REDUCING HOUSING INEQUALITIES

Case Study Working Paper: AJKA (HUNGARY)

An extract from Deliverable 5.1, 'Case study reports on green transition initiatives and their impact on housing inequalities,' of the ReHousIn project

ReHousIn Deliverable D5.1

February 2026

Title	Case Study Working Paper: Ajka (Hungary)
Author(s)	Éva Gerőházi, Julianna Szabó (MRI)
Cite as	Éva Gerőházi and Julianna Szabó. (2026). Case Study Working Paper: Ajka (Hungary). ReHousIn: Contextualized pathways to Reduce Housing Inequalities in the green and digital transition. https://rehousin.eu/documents/case-study-report-ajka
Submission date	2026-02-28
Dissemination Level	[Public]
Work package	WP5: Local impacts of the green transition on housing inequalities
Project title	ReHousIn: Contextualized pathways to Reduce Housing Inequalities in the green and digital transition.
Grant Agreement No.	101132540
Coordinator	Metropolitan Research Institute (MRI)

This document has been prepared in the framework of the European project ReHousIn – "Contextualized pathways to reduce housing inequalities in the green and digital transition".

The ReHousIn project aims to spark innovative policy solutions towards inclusionary and quality housing. To achieve this, it investigates the complex relationship between green transition initiatives and housing inequalities in European urban and rural contexts, and develops innovative policy recommendations for better and context-sensitive integration between environmentally sustainable interventions and socially inclusive housing.

This project is co-funded by the European Union. The UCL's work on this project is funded by UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee. The ETH work on this project is funded by the Swiss State Secretariat for Education, Research and Innovation (SERI) under the Swiss government's Horizon Europe funding guarantee.

Contents

1 Introduction

1.1 City/Town profile, challenges around just (housing and ecological) transition

Ajka is a small industrial town (28,000 inhabitants) in Hungary, located half an hour north of Lake Balaton, two hours west from Budapest, in the valley that bisects the Bakony Mountains. The development of this large village began in the 19th century with the opening of a local coal mine. This resource, along with bauxite discovered later, led to the establishment of diverse industries before World War II, including a glass factory, an alumina plant, an aluminum smelter, and a coal-fired power plant.

Industrialization accelerated significantly after World War II. Correspondingly, the population, which had grown slowly until then, surged from 9,000 (1941) to 34,000 (1990). The transformation of the town was marked by the construction of a new, modernist town center and housing estates built with industrialized technology, while the single-family housing areas of the connecting villages were also modernized.

Following the change of regime (1989/1990), heavy industry entered a crisis, and the volume of both glass and aluminum production decreased. The fate of aluminum production was ultimately sealed by the 2010 red mud disaster, in which the dam of one of the factory's tailing ponds broke, causing immense human, environmental, and material damage.

Concurrently with the decline of its industrial functions, out-migration began, and Ajka's population has since shrunk from its peak of 34,000 (1990) to 28,000 today. Aging accelerated more than on national or county level reaching well over 25% of people over 65 years by now.

According to the real estate registration of 2019 there are 9,364 residential units in Ajka, 78% which are in multi-family buildings (currently condominiums and cooperatives) built in stages from the second world war. All of the housing units are privately owned, except 100 apartments that are owned by the local municipality. The share of private rental sector is unknown due to the lack of official data.

The town has maintained its left-wing political traditions. The mayor, Béla Schwartz, (being the head of the local council in the socialist times) has led the town again since 2002, representing first the Socialist Party and later an independent local association.

The town is considered a front-runner in building rehabilitation and nature-based solutions, and - despite the different political orientations of the local leadership compared to the nation state - it was able to implement several development projects in the last decades financed from European and state resources.

1.2 Green Transition Interventions in Ajka: energy efficient retrofitting of the housing stock and the renewal of green public spaces

In the following sections the process of green interventions and their potential consequences will be presented through the examples of two major green programmes, each discussed in separate chapters: the energy retrofitting of the prefabricated housing stock and the public interventions in green areas.

Energy efficient renovation of the housing stock

Ajka is a forerunner city in the renovation of its multi-family building stock, with nearly 90% of buildings having undergone either energy-efficient or structural renovations over the past two decades. Since the early 2000s, when the national panel rehabilitation programme was launched, the renovation process in Ajka has continued steadily.

The municipality of Ajka has played an active role in supporting the renovation of multi-family buildings since the launch of the Panel Programme in 2001. At that time, the state provided one-third of the renovation costs, one-third was provided by the municipality and one-third by the owners. The municipality provided its share even when such support was not compulsory and homeowners' associations could apply directly to the state for funding. Between 2003 and 2009, the municipality spent HUF 677.7 million (approximately EUR 1.8 million) to support multi-family buildings, affecting 133 out of the 231 multi-family buildings in the town. The municipality also provided co-funding for the 2015 national programme 'Warmth of Homes,' even though municipal contributions were not required.

In addition, the municipality has implemented separate programmes to support buildings constructed using traditional (non-industrialized) technologies and has financed non-energy-related interventions. Large-scale renovation subsidy calls were also launched in 2019 and 2024 using municipal funds. However, due to limited municipal resources, the results of the most recent call have not yet been announced.

Altogether, renovations with a total budget of HUF 6.1 billion (approximately EUR 16 million) were carried out in the town between 2003 and 2024, of which the municipality contributed HUF 2.37 billion (approximately EUR 6.3 million[1]).

In addition to renovating individual condominium and cooperative buildings, the municipality implemented two waves of social rehabilitation programmes. The first wave (2009–2011) included the renovation of five condominium buildings, comprising 218 flats, besides other physical and social interventions.

Green development in public spaces

A definitive element of Ajka's urban identity is its 'green self-image,' which serves to partially offset the stigma associated with its industrial heritage, the resulting environmental degradation - primarily air pollution - and the red bauxit-mud disaster of 2010. This green self-

[1] The data were provided by the local municipality

image is rooted in the surrounding forests of the Bakony Mountains and the extensive green spaces of the city, characterized by mature tree populations. Since the turn of the millennium, the revitalization and development of green spaces have occupied a central role in the city's development strategy. Within this framework, our interviews consistently highlighted three key environmental interventions:

- The continuous renewal of green spaces within housing estates since the 2000s;
- The redevelopment of the City Park (Városliget), including the dredging of its lake (2021–25);
- The planned near-natural restoration of the Torna Creek, which remains only partially implemented to date.

The central area of the city contains extensive green spaces integrated into its housing estates. While these green areas were established concurrently with the construction of the housing estates (1950-1980), by the turn of the millennium, their functions, built infrastructure, and vegetation had significantly deteriorated, necessitating comprehensive renewal. Since the 2000s, the local municipality has prioritized the revitalization of these green spaces, integrating their renewal into every EU-funded urban development initiative. These include the rehabilitation of the city centre and the local spa (2004–06, ROP 2.2), the general downtown rehabilitation (2007–14), the social urban renewal projects (2009-2011; 2014–21), the "Ajka Links" Community Led Local Development Programme (2018–22), an Interreg program (2018), as the "Ajka, Livable City" program (Territorial Operational Programme Plusz, 2022–26). The actual planned restoration of the Torna Creek is also partially EU-funded: completed elements were realized through the Regional Operational Programmes, while the upcoming phases will be financed via the Environmental Operational Programme.

Beyond the mandatory co-financing requirements, the municipality also funds smaller-scale green space renewals from its own budget. One such initiative is the "Házunk tája" (Our Home's Surroundings) program, through which the local government renovates green areas directly adjacent to condominiums that have participated in the municipal facade and energy efficiency retrofit programs.

Similar to the green areas of socialist-era housing estates, the City Park was developed in the 1970s and 1980s as a city-wide green zone on low-lying, marshy terrain that was largely unsuitable for construction. The creation of the lake aligned with the geographical characteristics of the site; however, following the planning principles of the era, it was also integrated into the district-level storm water management system. Functional units typical of that period were established around the lake, including a public bath, a youth camp, a traffic education park for children, an open-air stage, and a café. A legacy of this period is that while the areas remain under municipal ownership, several parcels are registered as building plots rather than public spaces.

The revitalization of the City Park (Városliget), Ajka's central green space, was necessitated by factors similar to those driving the renewal of the housing estates: shifting management structures and changing public demands, alongside aging functional elements, technical infrastructure, and vegetation. Furthermore, the disruption of the lake's ecological balance in 2021 created a pressing urgency for intervention. Consequently, the dredging and

revitalization of the lake in 2021 were followed by the large-scale renewal of the surrounding green areas in 2024–25.

While urban ecological considerations emerged only out of necessity or as pilot projects- such as the installation of experimental rain gardens - during the City Park's redevelopment, the planning of the Torna Creek and its environs already prioritized a climate-conscious and ecologically-driven transformation of the city's storm water- and green space management. Regarding the downtown section of the creek, the structural elements were successfully implemented in 2025 through the Regional Operational Programme; however, the modification of the creek bed and the comprehensive ecological renewal of the green corridor remain contingent upon the opening of TOP (Territorial and Settlement Development Operational Programme) resources.

	EE renovation of housing	Greenspace renewal
Neighbourhood characteristics (general social type, economic activities, density, etc.)	Housing estates throughout the city consisting of housing units built from the 1950s till 1980s	Central and small-scale neighbourhood green spaces connected to residential areas
Duration	2001-2024	2004-25
Funding	State, EU (ROP) and local funds	various EU funding sources (ROP, TOP, CLLD) supplemented by municipal resources
Actor constellation	Municipality led interventions	Municipality led interventions
Aims and objectives	Improvement of the structural and energy-related characteristics of privately owned multi-family buildings and improvement of the city landscape	Renewal of park functions and infrastructure, revitalisation of the City Lake
Specific physical measures	Renovation of the common spaces of multi-family buildings (building envelope and engineering)	(Re)construction of parking lots, playgrounds, lighting, café, rain gardens, partial renewal of plant stock.
Accompanying housing policy/regulatory measures	No accompanying measures are identified (except for the social rehabilitation components)	New condominium development adjacent to the upgraded green areas
Key social tensions or/and benefits between greening and housing	No significant tensions were detected. Trade-off between the quality and the affordability of renovation is observed.	No significant tensions were detected. Distribution of new condominium flats and the functions of green areas were debated.

Table 1.Key data on the two case study themes in Ajka

2 Methods

The present case study report is based on a mixed-methods research design. Background information, including contextual data, was collected through desk research focusing mostly on local strategic and programming documents, as well as internal municipal data provision. Stakeholders' perceptions were explored through a series of semi-structured interviews.

In total, nine interviews were conducted in Ajka between June and November 2025, involving 10 participants concerning the two case study topics. The interviewees were selected to reflect the diversity of local stakeholders as well as different phases of the interventions; for example, experts with professional experience dating back 20–25 years were also included. Given that the tradition of establishing and maintaining civic movements is relatively weak in Hungary, representatives of residential communities were primarily included among the interviewees in the form of condominium and cooperative management. These managers —who possess in-depth knowledge of the technical, financial, and social processes within residential buildings— were interviewed to gather information on the perception of the flat owners. Green interventions were captured mostly by municipal experts and a housing developer, while the political opposition was also addressed concerning both two topics under analysis. Interviewees were selected based on their expertise, and a snowball method was additionally applied to identify actors who could provide complementary perspectives.

Both two topics have long timeframes, having commenced in the early 2000s. As a result, it was not feasible to capture all narrative shifts or the perspectives of the numerous actors involved through only 10 interviewees. Instead, the research focused on stakeholders with sustained and comprehensive involvement in the projects, enabling the representation of a broad range of perceptions as well as their evolution over time.

All interviews were conducted in person and were complemented by site visits and in-field observations. Interviewees received explanations on how their personal data would be handled and approval was gained for quotations and audio-recordings. The approval was audio-recorded as well. The recordings were transcribed using Alrite software and subsequently reviewed and corrected by a native speaker. The coding process followed the guidelines developed by UAB and was based on interview transcripts imported into MAXQDA software.

3 Stakeholders' Perceptions of Green Initiatives in Case Study Areas: energy efficient retrofitting of the housing stock

3.1 Precedents and implementation

All interviewees emphasized the long-term commitment of the municipality to supporting building communities in financing and implementing renovation works. This commitment proved to be long-standing, extending from the first wave of the state-funded

panel rehabilitation programme in the early 2000s to recent years. According to municipal experts, the key to this success was the mayor himself.

At the same time, interviewees questioned the sustainability of this long-term political commitment. The municipality had to take out substantial loans and prioritised private multi-family residential buildings over, for example, public buildings. In recent years, the subsidy scheme has been terminated due to a lack of municipal resources.

> "Last year we have announced a call. The deadline was September. The leaders did not decide since last (2024) September whether they support the applications or not. On paper, according to the decree, it should have been decided within 45 or 60 days, but we have not decided since. The residents are just waiting." - municipal expert at the construction department.
>
> "But in the last round, for example, we had the feeling that we heard this as a quasi-fact, that although the tender had been announced, no winners had been announced yet, and there were not really any resources to do so. So it exists and doesn't exist at the same time. So now it seems, and it seemed this way before, that this is a tremendous burden on the city, it is a preference, against everything else, against many other things. " - advisor to the mayor

Another side effect of the political commitment concerned the technical requirements of the renovation schemes. In the case of co-financed state subsidies, technical standards were defined by the state, and they were considered challenging. In contrast, **local schemes primarily aimed to improve the visual appearance of buildings and enhance the urban landscape**. As a result, façade painting without insulation was also supported, and energy-efficiency interventions were allowed at lower standards.

This condition generated debate among stakeholders. Technical experts tended to favour higher energy-efficiency requirements, whereas representatives of residents (both housing managers and political activists) were satisfied with lower standards, as these were more affordable. Nevertheless all interviewees acknowledged the importance of the city's visual appearance as a major objective of renovation.

In addition, housing managers considered energy-efficiency interventions as tools to address essential technical problems. For example, insulation can help resolve issues such as leaking roofs or façades and can stabilise deteriorating wall elements. However, most brick buildings were not insulated but merely repainted, which leaves them exposed to risks such as falling plaster, unlike panel buildings.

Another factor contributing to residents' satisfaction was that, once a residential building had been sufficiently renovated, the municipality took the responsibility for upgrading the surrounding public spaces.

The administrative simplicity of the municipal renovation programme was also highly appreciated by local actors. In contrast to state programmes—which were considered

extremely complex and often required hiring paid experts to prepare applications—**municipal calls could usually be managed directly by housing managers,** sometimes for an additional management fee.

> " (in state tenders) There were too much additional costs that are not an essential part of it, thus not an insulation. The garnishing was too much" - cooperative manager

Applying for municipal (and state) funds became a routine activity for building communities. A cooperative representative reported that only a few buildings within their stock (which is approximately 200 buildings) had not yet participated in renovation programmes. Some buildings had already received funding three times and were able to renovate gradually. Housing managers reported pressure from residential communities, which were eager to apply for calls and continue the renovation process.

> "I think that the culture of application is already here. Thus it is the case for 20 years, thus it is part of the story. ….. Communities are expecting from us to monitor the calls and tell them if there is anything appearing." - cooperative manager

3.2 Participation and governance (procedural)

Governance mechanisms in the renovation process combine top-down and bottom-up approaches. The primary drivers of renovation are state and municipal subsidies, which are decided at the respective administrative levels. As noted earlier, interviewees are aware that municipal requirements reflect both technical considerations and objectives related to urban beautification.

According to housing managers, building communities retain some room for manoeuvre in deciding which elements of the subsidy scheme to implement and whether to pursue more comprehensive or more limited energy-efficiency measures. These decisions largely depend on costs. Housing managers typically prepare a list of proposed and interconnected interventions, while the community votes on the final decision.

> "We always go to the general meeting and propose what we think is the best. Whether they accept it or not is obviously up to them….there were a couple of owners who said they didn't want insulation, just painting, but the others voted them down. Generally, the vast majority would prefer insulation.." - housing manager

In case of multi-family buildings the buildings in Ajka are organised either as a condominium or a cooperative. In all cases the apartments are owned by the private families, but in case of a condominium the common parts are owned proportionally by the individual flat owners, while in a cooperative the common parts are owned by the cooperative. A condominium is always a single building, while a cooperative may consist of several buildings. In each case, the flat owners contribute to the monthly operational and renovation costs of the buildings (labelled as 'common costs'). In practice, there is not much difference between a condominium and a

cooperative, except the fact, that cooperatives were privately owned since their construction having a professional management, while most of the condominiums were created in the privatisation process, thus municipal tenants became new owners. After 30 years of privatisation, this difference is still tangible.

Under legislation governing cooperatives and condominiums, **renovation decisions are valid if at least 50% + 1 of owners vote in favour at a valid general assembly**. A general assembly may be legally convened even if fewer than half of the owners are present; furthermore, a second assembly is considered valid regardless of attendance, even if held 15 minutes after an invalid first meeting. Consequently, it is theoretically possible for a minority of owners to decide on renovation measures that are financially binding for all residents.

In practice, however, housing managers report that funding authorities—local governments, state agencies, or commercial banks—typically require higher levels of consent, often between 66% and 75% of owners.

In order to understand in details the role of the decision making rate, it is important to note that joint renovation loan from commercial banks to buildings is a common product. Renovation loans are not taken individually by the owners, but are taken by the community as an individual entity. The instalments of the loan are paid back from the common costs collected from the owners. This way the owners indirectly make a kind of guarantee for each other, but in order that the commercial bank feels to be on the safe side often the decision of at least two-third of the owners is required.

3.3 (In)equity (distributional)

Interviewees generally described the social landscape of Ajka as relatively homogeneous. They identified some marginalised areas further from the town centre (notably Csingervölgy) and more prestigious zones in newly built complexes and family housing areas. Otherwise, the town is dominated by housing estates of different sizes with broadly similar social structures.

As a result, the **spatial distribution of renovations across the town is relatively even.** Nevertheless, several additional factors influence communities' ability to benefit from subsidies, including tenure structure. In Ajka, the Tornamenti Lakásfenntartó Szövetkezet (Tornamenti housing cooperative) owns the common parts of about half of the building stock and also manages nearly 50 condominiums. Cooperatives are legal entities, have professional management teams, and tend to have better access to commercial loans that complement subsidies.

According to the cooperative's representative, nearly all cooperative-managed buildings have undergone some level of renovation, whereas a representative of a private condominium management company reported that approximately 30% of their stock remains unrenovated.

> "So perhaps communication was good too, so I feel that the cooperative houses applied very well at the beginning, so they won, so they were renovated, and the remaining buildings started in the 2019th tender. And when I think about it, those who really wanted it, those who were financially stable, are already over it. … Except in places where it was

financially more difficult to collect the money, or where residents saw that there was a problem, or in places where individual residents had a lot of influence." - cooperative manager

Differences in participation also appear to be related to the physical condition of buildings—newer buildings (30–35 years old) were less likely to renovate. Social composition was also mentioned by the managers as a crucial component of participation, emphasizing that communities with high rate of low income people, or some owners that have a high voice to express their opinion against renovation were less likely to participate in the process. Certain technical requirements, such as removing later-added enclosed balconies, also discouraged participation in some cases.

Despite these differences, **housing managers reported that nearly all communities are now eager to initiate or continue renovations, inspired by completed projects**. However, municipal funds have been exhausted, and rising variable interest rates have made commercial loans more expensive and unpredictable. These factors currently represent major barriers to further renovation.

3.4 Political mobilization

The renovation of multi-family buildings in Ajka did not generate significant bottom-up political mobilisation. One reason may be that renovation is broadly supported across political parties, including the opposition in the General Assembly. Nearly all interviewees reported on a lack of active civic organisations related to housing or urban issues, reflecting the generally weak civil sector in the town.

"At times like this, they always mention how many hundreds of civic associations operate in the city. Zero in practice. And I miss that so much. I, too, and our party would very much like to connect with civil movements. There are no city protectors, city beautifiers, interest groups, no civic organizations whatsoever in the city. Only the pensioners' clubs. It must be said that the pensioners' clubs are very strong and have very strong lobbying activities. The members are very active, and there are 25-26 pensioners' organizations in the city." - political activist and member of the local general assembly

One exception is the Kristályvölgy Association, which focuses on social and cultural issues and is closely linked to the municipality. The organisation played an active role in social rehabilitation programmes affecting both the inner city and marginalised areas such as Csingervölgy. Its activities included involving residents in decisions about public-space renovations, operating street-level social contact points, and organising community-building events such as neighbourhood picnics. While these initiatives were effective in activating communities, they ceased once the associated programmes ended and funding was withdrawn.

3.5 Socio-ecological impacts/benefits (positive)

Most interviewees identified several positive outcomes of the renovation processes. One of the most frequently mentioned effects was the stabilisation of inner-city neighbourhoods that had previously been somewhat threatened by marginalisation. As noted earlier, Ajka exhibits no specific social disparities between neighbourhoods (with the exception of the peripheral area of Csingervölgy). However, certain residential blocks—with a bit higher proportion of municipally owned dwellings—tended to concentrate social problems to a greater extent. According to municipal interviewees, the renovation of residential buildings and their surrounding public spaces contributed to the stabilisation of these neighbourhoods.

> "The biggest achievement was not the revaluation of the renovated parts, but the renovation of panel buildings combined with the renewal of green spaces around was able to stop the social deterioration in the downtown areas like in Kossuth street." – municipal development expert

Changes in the social composition of residents were still observed in some of these areas. However, civil society representatives emphasised that these changes were not primarily driven by renovation but rather by the financial crisis, which compelled some families to move from inner-city areas to neighbouring villages. In several cases, households benefited financially from selling their flats during this period.

Regarding the financial implications of renovation, interview data from housing managers indicate that neither the costs nor the financial benefits were substantial. This is partly explained by the fact that most multi-family buildings in Ajka are connected to district heating systems. Heat is supplied by a local heating plant that relies mainly on wood and lignite, resulting in significant air pollution. Due to the relatively low efficiency of this system, approximately 70% of district heating bills consist of fixed charges, while only 30% is variable and thus subject to potential savings.

> "Those who insulate their facades will gain about 30 percent. But people are not aware of what remains. So many people think that they have paid, say, twenty thousand forints per month (appr. 50 EUR) to the district heating provider for heating, and then 30 percent of that remains, but damn it, it doesn't remain. Only the heating fee remains. … So if I say that we don't look at the hot water, only the heating, then let's say I pay 20,000 forints (appr. 50 EUR), then the fixed part is about 12,000, 8,000 for heating, depending on the size... We lived in buildings next to each other. We insulated our house before Tóni (a friend) did, and my winter bill was about 2,000 forints (appr. 5 EUR) lower than Tóni's.." - municipal renovation expert

Overall, interviews with housing managers suggest that most residents were not particularly concerned with energy cost savings resulting from renovation. Notably, none of the housing managers could estimate the approximate level of energy savings achieved, indicating that this issue was rarely discussed at general assemblies. One municipal expert who conducted a monitoring programme found that energy savings of 25–35% were achieved in the initial

years following renovation, but these savings diminished over time. According to this expert, residents gradually became less attentive to regulating indoor temperatures and ensuring proper ventilation.

Instead, housing manager highlight that residents valued improvements in comfort—such as reduced noise, cooler indoor temperatures during summer, and more evenly distributed thermal comfort between floors—as well as the improved visual appearance of buildings.

> "I never noticed anyone here getting so excited about insulating their house because, wow, it will be so much cheaper to heat. I think they saw that their neighbor's house looked nice, so they wanted theirs to look nice too. That's what dominates." - housing manager

Interviewees expressed divergent views regarding the impact of renovation on property values. Some, regardless of their professional background, argued that, because the majority of buildings in Ajka have already been renovated, renovation has become a baseline expectation in the housing market. In this interpretation, renovation status primarily affects the time required to sell a flat, with renovated dwellings selling more quickly. Others contended that precisely because most buildings have been renovated, unrenovated properties are increasingly disadvantaged in the market.

3.6 Socio-ecological impacts/harms (negative)

From a research perspective, there is a concern that owners' financial contributions to renovation costs could lead to significant increases in common charges, potentially resulting in eviction or renoviction. However, data provided by municipal experts and housing managers do not support these assumptions.

Under the local subsidy scheme, 50% of renovation costs for both condominiums and cooperatives were covered by public funding, while the remaining 50% had to be financed either through lump-sum payments or collective loans taken out by building communities for periods ranging from five to ten years. (This interest-rate-subsidised loan scheme for condominiums and cooperatives has existed since the 1980s.) Housing managers reported that a surprisingly high proportion of owners paid their contributions in cash, while others relied on loans. As a result, increases in monthly common charges were generally modest.

> "So, a small apartment, for example, a 28-square-meter apartment, cost 312,000 forints (780 EUR), as I mentioned earlier. He paid 4,200 forints (10.5 EUR) per month for a 6 year loan. A 55-square-meter apartment with an extra two rooms cost 613,000 forints (1,530 EUR), and his monthly payment was 8,000 forints (20 EUR), while a 69-square-meter apartment cost 770,000 forints (1,925 EUR). They paid 9,900, or 10,000 forints (25 EUR) per month." - municipal expert

Housing managers also reported that renovation-related costs did not lead to extraordinary levels of debt or eviction. In their experience, arrears in common charges were typically not caused by renovation itself; rather, owners already accumulating debts in

common costs and in utility costs were less able/eager to meet renovation-related payments. Even so, such cases were very limited, usually affecting no more than one or two households per building.

However, this situation has changed in recent years. With the termination of municipal subsidies, renovations must now be financed from reserve funds or subsidised loans with variable interest rates. Due to high inflation, loan instalments have increased substantially—often doubling—making this financing option increasingly unrealistic. **As a consequence, the renovation process has largely come to a halt.**

Housing managers reported limited insight into the private rental sector. While property owners are legally required to contribute to maintenance and renovation costs of the condominium or cooperative building, these expenses are likely passed on to tenants. Given the high turnover among tenants, little is known about the longer-term impacts of renovation-related costs on this group.

As discussed in previous sections, opinions regarding increases in property values vary indicating that renovation may have or may not have contributed to price differences. Neither of the interviewees did report gentrification as a consequence of renovation. Population outflows from inner-city areas were observed during the financial crisis, but these were attributed to job losses rather than renovation-related pressures.

Nevertheless, some negative effects related to housing quality were identified. In particular, the emergence of mould due to full insulation combined with inadequate ventilation was mentioned as an unintended consequence of renovation.

Finally, cooperative representatives reported an artificial inflation of construction prices as a further negative externality of the subsidy scheme. Delays in subsidy decisions were also said to contribute to rising construction costs, occasionally rendering planned renovations financially unviable.

3.7 Tensions and power dynamics between stakeholders/actors

As emphasised in previous chapters, the planning and implementation of the renovation process appear to be characterised by broad mutual support among stakeholders. Only limited tensions were identified, most notably in relation to the introduction of individual metering of heating consumption at the apartment level.

In several buildings, individual heat metering was introduced prior to the completion of insulation works. According to both housing managers and municipal experts, this sequencing generated considerable conflict within building communities. Residents living in less favourable positions within buildings—such as corner apartments, top-floor units beneath the roof, or flats above basements—tended to consume more energy than average. Even though mandatory calculation formulas exist to limit the proportion of heating costs charged based on individual consumption, these households often experienced substantial increases in heating expenses, despite having already contributed financially to the installation of metering devices.

Furthermore, while individual metering initially resulted in lower heating bills for many residents, these reductions were typically temporary. Municipal experts observed that consumption levels increased again after the initial adjustment period. In addition, cooperative representatives reported that the cost of monitoring individual consumption is so high that it often exceeds the potential financial savings generated by metering.

> "It is certain that here, where the house is not insulated, residents like temperatures of 26-27 degrees, and they tend to settle for a little less than that. So, it would be important to take action here, to turn it down a little, so that we don't let the heat escape through the windows." - cooperative manager

3.8 Innovative governance mechanisms

According to municipal interviewees, the **key factor behind the successful implementation of the renovation process has been the sustained political commitment of the local municipality**. Ajka has been governed by the same left-wing mayor since 2002, who had also held leadership positions during the socialist period. This long-term political continuity has translated into a strong and consistent commitment to building renovation.

Importantly, this commitment has been driven less by concerns about energy efficiency and more by the objective of creating a more modern and visually attractive urban environment. To achieve this goal, the municipality allocated substantial financial resources, with subsidies serving as the primary engine of renovation. While this approach may not be innovative in institutional terms, it has proven highly effective.

> "No one will renovate on their own. That would be very costly for the apartments. ...Subsidies are definitely needed, of course." - housing manager

Interviewees also appreciated the degree of autonomy granted to building communities in selecting renovation measures, as well as the administrative simplicity of the application process. These features contributed to a smoother implementation and helped reduce tensions within residential communities.

3.9 Tourism and market pressures

Ajka developed historically as an industrial town, but following the collapse of heavy industry after the socialist period, it was forced to restructure its economy. Tourism has not emerged as a dominant sector; instead, it plays a complementary role, drawing primarily on the town's industrial heritage. Key tourist attractions are associated with former mining sites and a krypton factory. As a result, interviewees did not report any tourism-related pressure on the local housing market.

Interviewees expressed differing views regarding the significance of the private rental sector. Official statistics indicate a gradual decline in Ajka's population. However, some municipal

interviewees noted an influx of young and middle-aged families during the economic boom of the 2010s, when employment opportunities attracted workers to the town who were largely accommodated in the private rental sector. According to these respondents, the number of such households has since declined.

In contrast, other interviewees of different profile argued that the private rental sector has expanded and now accounts for approximately 10–20% of the housing stock. This trend was said to generate tensions within cooperative and condominium buildings**, as landlords owning one or two apartments in a building are perceived to be less concerned with the physical condition of buildings than owner-occupiers**.

> "There are fewer people at the general meeting, yes. Tenants don't usually give the invitation to the owner.... It is not a problem in terms of decisions, because if one person is present at the general meeting, then one person votes on it. Of course, half an hour has passed, so from then on they have a quorum, but it's more that there is a lack of information in the condominium, and subsequent disturbances due to misunderstandings." - housing manager

3.10 Gaps in Perceptions Between Civic Groups and Public Agencies

Given the relative weakness of the civil sector in Ajka and its close alignment with the local municipality, tensions between civic organisations and public authorities are limited. Instead, disagreements tend to emerge between political parties within the municipal government itself. The most visible opposition is represented by the 'Hungarian Two-Tailed Dog Party', whose representatives have criticised certain new construction projects and the implementation of some green initiatives. Nevertheless, they do not question the overall relevance or legitimacy of the residential building renovation programme.

> "It's expensive (supporting the renovation), but I think it's important. On the one hand, because of the climate crisis, and on the other hand, because it serves the satisfaction of residents. And then, of course, there is a third reason, which is the importance of the city outlook, but I think it is important to have money for this, and I have always supported spending more money on this if necessary. I would rather spend money on this than on building parking lots." - representative of the political opposition

4 Stakeholders' Perceptions of Green Initiatives in Case Study Areas: renewal of green public spaces

4.1 Implementation

According to the city's development expert, aesthetic considerations dominate the planning process of green spaces due to public demand, meaning that ecological perspectives and innovations can only be introduced cautiously, almost 'covertly.' At the same time, the employee of the department responsible for the maintenance of urban

green spaces stated that the impacts of climate change have been increasingly felt in their operations over recent years. Since this department carries out small-scale green renewals in-house, they are effectively able to integrate maintenance-related criteria into these processes.

The revitalization of the City Park was also necessitated by deteriorating technical conditions of the infrastructure and shifting social demands in recreation. According to the interview with the person responsible for development strategies of the municipality, the functions and infrastructure have been renewed incrementally: the public bath in 2006, and the outdoor sports facilities (BMX and skate park, tartan running track, outdoor fitness park) within the framework of the 2024–2025 green space renewal project.

According to municipal experts, another catalyst for the renewal was the disruption of the lake's ecological balance. Due to decades of neglected dredging and the climate change, the lake's depth decreased significantly, and the open water surface was increasingly overtaken by sedge and reeds. By 2021, a critical state emerged. This was initially addressed by draining the water and dredging the bed; subsequently, as sustainable results were not immediately achieved, the issue was resolved by reconstructing the shoreline, installing artificial water-aeration, and introducing a specialized fish population.

Despite the ecological aspect, the design still appeared to be aesthetically focused from the perspective of an external expert:

> "So, in my view, the starting point for the city leadership was aesthetics. There was an ecological component hidden in the background, but it wasn't particularly emphasized. It's much more prominent now. …… But originally, regarding the City Park, I think this appeared only implicitly. What I saw coming from the city leadership was primarily an aesthetic approach." - external development specialist

According to this external urban development consultant, the primary catalyst for the restoration of the Torna Creek was the major flood of 2018, which threatened the entire downtown area. However, during the design phase of the revitalization, the objectives of water retention and mitigating the urban heat island effect played also a central role. This shift was driven partly by the specific criteria of EU funding applications and partly by a gradual change in perspective among the city's political leadership and the general public.

4.2 Participation and governance

The diverse interests of stakeholders first are aligned inside the municipality with the involvement of different expertise and sectors.

> "Incidentally, the city administration is involved in every project. The project management working committee always includes the city administration, a political leader, all the professional leaders from the city hall who are involved in this. It also includes external experts, designers, and now, for example, external contractors and external experts involved in awareness raising who are interested in this. …… The city has signed a consortium agreement with EKM (Ministry for construction and transport) to take part in the preparation process." - advisor to the mayor

According to interviews conducted at the City Hall, **significant emphasis is placed on involving the local population**—particularly civil society organizations in the affected neighborhoods—during the planning phase, especially regarding the definition of functional elements in green space renewals. Ajka comprises numerous historical neighborhoods, each with its own unique history and identity; the mayor views urban development as a strategic tool to preserve these local identities while simultaneously strengthening a unified sense of belonging to Ajka as a whole. To this end, the municipality regularly organizes environmental awareness competitions between the neighborhoods (e.g., maintenance of green spaces, promotion of soft mobility, rainwater harvesting), where winners receive funding for small-scale local open space developments.

In the project of social urban renewal in the inner city there was substantial money devoted for public participation, and therefore it received greater emphasis:

> "There, we tried to encourage people to actually use the public spaces. In the next phase, we organized these 'block picnics' to get people involved - you know, to foster a bit of cooperation and get them to help one another….. . So, we wanted to facilitate this process somehow, to allow a kind of community to form. We wanted them to take the flowers they were given, plant them, care for them, and try to live and behave in a way that's based on solidarity and mutual aid. These initiatives went quite well back then; we had many events of this type and services where people knew where to turn. When they had a problem, they had a point of contact. We held quite a few 'street office hours' as well, where residents would come in droves to report the issues they noticed. So, there were a lot of these well-functioning things that were useful, and in my opinion, it's a pity they can't be maintained as a continuous process." - community development expert of the city

However, large-scale, EU-funded projects—such as the lake reclamation and the city park renewal—partially diverge from this participatory framework. Municipal experts argue that due to the urgency of the ecological crisis and strict EU grant deadlines, **these projects were executed within a compressed timeframe, limiting public participation to mandatory statutory requirements**. Consequently, as noted by an interviewee (an urban development expert involved in local projects), certain functional elements—such as the dog park in the City Park (Városliget)—triggered public protests.

During the planning phase of the Torna Creek revitalization, public participation was more pronounced, with various stakeholder groups being consulted regarding green space functions. The process aimed not only to implement participatory design but also, admittedly, to shape the ecological mindset of the local population.

> "Regarding the Torna Creek, a process of awareness-raising has begun: they are trying to map the needs of residents and users. ……. For instance, in the case of the Torna Creek: a public hearing was held in October and early November during the grant application period. There were already licensed plans in place (the stakeholders were involved in those too, with local meetings held in the various districts). Even prior to that, a survey was conducted among the youth." - external development expert

4.3 Distributional inequity

Ajka is a green city, which is confirmed not only by local impressions, but also by statistical data and professional analysis. As the Ajka Green Infrastructure Network Development and Maintenance Action Plan (2023, page 56) emphasizes: “In terms of green space accessibility recommendations (of the United Nations), Ajka meets the established requirements according to nearly all indicators. The city's two public parks (Városliget and Bányakert) are accessible from 95% of residential areas within a distance of 2,000 meters. However, public gardens - a category that includes the green spaces of housing estates - still require development in terms of both extent and accessibility; these are reachable within 300 meters from only 36% of residential areas - those living in housing estates. The territories of the former villages are primarily the most underserved regarding accessible public green spaces; however, in these areas, daily recreational needs are predominantly met by private gardens."

Ajka’s unique urban structure fundamentally defines the population's needs for green space and their patterns of accessibility as municipal experts observed. While residents of the housing estates are strongly dependent on public green functions in the immediate vicinity of their homes, this demand is less pronounced among those living in the detached houses of the city's annexed, rural-style districts. Due to the city's scale, both the surrounding recreational forests and the city-level central park (Városliget) remain easily accessible to all inhabitants. Given the overall green character of the city and the proximity of these forests, the renovation of the central park places a higher premium on functional utility - specifically as a venue for sports, public events, and as a social agora. Overall, Ajka's green space renovation programs did not change the amount, spatial structure, or accessibility of urban green spaces.

4.4 Political mobilization

The City Park renewal and in general the strategy for renewing green spaces was viewed positively by both the public and the interviewees. Based on our interview with the local government's development manager, any contentious issues that arose were resolved either during community consultations (e.g., hospitality functions in the City Park) or through further developments (neighborhood impact of sludge disposal), but generally did not reach the level of political protest.

However, a representative of the opposition ‘Hungarian Two-Tailed Dog Party’ (MKKP) protested during council meetings and in the local press regarding the way the newly built apartments in the vicinity of the City Park are distributed. **The activist stated that those who have good connections to the leaders of the local municipality have higher chances to obtain newly built units at a reasonable price.**

"Actually, I’m currently involved in a lawsuit with the mayor over this very issue, because I conducted an investigative report on the matter. What we uncovered was that AVÉP Kft.—which, by the way, is the name of the municipal company, Ajka Urban Development Ltd. (Ajkai Városépítési Kft.)—was involved." - political activist and member of the local general assembly

4.5 Positive socio-ecological impacts

Interviewees evaluated the strategy of the systemic renewal of the green spaces as unequivocally positive. All interviewees praised the City Park project, as it provides modern recreational services for the entire city. According to the people responsible for the municipal developments, they are noting a marked increase in usage intensity, especially in the City Park where the quantitative data collected by the municipality support this trend. **At the same time, younger inhabitants noted a lack of entertainment venues in the City Park;** it was a deliberate planning decision to exclude functions associated with high noise pollution (such as clubs or event spaces). While the role of ecosystem services and the novel rain gardens received less emphasis in interviews, the municipality development manager hopes these features will have a long-term 'mindset-shaping' (environmental awareness) effect.

Our interviewees did not perceive any particular impact on the value of apartments as a result of the renovation of small green areas in the housing estates.

The City Park directly borders existing residential areas only along Korányi Street, where the gardens of 7- (8)m small-scale apartment buildings (built in the 1970s and 80s) sit adjacent to the park. Interviews suggest these properties have always maintained high prestige within Ajka:

> "In those areas, the residents are specifically well-to-do; in fact, that side of the lakeside area is basically the local 'Rózsadomb' [an affluent hilltop district in Budapest]." - external development expert

Based on field observations, these properties are currently undergoing renovation, a process in which the effects of natural intergenerational turnover, inherent prestige, and the value-added impact of the green space renewal are difficult to disentangle.

The renewal has also increased the value of municipally owned land along Liget Street, where AVÉP Kft. (a municipal construction company) has been developing apartment buildings since 2015. According to the company's representative, the units are sold via an email list of interested parties.

> "Once the prices are set—when the budget is finalized and we have the actual figures—we send them out to all interested parties at the same time, or we might even issue a public call/advertisement." – representative of the construction company

Opposition figures claim that the apartments are sold below market value to members of the local political and economic elite, who typically purchase them as investments.

> "These were bought as investments, and that's actually the most interesting part of the whole thing. To be honest, I don't even know if people are actually living there right now. One of our local councilors has three apartments in their name in that building. And get this: they already have one apartment at 1 Liget Street, another at number 3, and then three more at number 5. Of course, they're all registered under the kids' or other family members' names." - political activist and member of the local general assembly

The city's current land-use plan allows for further residential construction along the Liget–Unna Street axis, besides the City Park. According to the developer, units in the first building represent the highest-priced apartments in Ajka's secondary market, a fact attributed to the proximity and tranquility of the City Park even prior to the renovation of the park.

Due to their limited scale and fragmented distribution across the city, these green space renewals generally do not play a significant role in increasing property values or altering the spatial patterns of the local housing market. The sole exception is the revitalization of the City Park (Városliget), which facilitates the emergence of a new type of elite residential development.

4.6 Negative socio-ecological impacts

As the municipal green department representative noted, during the revitalisation of the lake in the City Park, approximately 30,000 m³ of sludge from the dredging was deposited in drying plots created between the lake and Korányi Frigyes Street, which resulted in the destruction of the existing grove vegetation. The loss of green space, the ongoing works, and the odors from the deposited sludge negatively impacted the quality of life for residents in the apartment buildings along Korányi Frigyes Street until the 2024 reclamation.

Beyond the lack of the entertainment venues and the perceived 'insider' nature of the Liget Street residential developments, no significant negative impacts regarding the City Park renewal were identified.

4.7 Tensions and power dynamics between stakeholders

The tensions with regard to the development of green spaces are linked with the goals of development (ecological vs. functional; private benefits vs. public benefits) and the side effects of developments, like the handling of hazardous waste.

The development expert to the mayor pointed out that the City Park project highlighted a typical contradiction between European Union climate goals and public demand. **In such renewals, the expansion of recreational functions** - demanded by both the public and political leadership - **often leads to a reduction in the actual size and biological intensity of green areas, contrary to declared environmental objectives.**

In addition, the criteria for small-scale green space renewal closely align with the priorities of the political leadership - as a municipal representative in our interview noted. According to him, the mayor has made the regulation and expansion of the parking in public spaces a personal priority; consequently, numerous parking lots were established during green space renovations - at times at the expense of active green surfaces.

"For me, it's really the prioritization that is always a subject of criticism. In our case, a huge amount of money is funneled into 'road renovations'—and let's put that in heavy quotation marks, because it actually means building parking lots. And this is happening despite the fact that the city leadership's stated goal is to scale back the use of motor vehicles…. During the last council meeting of the past year, this idea came up: what if we simply stopped building

more parking spaces? …. At the time, he promised that there would be no more parking construction - unless, of course, the residents specifically requested it. Obviously, residents will ask for more parking so they can park right in front of their buildings. Then, at the very end of the meeting, he announced that it's quite possible we'll be building a multi-storey parking garage in the city within the next five years." - political activist and member of the local general assembly

Tensions can be observed in private housing developments that are closely connected to green spaces. AVÉP Kft. is a unique actor in Ajka's residential development sector. This 100% municipally owned construction firm now exclusively develops apartment buildings on plots purchased from the municipality.

"The municipality has these plots that are perfect for building apartment blocks. You just won't find private land in Ajka on this scale. For example, the one we just bought is 5,000 square meters—there isn't a single private plot like that in the whole city." -construction company representative

According to the representative of the AVÉP and also the member of the assembly, the municipality officially sets no housing policy requirements for the company - only withdrawing corporate profits, which are modest relative to the city's budget - **the objective of these developments is market-rate sale rather than increasing the social housing stock**.

In Ajka's housing market, which is dominated by socialist-era estates and detached houses, these new apartments represent a new market segment. According to the representative, the company acts a regulator on the local housing market:

"We can actually control housing prices this way. I mean, you couldn't sell an apartment for 2 million forints here in Ajka, and honestly, we wouldn't even be able to find buyers for that. Prices just don't shoot up here like they do in Veszprém. For the exact same type of building, while it might cost 1.5 million per square meter in Veszprém, it's only 850,000 or 900,000 forints here. In a way, this is how the city supports homebuyers - by not forcing us to chase extra profits." - construction company representative.

The buyers are primarily the local political and economic elite, purchasing for personal use or investment (thereby expanding the private rental sector). Conversely, the representative argued that by offering these units at lower prices, they help keep the overall price per square meter in Ajka at a more affordable level.

According to the informations gained in the interview with Ajka's development manager, a forced decision arose during the lake dredging due to contradictions in environmental regulations. Had the dredged sludge been transported off-site, it would have been classified as hazardous waste, incurring significant disposal costs. Therefore, the municipality opted for on-site drying and reclamation, which sacrificed an existing, ecologically valuable green area.

4.8 Innovative governance mechanisms

Innovation in green space development can hardly be identified in interviewees responses. The slight shift from functional aspects of development to ecological considerations can be observed in recent years in line with the requirements of EU funded urban greening calls. The strong involvement of neighbourhood communities in defining their local priorities of development is also considered by the municipal actors as novel.

With regard to the private housing construction linked to green spaces, the representative of the AVÉP talked about innovative tools used by the company, such as the targeted designation and utilization of municipal land, the involvement of buyers as a 'building community' (építőközösség) in the construction process, allowing the company to develop with lower equity and reduced financing costs. A third innovation - enabled by the building community model - is "shell and core" development, which allows for customization to buyer needs and pricing below general market rates (though this makes it difficult to verify if sales prices are truly below market value).

4.9 Tourism and market pressures

Neither tourism nor financialization exerts significant pressure on Ajka's housing market. Alongside the predominant model of owner-occupation, a private rental segment is beginning to emerge through the investments of the local elite in one or two flats in both the housing estates and the new apartment complexes.

According to the developer's interview, the construction costs and, as a result, the drastic increase in housing prices are also characteristic in Ajka, which is why the demand in the market for newly built apartments has shifted towards smaller apartments.

> "Our apartments are smaller now. It's because of the price, of course. Construction costs have skyrocketed so much that, for instance, four or five years ago, we were selling a 54-square-meter apartment for 19 million HUF (€47,500); today, that same unit goes for 54 million HUF (€135,000). That's where we are now. Labor, building materials, and other expenses have become so expensive that it's just impossible … Back when we started, the typical layout was one bedroom plus two half-rooms. Now, it's a mix - anywhere from 75 down to 34 square meters - but people are leaning toward the smaller ones. One or one-and-a-half-bedroom apartments are the bestsellers here. At most, a one-plus-two-half-room setup. In this building, for example, there are four four-bedroom apartments, but I'm afraid we won't be able to sell them." - construction company representative

4.10 Gaps in Perceptions Between Civic Groups and Public Agencies

Similar to other Hungarian small towns, Ajka's civil society is organized primarily around sports and culture. Due to the city's unique historical development, organizations involved in urban development are structured not by thematic interests, but by neighborhoods, manifesting a strong sense of local identity within the city. The municipal leadership is cognizant of this fragmentation and leverages it in local awareness-raising efforts (as seen in the competitions

among neighborhoods). Consequently, divergences in opinion regarding the direction of urban development do not typically arise between the civil sector and the local government as the interviews reflect; instead, they manifest at the political level through debates within the municipal council. The current mayor possesses significant expertise and extensive experience, enjoying broad public support for his urban development policies:

> "Our mayor is actually an urban planning engineer. You see, he even served as the council president back in the day, then he was re-elected in 2002, and he's been our mayor continuously ever since—there's simply no alternative at the moment….. By the way, I don't know if you've visited Ajka before, but if you had been here, say, 25 years ago, you'd see the massive progress now. It's huge…This used to be a typical factory town with those four-story brick buildings from the late fifties, but now it's become a modern, green city. I'm sure you've seen the developments the mayor has spearheaded? For instance, the area around the Boating Lake used to be completely neglected, but in the last three years, they've turned it into the true heart of the city." - construction company representative

Ajka's Integrated Urban Development Strategy (2015) does not include objectives for increasing the municipal or affordable housing stock. Given the current housing property conditions, emphasis is placed on improving residential environments and supporting the energy-efficiency retrofitting of housing estate buildings. Additionally, the 2016 Urban Development Concept aims to create an urban housing stock that facilitates labor mobility—a goal exactly realized by the Liget Street residential project.

The preservation and renewal of municipal social housing stock and the provision of housing for youth are themes championed by the representative of the Two-Tailed Dog Party, though currently with limited impact on the political dialogue.

5 Critical Analysis: Ajka

5.1 The role of green policies in influencing social transformation in Ajka

Ajka is a relatively small town in Hungary, with 28,000 residents, that experience slow but constant decrease in population. Besides, the town is not specifically attractive neither from a tourist nor from an educational point of view, thus it does not lure immigration. Interviewees rather complain about young people leaving the town and elderly remaining. Despite these negative demographic tendencies, Ajka is not particularly fragile from an economic point of view as it is located in the western part of Hungary, close to industrial hubs, thus was able to transform its economy from heavy industry to industrial services based on small and medium sized enterprises.

The economic and demographic situation result in a modest housing market pressure, with low demand for new construction and lower differences in housing prices among neighbourhoods (except for Csingervölgy, which is an external former mining colony linked to Ajka, located in a forest environment).

In addition, Ajka (being a typical industrial town that started to develop after the second world war artificially) has integrated a substantial share of greenery decades ago into its layout. Spacious design of housing estates, family house areas in the outskirts, green parks in the heart of the city were always remarkable characteristics of the city. Consequently the value of green is not measured by its quantity but rather by its quality. And this quality has improved significantly in the last decades.

The implementation of the consistent green space renewal strategy in Ajka has served as an effective instrument for transforming the city's image from a "polluted industrial town" into a more favorable one. As a result of several years of sustained efforts, nearly all green spaces have been revitalized by now. Due in part to the mature tree canopy, the city now possesses a distinct "green" character. Thanks to the comprehensive implementation of the green projects, the resulting socio-economic appreciation shows no significant disparities across different neighbourhoods.

The renovation of multi-family buildings all around the town had similar connotations: Ajka is not an industrial town anymore but a pleasant place to live, however it does not generate mobility, but provides an improved quality of life for the local residents.

5.2 The role of green policies in influencing housing inequalities in Ajka

Housing retrofitting

There are hardly any towns in Hungary that reach such a high renovation rate of multi-family buildings than Ajka does. As nearly 90% of the communities accessed local/state subsidy schemes and were able to benefit from the renovation, and the ones that did not are already queuing for the next round of subsidy, it is fair to say that access to the renovation is not a specific feature generating housing inequalities.

With regard to the affordability of housing, the renovation process does not seem to have a significant impact. Partly due to that fact, that cost savings on energy efficient retrofitting are marginal as the fixed share of heating is 70% in the price, leaving only 30% variable for savings. In addition the utility prices are capped in Hungary since 2013 (including district heating) thus even the 30% share savings can be materialised on a moderate cost level. With regard to the price of renovation, it is implemented from subsidies, either with a combination of state and local subsidies as was in the 2000s, or from local municipal subsidies that reach 50% of the investment costs. These non-repayable subsidies, coupled with interest rate subsidized renovation loans from commercial banks resulted in modest increase in the contribution to the common costs of the residential buildings. According to the experiences of housing managers, evictions or debt accumulations due to the increased renovation fees are practically non-existent. The communities of the buildings vote for an increase in renovation costs up to an extent the owners are able to finance in general.

This fact however results in a risk of renovation even in current times. As the financial model is based on subsidies and low interest rate loans. If any of these is not available the renovation

process is terminated. This is the case currently, when the local municipality ran out of funds and the local support scheme is suspended. In addition the renovation loans, even with interest rate subsidies, are expensive due to the high inflation rate. Consequently the renovation process is hibernated.

The impact of the renovation process on housing quality is considered positive in general. Inhabitants mention the increased comfort level first and the nicer outlook as a result. Energy efficiency is less of a value for most of the owners. Occasional problems however appear with regard to mold appearing in case ventilation is not properly secured after insulation and change of windows.

The Ajka case study points to a specific feature of the renovation process, which is the trade-off between quality and quantity. The major goal of the municipality with the subsidy scheme was to support the renovation of buildings whatever the renovation is considered by the owners. For this the technical and administrative requirements were limited in case of schemes exclusively financed by the municipality and not coupled with state financing.These relatively low level of requirements made the preparation and implementation process relatively smooth and did not require extra efforts from the communities. (While state financed subsidy schemes required paid professionals who are able to write an application and the energy requirements were also higher in state financed schemes that generated higher upfront costs). The manageability of the local schemes resulted in more simple technical solutions (paintings of walls instead of insulation, thicker insulation than optimal, lower standard windows to install, insulation without calibrating the heating systems, etc.). These more simple technical solutions can create a lock-in effect: the communities use up their resources and will be stuck in an energy efficiency level that will be very costly to improve in the future.

Nature-based solutions (urban greening)

As was mentioned before, Ajka is considered a green town with an equal distribution of green areas in all neighbourhoods and central parks that are easily accessible for most inhabitants. Green in Ajka is not a specific value, rather a natural part of life. Consequently the development in green infrastructure does have a limited impact on real estate values and the real estate decision of inhabitants. There are diverging impressions of the interviewees on this matter, some of them considering attractive green spaces as triggers for real estate prices while others argue that the quality of green spaces is an essential expectation of the inhabitants towards the local government.

Nevertheless the housing complexes and plots for development besides the City Park were always considered as valuable, and their potential seems to increase in the market as the upgrade of the park was completed recently.

A notable lesson from the renewal of the Városliget (City Park) is the case of the Liget Street residential complex. In this instance, the municipality leveraged all available instruments—including large-scale municipal land ownership, regulatory concessions, a quasi-non-profit development company, and the further enhancement of green infrastructure—within a location characterized by an inherently favorable urban structure (central yet tranquil and green). Consequently, a new typology of apartment buildings is being developed, which is novel for the city. However, these units do not serve to expand the social or affordable housing stock; instead, they cater to the investment interests of the local economic and political elite.

5.3 Inspiring policies for influencing housing inequalities caused by green policies

Based on the desk research and interviews we concluded that green policies had limited impact on housing inequalities in Ajka. This is not the result of specific mitigation policies implemented by the local municipality, rather the consequence of the specific context that does not have a shortage of housing and greenery, thus improvements in the condition of the residential buildings and green public spaces do not lead to tensions between demand and supply.

However, it is important to note, that green interventions may have created tensions in the housing market at least in spatial context, in case they would not have been implemented in a spatially equalized way. The most inspiring policy message from the Ajka case is the consistency of urban development policy in the last two decades that aimed to provide renovation subsidies for the vast majority of residential buildings and renovated most public green spaces in all neighbourhoods of the town. This forward-looking concept, which was not questioned by any of the stakeholders (even if some elements are criticized) could have resulted the fact that currently Ajka is considered to be a model to follow in green development throughout the country.

6 References

Ajka város településszerkezeti terve (Spatial Development Plan of Ajka)
https://www.ajka.hu/upload/Szerkezeti%20terv.pdf

Ajka város Integrált Településfejlesztési Stratégiája (Integrated Urban Development Plan of Ajka)
KD-ITS KONZORCIUM 2015
https://www.ajka.hu/upload/Ajka_ITS_megalapozo_elfogadott20150929.pdf
https://www.ajka.hu/upload/Ajka_Startegia_vegleges_2016_02_29kieg.pdf

Ajka Város Önkormányzatának Fenntartható Energia- és Klímaterve (2025) (SECAP)
https://www.ajka.hu/upload/Ajka-SECAP_Véglegeself.pdf

Ajkai Járás Esélyteremtő programterv (2015) (Ajka micro-region equal opportunity plan)
https://www.ajka.hu/upload/Esélyteremtő%20program%201.%20kötet.pdf

Helyi Közösségfejlesztési Stratégia (2020) - Local Community Development Strategy
https://ajkaikapocs.hu/wp-content/uploads/2020/10/HKFS_AJKAI_KAPOCS_3_0.pdf?utm_source=chatgpt.com

Dr. Illyés Zsuzsanna et al.:
Ajka Zöldinfrastruktúra-hálózat Fejlesztési és Fenntartási Akcióterv (Ajka Green Infrastructure Network Development and Maintenance Action Plan)
TOP_PLUSZ-1.2.1-21-VE1-2022-00051 azonosító számú „Ajka, Élhető város” projekt
2023. október 31.
https://www.ajka.hu/upload/Ajka_Ziffa_vegleges.pdf

Koszorú Lajos et al.: Ajka Városfejlesztési Koncepció (Urban Development Concept)
Város-Teampannon 2017
https://www.ajka.hu/upload/KONCEPCIO.pdf

7 Appendix 1 – Key interview data

#	Position of Interviewee	Sector/company	Date of interview	Form of interview
1	Strategic and urban development department	Municipality of Ajka	11.06.2025	in-person
2	Construction and city management department	Municipality of Ajka	11.06.2025	in-person
3	Head of NGO	Cultural and social NGO	11.06.2025	in-person
4	Head of management	Housing cooperative	11.06.2025	in-person
5	Green space development experts (group interview)	Municipality of Ajka	23.09.2025	in-person
6	Head of company	Real estate development	23.09.2025	in-person
7	Housing manager	Property management	23.09.2025	in-person
8	Party activist and member of the municipal council	Political party	23.09.2025	in-person
9	Advisor to the mayor, external development expert	Municipality of Ajka	19.11.2025	in-person

8 Appendix 2 – Visuals

Picture 1. View of a typical housing estate with renovated buildings (by Éva Gerőházi)

Picture 2. A building of the 1950s – paining without insulation (by Éva Gerőházi)

Picture 3. Green is already settled for decades (by Éva Gerőházi)

Picture 4. View of the upgraded City Park (by Éva Gerőházi)

Picture 5. Traditional housing by the City Park (by Éva Gerőházi)

Picture 6. New complexes by the City Park (by Éva Gerőházi)