian: "zártkert") in legal acts, but its concept was not yet defined until 1967 (Act 4 of 1967). On these smaller areas of land producing higher-value crops, the possibility of individual use was preserved, and private property was maintained even in the socialist era.
1967–1990	Emergence of the allotment garden as a separate part of the outskirts of the village (city) that cannot be cultivated on a large scale. They played an important role in backyard and supplementary farming. They also became popular among city dwellers, many of whom bought weekend plots.
1990–2000	Agricultural use is pushed into the background after the regime change of 1990. Many allotment gardens became abandoned or changed their function. The aging of the owners and the ambiguous ownership relations emerged as problems. In 2000, the allotment garden ceased to exist in the real estate registry as an independent legal category.
2000–2017	An increase in the number of abandoned gardens as more people moved out to the countryside motivated not only by real estate prices but also by the opportunity to live closer to nature and become partly self-sufficient.
2017–	Revitalization program for allotment gardens created in 2017 by the Hungarian government. The program aimed to reclaim unused land, strengthen local farming, improve rural housing conditions, and sustainably utilize natural resources.

[2] The eligible activities of the Alottment Gardens program were: 1. improvements relating to the maintenance of the associated road, dirt road and drainage network for access to allotments and small gardens located in the open countryside, and to the drainage of storm water from the road section; 2. construction of a water intake, wells and small-scale water storage capacity for water retention; 3. improvements related to electricity supply; 4. construction of game fencing, construction of game management/game protection elements, and; 5. land improvement, planting of fruit trees and/or vines.

2.2 The population living in outskirts of the settlements

Based on the census data of the Hungarian Central Statistical Office (HCSO), the number of people living in outskirts of Hungary's larger urban settlements doubled between 2001 and 2011 at national level (See also: Brown, D. L. & Schafft, K. A., 2002): while in 2001, there were only 42.2 thousand people living in these areas, by 2011, this figure had risen to 89.5 thousand. Although no nationally representative research on the population outskirts of settlements has been carried out since then, studies on the process of suburbanization also report an increasing number of people moving out of inner cities (Vígvári, 2021). According to the 2011 census, 77% of the suburban population lived in a more remote suburban settlement.

Allotment gardens were transformed into coherent residential areas on the outskirts of large cities in greater extent. Here, the population share of suburban dwellers is 8.1% (HCSO, 2016). The share of garden-plot-dwellers among the suburban population varies widely across counties. The social organization of suburban communities in suburban counties is highly complex and fraught with many problems due to spatial disparities in housing types. In 2011, many of those living in suburban areas were disadvantaged in terms of educational attainment and other socio-demographic characteristics. In most cases, people living in the outer areas face unfavourable living conditions in several aspects (e.g., no access to public utilities and far from public services). Due to the much greater distances, involved, basic infrastructure is often inaccessible or only available at disproportionately high cost.

Out of 3155 municipalities in Hungary, 1931 have allotment gardens, which represent 61.3% of all municipalities. The total area of allotment gardens in Hungary is 201.2 thousand hectares (HCSO, 2016). In Figure 1, we can observe that a significant part of allotment gardens is located in agglomerations. The more opportunities arising from the central role of cities make these settlements attractive, thanks to which the real estate market is also more vibrant, which makes allotment gardens an alternative development area for a part of the population. Compared to 1980, the area of allotments has decreased by about 12%. This is due to the fact that over the last two decades, some allotment gardens have been converted by the owners into residential areas, while others have been completely abandoned and converted into agricultural land. The remaining allotment gardens have undergone further transformation over the last twenty years. Their transformation can be divided into two phases: in the first half of the 1990s, there was a kind of decline, a disintegration of the way of life developed under socialism, while from the second half of the 1990s until today, the differentiation of small gardens and the emergence of a new way of life can be traced (Pócsi, 2012).

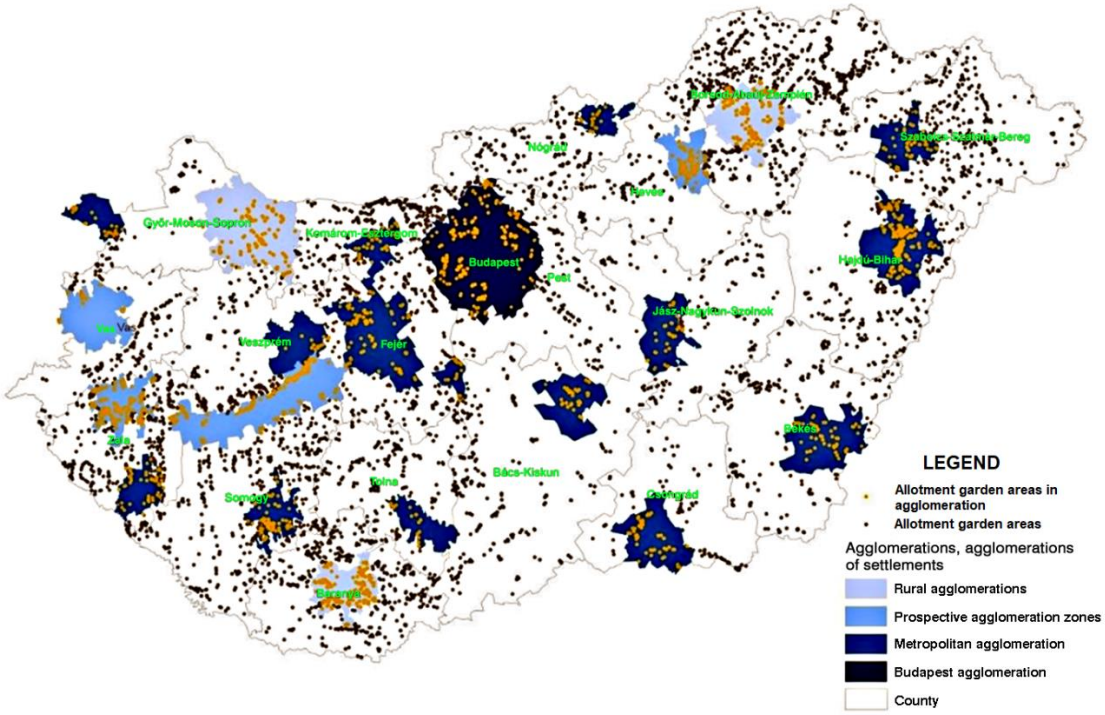

Fig 1. The location of allotment gardens in Hungary. Source: Lechner Knowledge Center, 2016

2.3 Suburbanisation process in allotment gardens

The settlement of allotment gardens in suburban areas in Hungary is closely linked to the spatial and social process observable across the globe, whereby, due to the lack of affordable urban housing, increasingly large social groups are being forced out of cities and forced to farm and live self-sufficiently far from cities (Vígvári, 2021). The housing mobility processes in suburban areas in Hungary can thus be seen as a consequence of the housing crisis affecting an increasingly broader social group in cities, as a result of the housing shortage and rising housing prices. On the other hand, households in urban areas are able to achieve social reintegration through a combination of higher incomes and cheaper housing opportunities in the peripheral location of the areas (Hegedűs, 2014; Vígvári 2021)

Suburbanisation of suburban allotment gardens is one of the most significant and widespread forms of migration in Hungary in recent years, whereby formerly agricultural rural areas have become semi-informal residential areas (Vígvári, 2021). In the case of suburbanization, the influx of both the wealthy and the disadvantaged leads to the emergence of conflicts and can also lead to the loss of the original settlement structure and the historical settlement pattern of the suburb (Vasárus, 2018).

The main driver of suburbanisation is that it enables many households to change their lifestyle. They have easier access to a more rural lifestyle and can maintain a certain prestige associated with suburban living. Accessibility, the state of the infrastructure, the spatial structure of the outskirts, the composition of the housing stock and the beauty of the landscape all play a role in this. Furthermore, many of the advantages of more rural communities (including strong reciprocity and traditional values) are available here, even if inhabitants have to endure many conflicts (among old and new incomers) and difficulties (because lack of infrastructure and services) in return (Vasárus, 2018).

The population moving to the outskirts is in many respects alien to the local population, because of their better financial situation, different lifestyle and the gentrification they represent. The two groups may have different levels of activity and advocacy in the local community and a vision for the development of the area. They may also hold differing attitudes about the quality of housing and services, or the preservation of landscape values and agriculture. A negative factor for those who move in is their inability to integrate into the local community, as they miss many of the benefits (developing of the infrastructure) they had hoped for. The displacement of disadvantaged people from the cities and their settlement in the suburban areas have contributed to the population growth in the suburbs and in allotment garden areas.

The more inaccessible suburbs and allotment gardens are frequently home to the socially marginalised, because they are easier to live in. Illegal squatter settlements also occur in some allotment garden areas. Illegal squatters and the poorest inhabitants often live in small, un-winterised structures that are unsuitable for their use. However, in such areas, the population does not necessarily feel particularly badly off, and the majority prefer to live there (Vasárus, 2018).

2.4 The touristic potential of holiday villages

In their 2002 article, Kinga Albicz and Nóra Hubayné Horváth outlined the potential relationship between former allotment gardens and slow tourism[3]. Their research was the first to draw attention to the landscape and ecological importance of the allotment gardens. According to the authors, the gardens are already crossed by a large number of footpaths and cycle paths due to their landscape, natural and cultural-historical values, which could be further expanded through the regional development of green corridor networks, especially in historic wine regions and fruit-growing areas with a long tradition (Albicz and Hubayné Horváth, 2022).

A special category of allotment gardens is the cellar village and the vineyard hill. These are typically located on the southern slopes of mountains and hills that have always attracted increased attention of

[3] Unlike mass tourism, which often emphasizes rapid consumption and commodification of destinations, slow tourism advocates for a deceleration of the travel experience, encouraging visitors to spend more time in fewer places, thereby engaging more meaningfully with the local culture and landscape.

people who would use it for agriculture or recreational purposes. They have a significant history, and their land use patterns are more stable. For centuries, these plots were an integral part of the small-plot peasant farms, and even the state-socialist approach and the consequent cooperative system have largely avoided them, categorising them as allotment gardens. As some research indirectly points out, even today, in many cases, allotment gardens still give place to social life and the communal experience of wine consumption, being linked to vineyards and the cellars with press houses located there. This has been true in the past and they often continue to fulfil this role today (Illés, 2020).

3. Analysis of the allotment gardens of settlements participating in the allotment garden programme and their development directions

3.1 Methods and materials

The research is based on both primary data from questionnaires and interviews, and secondary data from documentary analysis, and the analysis and evaluation of available ministerial and HCSO databases. The secondary documentary sources from the Ministry of Agriculture provide a historical overview of the national characteristics of the allotment garden system.

Applications for the Allotment Garden Programme were accepted in 2018, 2019 and 2021, with a total of 504 successful applicants (municipalities) in the three rounds in total, including two or even three successful applicants. An online questionnaire was set up to assess the results of the programme, in which the Hermann Otto Institute asked the municipalities concerned to complete.

The questions of the questionnaire are divided into three parts. The first part asks general information about the municipalities, the second about the infrastructure and functions of the allotment garden areas, and the third about satisfaction with the Allotment Garden Programme and future development directions. The questionnaires were completed in 148 municipalities. This represents almost 5% of all municipalities and almost 30% of the successful applicants (Table 2). During the three-year period, a total of 668 applications were successful. The applicants represented 504 different settlements: 359 settlements had a winner once, 126 settlements had winners twice, and 19 settlements had winners in all three years.

Tab 2. The number of settlements with an area of allotment gardens, the number of beneficiaries (winners) of the Allotment Garden Programme in 2018, 2019 and 2021 years, and the willingness to fill in the questionnaire (%) at NUTS 1 level. Source: own analysis based on questionnaire survey on Allotment Garden Programme in 2018, 2019 and 2021 years

Regions	Number of settlements	Number of winners	Number of respondents	Rate of respondents by settlements	Rate of respondents by Winners (%)
Great Plain and North	1261	130	39	3.1	30.0
Transdanubia	1714	347	100	5.8	28.8
Central Hungary	188	27	9	4.8	33.3
Total	3163	504	148	4.7	29.0

The large number of development activities (668 successful applications in 504 municipalities) made it possible to carry out a questionnaire survey of the municipalities that successfully applied. The questionnaires were completed by the relevant employees of the local authorities. Several aspects (e.g., conscious management of resources) argue in favour of implementing the questionnaire in an online format. The questionnaires were targeted to municipalities that were involved in the implementation of the application programmes. The questionnaire database allowed the use of quantitative analysis

methods to identify the characteristics of the Allotment Gardens Programme and the municipalities involved and the projects they have implemented.

The development and population dynamics of the settlements included in the study are more favourable than the national average. The majority of them (62.1%) are characterized by a positive migration balance. If we examine the situation by settlement category, we still get an interesting picture: the migration balance of smaller settlements is more favourable than that of larger ones. The average migration balance of settlements with less than 500 inhabitants is the highest and that of settlements with more than 5,000 inhabitants is the lowest. Although the migration balance in the largest settlements is negative, the development of residential and recreational functions has already taken place in previous decades (Table 3).

Tab 3. Migration balance and residential and recreational functions in allotment gardens by settlement category. Source: own elaboration based on questionnaire survey, 2023

Population categories (inhabitants)	**Migration balance average (per thousand)**	**Proportion of allotment gardens with residential and recreational functions (average %)**
under 500	7.2	7.5
500–999	6.9	10.0
1000–1999	3.4	10.6
2000–4999	5.1	23.5
5000 and above	-2.1	23.6
Total	**4.7**	**14.3**

4. Functional characteristics of allotment gardens and their changes (results)

In Hungary, allotment gardens, which cover some 200,000 ha, have become the focus of support policy in two main aspects. In the longer term, an important aspect is the protection of cultural and natural heritage, and from an operational perspective, the elimination of factors limiting utilization and ensuring that allotment gardens are maintained sufficiently so they can be properly used. Small-plot vineyards in hilly areas and orchards in the lowlands are characteristic elements of the Hungarian landscape and carry significance in terms of both cultural heritage and genetic diversity. On the other hand, the neglect and fallowing of allotments have become a widespread problem, threatening the conservation of their use value and their roles in food production and recreation.

4.1 Functional characteristics of allotment gardens

To preserve the landscape values, cultural history and gene-conserving role of allotment gardens, which are a specific element of the Hungarian countryside, the Hungarian government first launched a model programme for allotment gardens within the framework of the Farmstead Development Programme[4], which was followed by a 2017 decision to establish a separate Allotment Garden Programme (Jaczkó and Szikora, 2018). Due to the small size of the plots and their differentiated forms of utilization, allotment gardens create a diverse landscape, while providing a wide range of people with the opportunity to produce food for their own consumption. In this way, allotment gardens ensure the connection between people and nature and the preservation of older cultural traditions related to agriculture. The program aims to contribute to the following: The long-term goals of the program include encouraging agricultural utilization, improving the population retention capacity of the countryside, developing infrastructure and public services, protecting natural resources, stimulating the local economy, and resolving property rights and regulatory issues. Its long-term goals are to preserve genetic diversity, stop the spread of invasive plant species, eliminate illegal dumping, and keep the areas cultivated. The funding budget for the Allotment Garden Programme was HUF 1.9 billion for the 2017 and 2019 calls for proposals, which was increased to HUF 5

[4] In Hungarian: Tanyafejlesztési Program

billion in 2021. The number of applicants demonstrates the popularity of the scheme, as well as the need for it: the number of winning applications for the three calls combined was 668.

The combined share of residential and recreational functions is 14.3%, based on the responses. According to 26.8% of the responses, these functions are not present at all in more than a quarter of the settlements. Areas of mining activities (raw material extraction sites) constitute a special category in the classification of allotment gardens, but they affect only 2.5% of the allotment gardens (Figure 2).

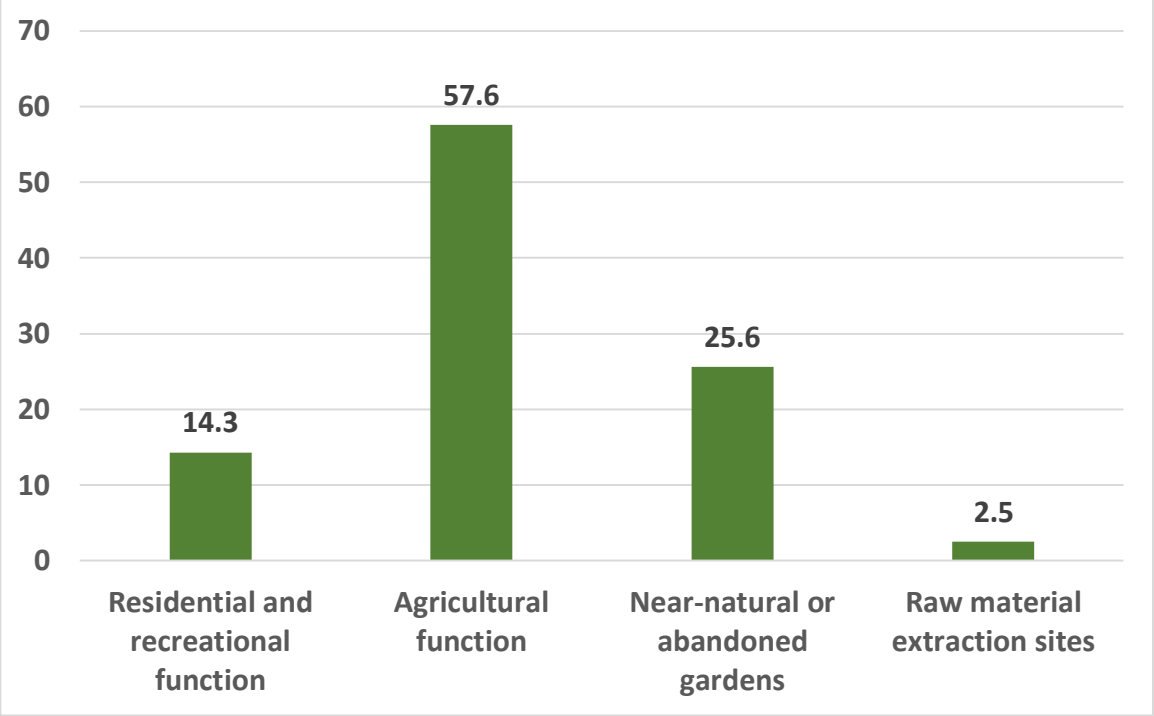

Fig 2. The distribution of functions of allotment garden areas in the surveyed settlements, based on the questionnaire responses. Source: authors

4.2 Relation between functions of allotment gardens

In terms of the spatial distribution of the functions of allotment gardens, there is a strong separation between the residential, recreational and agricultural functions at the level of municipalities. This shows a medium-strong negative correlation. Where the residential and recreational function is strong, abandoned plots are less prevalent, but the correlation is not as strong as where the agricultural function is dominant (Table 4).

Tab 4. Relationship between the functions of allotment gardens in the settlements (correlation analysis). Source: own elaboration

		allotment gardens with residential and recreational function (%)	**allotment gardens with agricultural function (%)**	**semi-natural or abandoned allotment gardens (%)**
allotment gardens with residential and recreational function (%)	Pearson Correlation	1	-0.447**	-0.228**
	Sig. (2-tailed)		0.000	0.006
	N	149	149	146
allotment gardens with agricultural function (%)	Pearson Correlation	-0.447**	1	-0.469**
	Sig. (2-tailed)	0.000		0.000
	N	149	149	146
semi-natural or abandoned allotment gardens (%)	Pearson Correlation	-0.228**	-0.469**	1
	Sig. (2-tailed)	0.006	0.000	
	N	146	146	146

** Correlation is significant at the 0.01 level (2-tailed).

Residential and recreational functions are strongly correlated with the presence of utilities, among which, based on the findings of correlation analysis, the presence of internet and street lighting are particularly noteworthy. These are followed by the availability of piped gas, then piped water and electricity. No strong correlation was found for the sewerage network, while drilled wells are more specific to agricultural areas. There is a weak correlation between population categories and the average proportion of allotment gardens with residential and recreational functions, i.e., the proportion of allotment gardens with residential and recreational functions increases with the size of the settlement, which can be explained by the effect of urbanisation. In smaller settlements, the presence of recreational function is more dominant than residential function. There is a similar weak correlation between the proportion of allotment gardens with residential and recreational functions and the proportion of unoccupied properties (Table 5). This implies a low probability that there are people moving out of their inner-city property into their allotment gardens.

Tab 5. Correlation between the proportion of allotment gardens with residential and recreational functions (%), the proportion of allotments permanently occupied (%) and the proportion of allotment gardens not occupied (%). Source: own elaboration

		Proportion of allotment gardens with residential and recreational functions (%)	**Proportion of allotment gardens with permanent occupancy (%)**	**Proportion of allotment gardens without occupancy (%)**
Proportion of allotment gardens with residential and recreational functions (%)	Pearson Correlation	1	0.524**	0.214*
	Sig. (2-tailed)		0.000	0.012
	N	149	147	136
Percentage of permanently inhabited allotment gardens (%)	Pearson Correlation	0.524**	1	-0.012
	Sig. (2-tailed)	0.000		0.887
	N	147	147	134
Percentage of unoccupied properties (%)	Pearson Correlation	0.214*	-0.012	1
	Sig. (2-tailed)	0.012	0.887	
	N	136	134	137

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

4.3 Relation between functions of allotment gardens

We were curious to know what transformation processes have affected allotment gardens over the last five years, which of course can be both positive and negative. There may have been significant changes in the use of allotments for purposes other than those for which they were originally intended, and an increase in neglect, but at the same time, these negative trends may be reversed as a result of development and the popularity of allotment properties. Almost half of the respondents reported that they had not experienced any major changes in the life of allotments.

Negative changes included mainly an increase in the proportion of unimproved allotments, but at least as many respondents reported that they had been brought back into cultivation. In general, afforestation processes are taking place in uncultivated areas. A small but negative trend may be the shift towards horticultural activities requiring less attention and labour, with orchards replacing kitchen gardens.

The fact that more and more people are setting up permanent residences in allotment gardens or turning them into holiday resorts may be a peculiar phenomenon, since in many cases, these changes are accompanied by a decline in the agricultural function. At the same time, the increased presence of leisure activities can be an important breakthrough for the local economic development of these settlements,

where the development of hospitality, especially in the wine sector, has been initiated. A more serious problem could be the development of the tourism sector.

Positive changes included a decrease in the proportion of abandoned allotment gardens, which was accompanied by the clearing of overgrown areas, and the renovation of abandoned buildings and their conversion into weekend houses. In most areas, fruit trees have been planted. The increase in interest in gardening has led to the abolition of areas under undivided common ownership. In many cases, positive change has been brought about by the implementation of specific improvements, such as the construction of a game fence to protect allotment gardens. The developments mentioned were typically carried out within the framework of the Allotment Garden Programme. The upgrading of roads has been a further positive development in the short term, and the improvement in accessibility has led to an increase in interest in allotment garden real estates.

4.4 Perception of Allotment Garden Programmes and future outlook

In the next section of the questionnaire, we asked to what extent the developments implemented within the framework of the Allotment Garden Programmes contributed to achieving the Programme's long-term goals. Respondents rated the impacts of the developments on a scale of 1 to 6, where 6 represented a large contribution and 1 represented an insignificant contribution. The highest average score (5.01) was given to keeping the areas cultivated, meaning that it was possible to ensure that the owners of allotment gardens remained active in agricultural activities as a result of municipal infrastructural developments. No statistically significant difference was detected, however, the highest scores were given by respondents from small villages, where the risk of loss of function is highest. The lowest score was given to the elimination of illegal dumping. This harmful activity is more typical in less frequented locations, while the developments focused primarily on the central areas of the enclosed gardens that are visited by more people. Thus, developments were less able to have a positive indirect impact on this. In this case, it was the more populous cities that reported positive changes, where the presence of this problem is more significant.

Promoting the conservation of genetic diversity received a relatively high average score of 4.36. The planting of ancient fruit and grape varieties has also been promoted in many projects. Stopping the spread of invasive species is a more difficult task, but here the average response score was 3.89 still. The most frequent response on the scale given was 4 in both cases, but while a maximum of 6 was the second most frequent response for genetic diversity, a value of 3 was the most frequent response for invasive species, which is more negative. In both cases, responses were less favourable in municipalities with a higher proportion of abandoned allotment gardens, however, no significant difference was found.

Perhaps the most important question of the research was what objectives would be pursued if there were future allotment garden programs. The most important development direction was the improvement of infrastructure/utilities. Within this, nearly 40% of respondents wished to allocate resources for road network development, mostly for the creation of solid-surface roads, with a smaller portion aimed at improving existing roads. Around 10% of the surveyed settlements planned further utility and infrastructure development. An additional 7% each wanted to establish electrical networks (including solar developments) and piped drinking water networks. More than 7% of respondents said that water supply would be solved not through piped networks but through local solutions like wells, water collectors, or local systems. Other infrastructure and utility developments include wildlife protection fences/cameras (4%), street lighting (3%), drainage and water management (2.5%), and sewerage (2%).

5. Discussion

Former allotment gardens around settlements once served as important bases for vegetable and fruit production. During state socialism, they also played a role in household recreation and leisure activities in addition to their production-related role in the second economy. The economic and social changes following the regime change also significantly altered the function of allotment gardens, leading to an increase in their role in housing.

A significant portion of allotment gardens and their population is located in large cities, urban areas, or rural agglomerations. Population growth in rural areas is primarily observed in these regions. During suburbanization, the influx of both wealthy and disadvantaged individuals causes conflicts, which can lead to the loss of the original settlement structure and the historical landscape of the rural area.

In today's tourist-attracted settlements, the development of allotment gardens into recreational (and residential) zones presents a general problem for urban planning. This is problematic because with the increase in residential use, genetic diversity, biological diversity, and the possibility of preserving traditional small garden horticultural practices and community events are generally reduced.

From a landscape and community perspective, the vineyard hills and cellar rows are highly important elements of allotment gardens. In addition to the cellar rows on the vineyard hills, numerous unique landscape features and sacred elements also enhance the environmental and cultural significance of these areas. The provision of utilities in allotment gardens varies greatly. Distance and topographical challenges also pose difficulties in the establishment of utilities. Infrastructural deficiencies not only make daily life difficult for residents but also contribute to deepening social problems in the long term.

The use of allotment gardens for recreational purposes is seasonal. As a result, agricultural production in the classical sense is not feasible, but vineyard or orchard planting, which can preserve the scenic value of the area, is possible. A significant part of the tourism potential of allotment gardens lies in wine tourism and cultural tourism. In addition to these thematic categories, waterfront, Balaton vacation, and holiday tourism, which represent mass tourism in Hungary, offer opportunities to develop the allotment garden areas of waterfront settlements. In addition to their basic function, they can offer supplementary services such as accommodation, rural dining, or direct sales of farm products. Overall, the support policy for allotment gardens should not only focus on infrastructure or utilities but also help to achieve the original goals of the program in other ways.

6. Conclusion

It can be concluded that the main future development goals are the establishment of various infrastructures and utilities, with over 80% of respondents wishing to implement such developments. This is essential for accessing allotment gardens and staying there regularly, according to the expectations of today's society. The future of allotment gardens largely depends on how well their various functions can be integrated. If they can contribute to the country's food supply, preserve biodiversity, improve the environment, and strengthen the connection to traditional horticultural practices, while also offering attractive leisure activities for the population, then the role of allotment gardens will continue to grow.

In the case of allotment garden zones that involve small-scale horticultural production with high added value, where primary producers typically operate, support for production, development of necessary tools, properties, and infrastructure for processing to achieve higher added value, as well as support for online and direct sales or short supply chain commerce, could provide significant assistance.

An alternative way to preserve the original function of allotment gardens could involve the operation of local demonstration gardens, or farms offering social services, as well as establishing community cultural and service spaces that strengthen the identity of the allotment garden community. This would make allotment garden zones an attractive area, forming the basis for future ownership, thereby helping to save abandoned or soon-to-be-sold properties.

Allotment gardens can also contribute to strengthening local society and identity, building new and broader social connections. Allotment garden networks extend existing social relationships, offering opportunities for neighbours to converse, participate in joint activities, or involve those without gardens in activities on the cellar rows.

Our study mainly examined the role and functional changes of the allotment gardens in Hungary and suggested their future development needs. The role of allotment gardens is becoming increasingly important in Hungary and in other Central European countries because of their potential to contribute to biodiversity conservation, to the fight against climate change, to strengthen local social life, and to

the provision of healthy food for rural and urban populations. In peri- or suburban areas, however, the position of gardens in the real estate market is strengthening, which is not conducive to achieving these objectives.

In allotment gardens with residential functions, the original function of the allotment gardens can no longer be realized in many ways. Often irreversible processes have taken place, legally or illegally, where residential buildings have been constructed on allotment gardens, with permanent residents living there. Surveying these areas is essential, as providing further agricultural support would be entirely unnecessary. However, opening up settlement development funding is crucial, as the basic conditions for housing are often limited in these areas. Problems include ensuring potable water, sewerage, and gas supply, but waste storage/transportation, municipal waste collection, and often the lack of road width deemed necessary by disaster management authorities are also unsolved. Development in these areas should prioritize creating these infrastructural conditions. At the same time, the development objectives of the Allotment Gardens Programme in Hungary to date have focused primarily on improving the infrastructure of allotments. However, developments in the future should also seek to ensure that allotment gardens fulfil their functions in relation to biodiversity, climate change, social life and the production of healthy food, too.

The limitation of our study and research is that it did not cover all the allotment gardens in Hungary. We sent a questionnaire to the municipalities that had participated in the Allotment Program. This is the reason why we could not make findings at lower spatial levels. Also, our sample may have been influenced by the fact that only winning applicants responded; those who did not win were not included in the population. The survey should therefore be continued by including in the research population all municipalities that have allotment gardens in Hungary.

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