



SPATIAL PLANNING AND URBAN SPRAWL IN LATVIA: A CASE OF 'PIERĪGA' STATUS, OPINIONS AND FUTURE PERSPECTIVES

Gunta Lukstiņa¹ , Ilona Šavraka², Rūdolfs Cimdiņš¹ , Gundars Zadovskis³

¹ University of Latvia, Faculty of Science and Technology

Raiņa bulv. 19, Rīga, LV-1050: Latvia

gunta.lukstina@lu.lv • ilona.savraka@gmail.com • cimdins@inbox.lv • gundars.zadovskis@marupe.lv

² Rīga state municipality, City Development Department

Dzirnavu street 140, Rīga, LV-1050: Latvia

³ Municipality of Mārupe County, Development and Planning Administration

Daugavas street 29, Mārupe, LV-2167: Latvia

Abstract. Since 2000, a rapid but poorly planned and managed urban expansion process has been observed around Riga, the capital of Latvia. The article reflects the opinions and efforts of municipalities in spatial and social transformation, residents' rating of the urban and social environment and the results of spatial and morphological analysis, studying three suburban areas. It states that the spatial development policies of all levels have not been adequately implemented in local government spatial plans, creating a suburban built environment with low accessibility, availability, density, diversity and nodality, and outlines the first attempts of urban sprawl repair, calling for planning at the neighbourhood scale and activation of communities.

Keywords: spatial planning, urban sprawl, suburban built environment, qualities, community.

Introduction

Suburbanisation, mainly considered an issue of the Western way of life, has been widely studied around the world, characterising it by the development of predominantly monofunctional car-oriented spaces with low-density single-family dwellings emerging around the periphery of cities, places without traditional urban concentration, where new developments exist in their own right (Coutch et al., 2007; De Vidovich, 2019). This process, known as urban sprawl, has been recognized by the scholars an essential problem for urban area functioning, threatening sustainability and affecting the quality of the built environment in the long term (Coutch et al., 2007; Cocheci & Petrisor, 2023a). Couch et al. (2007) consider it as one of the most significant drivers of land use change in Europe as a result of inadequate planned development.

But in the second half of the 20th century till 1990s, the situation was different in the socialist countries of Central and Eastern Europe, where urban expansion started later. As it is recognized by Radzinski and Mickiewicz (2015), there the development of new suburban settlements was

limited by the state policy determining the construction of large multi-store residential areas, providing appropriate level of density and compactness (Cirtautas, 2014; Cocheci & Petrisor, 2023b). However, since 1990, after regime change, urban sprawl has been a predominant trend of urbanisation, primarily taking the form of residential single-family home development (Cirtautas, 2014; Cocheci & Petrisor, 2023b).

Researchers have emphasised that it was a period when ex-Soviet countries due to neoliberal thinking was not giving appropriate attention to physical planning and housing policy (Pichler-Milanovič, 1994; Sykora, 1998). Existed 'planning vacuum' (Nuissl & Rink, 2005), and as indicated by the Pichler-Milanovič et al. (2007) the term 'planning' had negative associations with the former state regime.

In Latvia, wider suburbanisation has started since 2000, when an active process of urban expansion of Pierīga was observed (Pužulis & Šķiņķis, 2009). Šķiņķis and Cimdiņš (2015) conclude that as a result of urban sprawl 'changes in spatial structures have taken place around Rīga – the capital of Latvia, as well as in the surrounding areas forming Rīga's functional region'. It should be noted that this process started and still is taking place in the situation when the total population of Latvia decreases (LR CSP, 2022).

After the crisis of the late 1990s, at the beginning of the 21st century, the municipalities of Pierīga (in Latvian – areas next to Rīga) started to see development possibilities, there was very strong political support for urban growth planning. As in many other countries, it happened for similar reasons – municipalities tried to use the opportunity to attract investors and fought for residents (Leontidou & Couch, 2007). During the land reform of the 1990s, the land taken from private owners into state ownership during the period of the Soviet Union, was returned to its previous owners, creating a new class of land owners. The economic benefit of their received back agricultural land was seen in the land-use change, particularly in the areas close to Rīga. During the development of local government spatial plans around the 2000s, these new landowners requested to change the land zoning from agricultural land to residential.

Such a decisions made it possible to produce scattered development – sprawl. At first the reason for uncontrolled sprawl can be found in the lack of regulation. It was possible to divide land outside the village borders into construction plots through detailed plans, in some cases, even before the adoption of a local government spatial plan (Narbutis, 2018; Šavraka, 2023). This practice was corrected peculiarly: the changed regulation prohibited the creation of new residential development outside village borders, but already existing and in detailed plans foreseen single-family dwelling areas due to this new regulation were included in the boundaries of villages 'post factum', expanding their boundaries. In this way, the villages of Pierīga, with large areas for monofunctional residential construction determined now in the spatial plans, such as Valdlauči, Rāmava, Katlakalns and many others, merged into village conglomerates of continuous settlements. But there was no factual basis to do so. Planners noted that the opportunities for village growth and development in the new borders had not been analysed in the context of the region or several municipalities (Narbutis, 2018).

At the beginning of the 21st century, researchers started to evaluate these urban sprawl processes. Urbanisation trends on the metropolitan scale and processes transforming community were analysed (Pužulis & Šķiņķis, 2009, 2011; Šķiņķis & Cimdiņš, 2015), criteria for choosing the place of residence were examined (Felcis et al., 2014), as well as attention was paid to population migration and its reasons (Bērziņš, 2009; Bērziņš et al., 2010; Krišjāne & Bērziņš, 2012; Sechi et al., 2022). Less research has been conducted on urban sprawl issues at the community level.

At the same time, when rapid suburbanisation processes are taking place in post-socialist countries, in the world attempts are being made to rethink the understanding of urban sprawl (Keil & Wu, 2022) and find a way to move towards the form of a sustainable city (OECD, 2018). Scientists and practitioners talk more about suburban 'repair' – retrofitting suburbia, redesigning suburbs (Dunham-Jones & Willianson, 2011), retrofitting sprawl (Talen, 2015). New planning approaches focusing on compactness and suburban transformation (Tachieva, 2010) – a process explained as the intensification of the suburban environment – have been emerging, as well as restructuring, creating new, compact neighbourhoods (Rice, 2010). Transformation that is aimed to ensure liveability, community, and quality of life (Çalışkan & Şevik, 2022).

Quality of life issues are actively researched in urban environments. Researchers note that ensuring quality of life becomes especially relevant in the context of global urbanisation as the number of urbanised areas increases (Mouratidis, 2021). Findings emphasise that the urban environment in which a person lives daily is one of the most important aspects that affect a person's well-being - this concept is closely related to the quality of life in general (Winston & Eastway, 2008; Streimikiene, 2015).

Individual cases of 'densification' of places and neighbourhoods are studied often. Several researchers collected individual examples of transformation projects that focus on changes in function and physical form (Tachieva, 2010; Dunham-Jones & Williamson, 2011). Urban environment quality indicators – accessibility, connectivity, density, diversity, and nodality for determining potential transformation sites on city or neighbourhood scale are offered (Tsenkova, 2006; Rice, 2010; Talen, 2011; Wilson et al., 2011; Dinić & Mitković, 2016; Uribe et al., 2017; Muminovic & Caton, 2018; Mantey & Pokojski, 2020; Mantey, 2021). Research is conducted on residents' neighbourhood satisfaction (Mantey, 2021).

Researchers state that planners should understand the relationship between the built environment and the indicators of the quality of human life (Mulliner & Maliene, 2011). Some argue that this can influence the planning approach (Mouratidis, 2021). Others explain that planners should be aware of the characteristics of the built environment that contribute to residents' satisfaction, because improvements in the physical parameters of the suburban built environment will only be effective with knowing the demands and wishes of residents (Mantey, 2021).

It is noted that the neighbourhood scale is the most appropriate for studying residents' satisfaction with the built environment, later using the results in suburban transformation (Mantey, 2021; Šavraka, 2023). It is emphasised that such projects should be linked with the expectations of the neighbourhood itself and its development vision (Vall-Cassas et al., 2016).

While research, new planning concepts and approaches to sprawl repair appear globally, no such specific studies of suburban transformation processes have been elaborated in Latvia, especially those that can create a base for future planning. The setting of this article is to alleviate this deficiency.

Urban sprawl processes in Pierīga

In Latvia the Rīga metropolitan area is considered as a well-connected economic and social movement area of the capital. It includes Rīga with the neighbouring towns and the municipalities, forming Rīga metropolitan 'core' – an area where the urban sprawl processes are more intensive compared to the other four regions of Latvia and characterised by high daily commuting intensity (Fig. 1-2). Urban expansion processes can be observed around some other Latvian cities as well, but in terms of intensity, they are not comparable to the developments around the capital.

Pierīga – part of Rīga metropolitan ‘core’ – territory directly surrounding the capital up to and around the ring road (Fig. 2) is an area where the urban sprawl processes have been the sharpest. Šķiņķis and Cimdiņš (2015) see it as connected territory of transition, where emerging settlement patterns demonstrate aspects of both – urban and rural – ways of life. From a planning documents perspective, Pierīga is characterised as the space of direct influence of the capital city with typical for suburbia urbanised population, traffic and economic structure, where the territory adjacent to the capital city forms a unified urban ‘fabric’ with Rīga (RPR, 2023, p. 27).

Various internal and external factors – previous and current policies, regulations and interests are influencing and shaping urban sprawl processes in Pierīga. The economic growth of Rīga and Pierīga, as well as the ongoing demand for housing and, therefore – for new construction areas – creates suburbanisation pressure on the municipalities of Pierīga (Narbutis, 2018). As a result of urban expansion, various suburban spatial units have been formed in Pierīga, on both sides of the Rīga ring road (Fig. 2). Most parts of Rīga and Pierīga suburbs have already merged, and there is a vast potential for future development in planned urban growth areas till and on both sides of the ring road. An increase in population and the formation of new villages have created a demand for infrastructure, services and mobility solutions. There are different social structures, community relationships and collaboration.

To explore these spatial and social transformation processes in Pierīga, three suburban research territories (Fig. 2) with diverse localisations were chosen as cases: Ķekava municipality, Katlakalns/Rāmava villages – 3964 inhab., Mārupe municipality, Spilve/Mežāres villages – 3195 inhab., Ādaži municipality, Stabriņi village – 573 inhab. (PMLP, 2024).

They are Pierīga urban expansion conglomerates and represent the results of the urban sprawl process – spatial transformation and the first indications of social structuration. Such already existing changes make it necessary to evaluate not only the physical structures of suburbia but also the existence and performance of local communities - social potential as a significant cooperation and communicative aspect in the quality of life and overall development processes of localities (Cimdiņš, 2013).



Figure 1. The capital of Latvia Rīga in the Baltic Sea Region
Source: elaborated by authors.

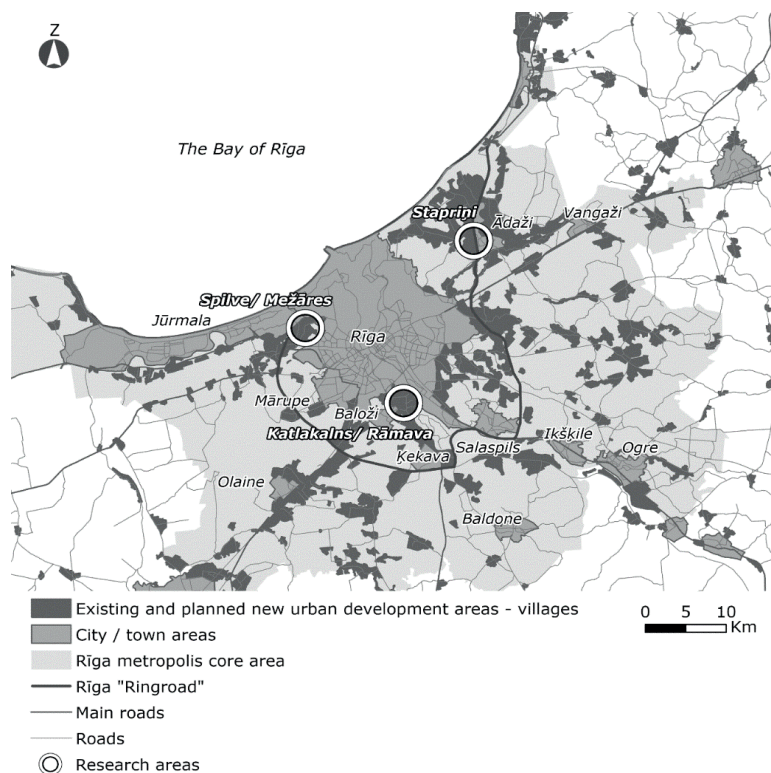


Figure 2. Urban development areas around Rīga City and research case areas
Source: elaborated by authors.

Therefore, the article aims to clarify the local government's efforts concerning spatial and social transformation in suburbia and residents' opinions of quality of life there by exploring three urban expansion areas of Pierīga.

There are several tasks for the study:

- Find out local governments' perspectives on suburban development, planning and transformation.
- Conduct morphological spatial analysis by evaluating suburban built environment qualities of selected villages in three municipalities.
- Explore the residents' satisfaction with the urban and social environment and their opinions about the necessity of transformations.

Research methods and design

The research is based on qualitative research methodologies, including social geographical and spatial planning document analysis, interviews and surveys in three Pierīga local municipalities: Mārupe, Ķekava and Ādaži, taking their five villages – Spilve/Mežāres, Katlakalns/Rāmava and Stapriņi – as cases.

All three research cases were chosen from the urban sprawl conglomerate areas where several villages bordering with neighbouring ones form broad continuous urban growth areas with dominated type of land use – private house building (both in plans and fact). In two places (Spilve/Mežāres, Katlakalna/Rāmava) an urban pattern is denser already due to active residential development which started around 2000. In one case – Stapriņi village – for urbanisation planned wide areas just been a little built-up in several places, but more rapid urban sprawl processes as observed, are starting currently.

For the purposes of this research – analysis, interviews and survey – the authors based on the previously discussed quality criteria of the suburban built environment in the scientific literature (Tsenkova, 2006; Rice, 2010; Talen, 2011; Wilson et al., 2011; Dinić & Mitković, 2016; Uribe et al., 2017; Muminovic & Caton, 2018; Mantey & Pokojski, 2020; Mantey, 2021) elaborated a set of qualities which characterise the morphological form of it – accessibility, connectivity, density, diversity, and nodality:

- **Availability.** Availability to access services. Availability of public transport. A built environment where the interests of pedestrians and cyclists dominate. Characteristics of the space – street connectivity, proximity to shops, and presence of greenery, pedestrian infrastructure and lighting – promote walking and ensure its safety.
- **Connectivity.** The spatial density of streets and the number of street intersections. The presence of a street grid, small blocks, the absence of dead ends, a network of activities and services.
- **Density.** Density as a part of a compact urban form, which provides vibrancy, social interaction, and walkability. Critical population mass for service delivery. Desired state – higher density in the local center and around the public transport hub, lower in the periphery of the neighbourhood.
- **Diversity.** A social diversity of a neighbourhood, offering different types of housing. Diversity of land use and functions. Public outdoor space as one of the functions. Shorter distances from housing to functions.
- **Nodality.** Concentration of various activities. A node as a destination.

Additionally, indications of social structuration were observed. Previous studies have identified the neighbourhood approach and the role of communities as a significant quality to characterise inclusiveness and participatory aspects of the territory. The existence and action of local, territorial communities, horizontal links of local society, collaboration with community members, participation in neighbourhood life and involvement in the planning processes are seen as important qualities of territories' liveability and social attractiveness (Putnam & Goss, 2000; Chazdon & Lott, 2010; Mandell, 2010).

At the first stage of the study, spatial development planning documents of all levels –national, regional and local sustainable development strategies as well as local government spatial plans concerning urban sprawl issues – were evaluated.

Secondly, field studies, spatial and morphological analysis were performed using an assessment scale: lacking - very weak - weak - moderate - good - very good. Thirdly, semi-structured in-depth interviews with the representatives of the municipality development departments – heads of departments, planners, lawyers, GIS specialists – were carried out. Interviewees were asked to answer 11 open-ended questions about local spatial planning policies and real situation concerning suburban growth and built-up area quality criteria compliance in the target areas. The questions focused on topics such as problems of the previous planning periods, changes in local planning practice, tasks to repair sprawl, communities, etc. The interviewees revised the written summary of the interviews to ensure the accuracy of the data.

Last of all, an online survey of residents assessing the quality of the suburban built environment and satisfaction with the life in villages were carried out. It was conducted using the Google Docs platform. The invitation to participate in the survey was posted on village community Facebook groups from 28.10.2023 to 21.11.2023, the survey was distributed through active persons within the communities as well.

The survey targeted residents who had begun to live in case areas since 2000 as their choice has affected the urban sprawl process. It included 33 questions divided into five sections. Firstly it was asked about the length of residency in a village, place of origin, and the reasons behind this new choice. The second part included questions about ways of daily mobility, common destinations, micromobility and public transport availability. The third part consisted of questions about services, public functions, local centers and public spaces. The fourth part – questions about the types of social interactions between residents themselves and with the municipality. Finally, participants evaluated the overall satisfaction with life in the village, missing social functions and desired future development.

The time and channel used to perform the survey resulted in limitations – the sample size was too small to achieve statistical significance. Fifty-six responses were received from Katlakalsns/Rāmava villages, 77 – from Spilve/Mežāres villages, and 22 – from Stapiņi village. Mainly working-age residents (25-55 years old) participated. The survey results were analysed both qualitatively and quantitatively and the findings were interpreted with caution. Nevertheless, the survey results vividly highlight the challenges and distinctive needs of communities.

Comparative Analysis. Results

Planning and urban sprawl

In Latvia, the spatial development planning system covers three levels with two main instruments on each – a sustainable development strategy with its spatial development perspective and a development program. On the local level, in addition to the strategy and program, there are local government spatial plan determining land use zones, local plans and detailed plans. Thematic plans can also be developed for special issues on all levels.

The Sustainable Development Strategy of Latvia until 2030 is the hierarchically highest long-term development planning document on the national level. It defines the country's development priorities and spatial development perspective, and advocates the prevention of urban sprawl trends. The document states that it is necessary to transform the monocentric structure of the Rīga metropolitan area into a polycentric settlement structure. At the same time pointing out that Rīga should not lose its role as a metropolis (Saeima, 2010).

In accordance with the Rīga Planning Region Sustainable Development Strategy 2030, which is hierarchically the highest official long-term development planning document on the regional level (RPR, 2023), the research areas are located in the 'urbanised space of Pierīga'. The Strategy recognises that the practice of the previous decades has not appropriately implemented the Guidelines set in the Strategy, and now it is essential to ensure the integration of administratively and economically fragmented, but functionally unified spaces Rīga – Pierīga through coordinated development planning and cooperation (RPR, 2023, p. 28). It includes the requirement for local governments to review mono-functional zoning in villages and reserve territories for future development needs, setting two current priorities for Pierīga: limiting suburbanisation by balancing spatial settlement structures and developing a network of public outdoor spaces. The

Strategy emphasises that planning techniques and measures to limit the merging of continuous urban structures should be used at the local level (RPR, 2023, p. 28).

After the administrative territorial reform (ATR) in 2021 during it former counties were merged, all case area municipalities renewed strategies and started working on their spatial plans.

Ķekava County. The Sustainable Development Strategy of Ķekava County 2030 (MoKC, 2022) defines five spaces of the spatial structure. Katlakalns/Rāmava villages belong to the defined Urban space (MoKC, 2022). Strategy concludes that the urban sprawl villages are unimpressive, without amenities, public outdoor space and identity and calls for the creation of an overall structure that includes a publicly accessible center, functioning green areas and micro-mobility options. It encourages the development of alternative solutions for temporary land use, aiming to establish recreational functions, public spaces and greenery on unused territories. The Strategy does not foresee rapid population growth and states that development should occur in already planned areas, accumulating possible population growth there (MoKC, 2022).

Ķekava municipality adopted the new spatial plan in 2023 (MoKC, 2023b). Its solutions for the Katlakalns/Rāmava villages are not significantly different from the previous one, predominantly with mono-functional zoning for private houses (MoKC, 2013). However, some positive changes can be seen - two new places with public and mixed-use zoning are planned. Unfortunately, they are located detached from the historical centers of the villages with existing public objects. Overall, it should be noted that anti-sprawl and compact development policies included in the strategies are not appropriately reflected in the municipality's spatial plan.

The same year (2023) municipality adopted a renewed Public space plan of Kekava County (MoKC, 2023a), which includes specific proposals for public space development as well as proposals for county division into neighbourhoods. According to this plan, Katlakalns/Rāmava villages together with bordering Valdlauči village will form one neighbourhood with more than 6000 inhabitants (MoKC, 2023a).

Mārupe County. The Sustainable Development Strategy of Mārupe County 2022–2034 (Ence et al., 2022) defines that the number of residents in the county will continue to grow steadily from 37 000 in 2021, exceeding 45 000 inhabitants in 2040. Strategy determines two functional spaces of settlements – Urban and Rural – and states that Spilve/Mežāres villages belong to the Urban space. It strongly supports the community approach and foresees that Spilve/Mežāres villages together will form one neighbourhood with basic social and cultural services. The Strategy requires concentration of development in already planned areas (Ence et al., 2022).

Currently (2024) the municipality, following Strategy and its guidelines, is developing a new spatial plan, including proposals that the creation of gated communities, as it has occurred in Mežāres village, is not supported in the long term and that each of the territories should have several public green areas.

Ādaži County. The Sustainable Development Strategy of Ādaži County 2013-2037 (MoAC, 2021) defines that the accessibility and diversity of housing as well as the development of communities and modern county governance involving residents will contribute to the gradual population growth with the majority of the population residing in the towns of Ādaži and Carnikava. The Strategy and its Guidelines support concentrated development in villages around existing infrastructure and restrict scattered development. Stapriņi village is seen as a small rural village with very few social services. At the same time dense residential areas could be developed by the Via Baltica, Riga – Tallinn highway, opposite Ādažu town (MoAC, 2021).

Stapriņi village functional zoning, defined in the current spatial plan (MoAC, 2018), consists of industrial and mixed-used territories along the Via Baltica and extensive areas for private house building as well as agricultural land within the vast remaining territories of the village. The privately owned forest is also planned for construction (MoAC, 2018).

In all three counties, local government spatial plans having wide zoning areas for single-family residential dwellings, continue to be implemented by developing separate detailed plans. In many cases, these plans are being developed within the framework of one single property. The municipality's requirements, including public outdoor space and infrastructure, are not implemented by developers, who impose their solutions. Usually, there is no greenery, narrow private streets and local private decentralised sewerage systems created with socio-economic justification, proving that it is not economical to install centralised sewerage systems or provide a place for public purposes.

Case area characteristics. Qualities of their suburban built environment

During field studies three case areas from village conglomerates were assessed: Katlakalns/Rāmava, Spilve/Mežāres and Stapriņi villages.

Katlakalns/Rāmava villages are located on the left bank of the Daugava River, 8 km from Rīga centre (cf. Fig. 3) and 6.5 km from Ķekava County administrative centre – Ķekava town. They are bordering Krustkalni, Valdlauču, Lapenieki villages and Baloži town. Basically all territory of both villages is zoned into built-up land use, mainly residential. Separate detailed plans are actively implemented and villages are gradually filled with private houses. The Katlakalns/Rāmava case illustrates an example of urban sprawl around existing historical centers. The primary transportation arteries consists of a state road and two main streets running through the villages. The built-up areas are connected to the main roads, but at the same time creating separate zones with a less dense pattern in the recently developed areas and a denser pattern in the historical parts, concentrating several public functions there.

Spilve/Mežāres villages are located in an urban space as defined in Strategy. They are far away from the administrative center of the county Mārupe town (19 km), bordering Babīte village, the cities of Rīga and Jūrmala (Fig. 4), are surrounded by urban forests. Spilve/Mežāres village case illustrates an example of urban sprawl occurring far away from the administrative center closer to other city – Rīga. There is one main road running through the area from North to the South. All territories of both villages are planned to be built up, apart from the forest areas. Gradually separate detailed plans are being implemented and the construction of private houses is being performed. Residential construction continues also in polder areas. In the previous planning periods gated communities were planned and built one after another, raising the issue of their management today. A few public functions are observed in some places.

Stapriņi village is located 23 km from Rīga center on the left side of the Via Baltica, Rīga – Tallinn highway, which separates it from Ādaži town (Fig. 5). Stapriņi borders with two other villages on the Northwest and a forest area on the South. It consists of three separate smaller residential built-up areas without a connected street network. Most of the undeveloped land is planned for residential purposes, allowing construction in the polder areas as well. Despite the development of many detailed plans there, they have not been implemented or have been implemented chaotically in different locations of the village, leading to its uneven development.

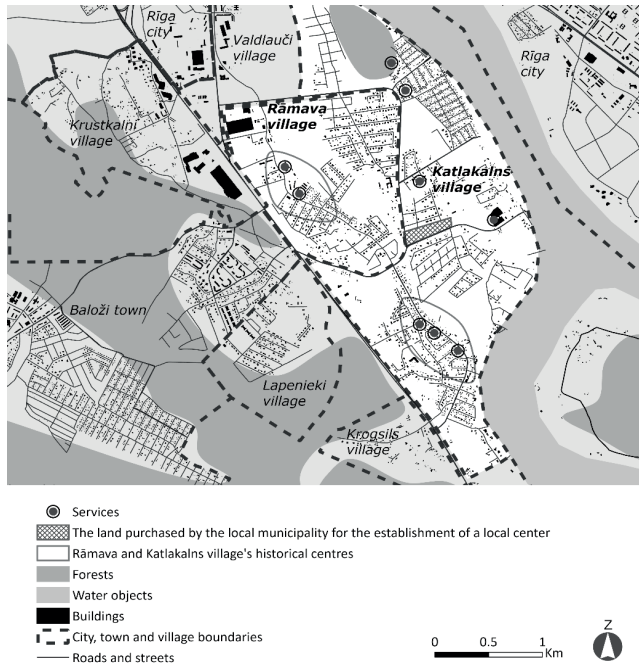


Figure 3. Katlakalns/Rāmava village location and characterisation
Source: elaborated by authors.

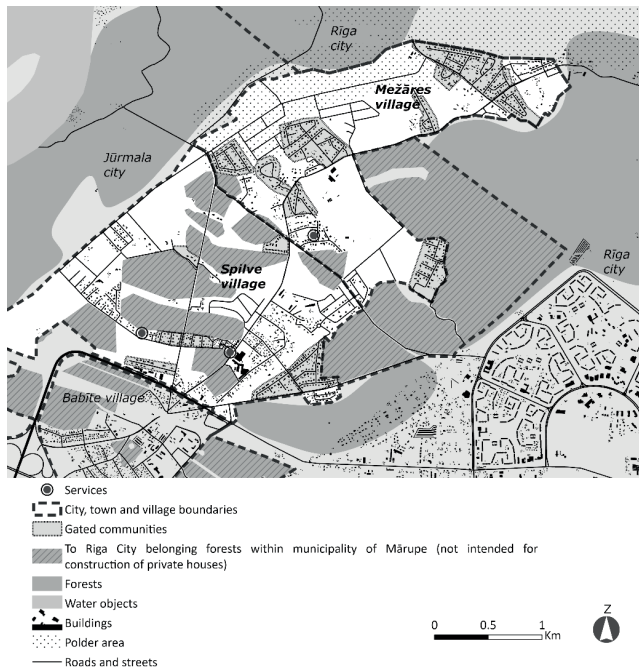


Figure 4. Spilve/Mežāres village location and characterisation
Source: elaborated by authors.

Case areas were assessed using a set of qualities of a suburban built environment – accessibility, availability, density, diversity and nodality. They, despite being chosen from different municipalities and locations, all received more or less similar weak built environment quality evaluation, only two of them – moderate. Overall, accessibility to services and public transport availability is moderate in one case area (Katlakalns/Rāmava village), weak and very weak in two others. The street network, partially consisting of private streets, is fragmented in all cases, leading to weak or very weak connectivity. The population density is low or very low, with plot sizes on average around 1200m² (till 3500m² in the Staprīņi village). Diversity is moderate (Katlakalns/Rāmava village) or lacking at all (Staprīņi village) – the sprawled areas lack diversity of housing types and public green space. Nodality is either lacking (Spilve/Mežāres and Staprīņi villages) or weakly expressed in the historical parts of the Katlakalns/Rāmava villages (Table 1).

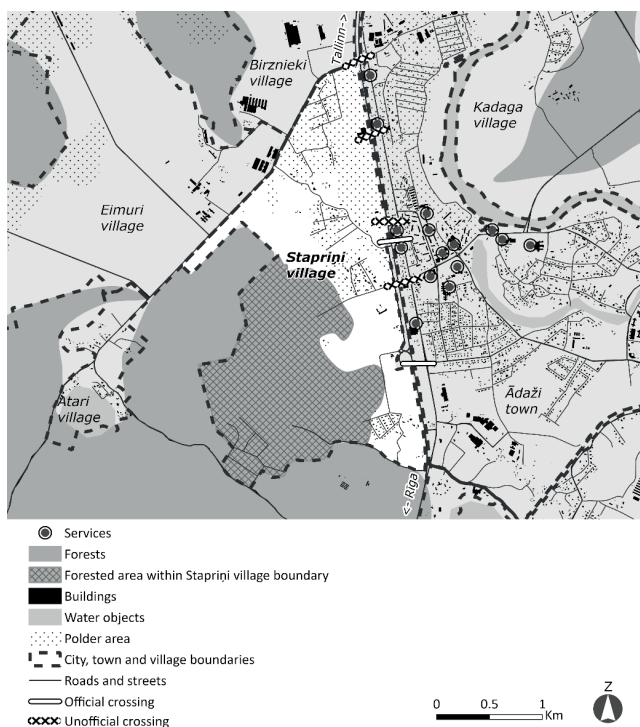


Figure 5. Staprīņi village location and characterisation
 Source: elaborated by authors.

Table 1. Qualities of the suburban built environment in the case areas

	Katlakalna/Rāmava villages	Spilve/Mežāres villages	Stapriņi village
Availability	Moderate: Limited access to services. Public functions are in Rīga and neighbouring towns. Available public transport (5 routes). Some micro-mobility infrastructure. Paved main streets, a lot of unpaved private streets.-	Weak: Very poor access to services at place. Public functions are in the neighbouring Rīga city. Public transport limited to 1 route. Some micro-mobility infrastructure in one part of the village. Paved main road and private streets in the gated communities.	Very weak: No services in the village. Public functions in the neighbouring Ādaži town. Public transport limited to 1 route in one part of the village. Lacking micro-mobility infrastructure. Fragmented paved private streets and unpaved roads.
Connectivity	Weak: Built-up areas planned with street dead ends. Rare or wide street grid.	Very weak: Street grid only inside the gated communities. Lack of internal connections between gated communities. Weak connections between gated communities and other areas.	Very weak: No connection between the three built-up parts. Very weak connectivity to Ādaži town (two pedestrian crossings far from service objects). Street grid in some built-up parts.
Density	Weak (low): Mainly 1200 m ² large plots for private single-family dwellings. 3964 inhabitants, population density 465 inh/km ²	Weak (low): Mainly 1200m ² large plots for private single-family dwellings. 3195 inhabitants, population density 388 inh/km ²	Very weak (very low): 1200m ² – 3500 m ² large plots for private single-family dwellings. 573 inhabitants, population density 112 inh/km ²
Diversity	Moderate: Some variety of functions - a local shop, few public services, playgrounds and green space in the historic centers of both villages. Two private preschools in the new residential areas. Similar housing types – mainly single- family dwellings, some two-family and row houses, and multi-story dwellings. Lack of connections to public green spaces, point approaches to the river.	Weak: Weak variety of functions, some production facilities, two preschools, small shop. Similar types of housing – mainly single-family dwellings, some two-family houses differentiating in size in different gated communities. Lack of public green space. Green areas in the gated communities – closed to a broader public. Some forest areas (belonging to Rīga) are rented out for private use.	Lacking: No functions. Similar types of housing – mainly single-family dwellings. Lack of public green spaces.
Nodality	Weak: Expressed only in the historical centers of the villages.	Lacking	Lacking

Source: elaborated by authors.

Results of the semi-structured, in-depth interviews with the municipality representatives

The interviewees of semi-structured in-depth interviews were representatives of the municipality development departments. At first it is essential to mention that after the administrative territorial reform in 2021, new teams of planners have started to work in Ādaži and Mārupe municipalities, while Ķekava municipality mainly retained its previous planner's team. Despite varying

working experiences in the municipality, all interviewees noted that issues from the past planning periods have affected current planning a lot.

The land reform in the 1990s, executed before the development of local government spatial plans, resulted in numerous challenges. These include fragmented monofunctional development, lack of infrastructure, fragmented street networks, etc. Mārupe municipality interviewees also highlighted the specific case of Mežāres village with numerous gated communities. Finally, the problem of the development of detailed plans without administrative contracts has been a common issue.

According to the interviewees, in recent years, changes have occurred in views on ongoing development patterns – an opinion that the prerequisites for the development include investments in infrastructure, and that the development is to be accepted in the areas with access to infrastructure and services.

The responses indicate the differences in opinions regarding urban growth. In Ķekava municipality there is a joint view that urban sprawl has reached its peak. In Mārupe municipality, as given by the interviewee answers, the opinions differ, some politicians still strongly support further urban growth. Ādaži municipality is seeking solutions to address the population increase.

The interviewees emphasise that the qualities of the urban environment, such as accessibility, connectivity, density, diversity, and nodality, are considered. However, the planners alone cannot improve them. Nevertheless, there are positive trends. For instance, administrative contracts with developers for the implementation of detailed plans now ensure a better process of building public infrastructure. Developer practices have also improved, in some cases (Katlakalna village) providing a complete cycle from the detailed plan to the house keys. During the elaboration process of Ķekava County's spatial plan, critical places of accessibility and connectivity were evaluated to prevent weak accessibility. The municipality is enhancing walking and cycling infrastructure, and exploring the possibilities of integrating small businesses and green connections in the case area.

Mārupe municipality plans to adopt a similar approach and is looking for solutions to avoid the development of gated communities. As one of the interviewees pointed out, it is necessary to recognise, that issues of quality of life will affect society in the future a lot. In the development stage current landowners/developers are advocating for their requirements and rights, but they are only 'temporary owners' or 'territory managers.'

Ādaži municipality will reconsider the residential zoning in the forest area in Stapriņi village. While two other municipalities do not currently focus on densification, Mārupe municipality will discuss the idea of reducing the plot size to 1000 m² for single-family dwellings during the development process of the new spatial plan, allowing larger plots in separate zones. Ādaži municipality is concerned about providing public functions due to a lack of municipal land, while Ķekava municipality has purchased a land plot designated for public purposes in Katlakalna village.

Responding to the question, what changes could be made to ensure that residents are satisfied with their living environment, the representatives of Ķekava municipality expressed confidence in their current approach – planning to improve public spaces. Interviewees of Ādaži municipality consider that the most pressing needs for Stapriņi village residents are the development of underground utilities and a convenient connection to Ādaži town. Mārupe planners emphasised two priorities: the installation of a centralised sewage system and the improvement of accessibility by integrating private streets into municipal ownership and management.

The interviewees from all municipalities consider that the existing spatial planning instruments, such as local government spatial plans and detailed plans, are not appropriate instruments for planning complete communities. They argue that there should be a national urban development policy and suggest several necessary changes to regulations. They are also seeking for more specific guidelines from the national level for the development in urban sprawl territories to ensure the provision of quality of life. They also request a real land exchange mechanism to address the outcomes of the 1990s land reform as well as more flexible procedures for making minor changes in spatial plans, propose the development of village plans and call for greater responsibility from the developers, suggesting that a business plan before detailed plan can better ensure their future plans.

Furthermore, the interviewees emphasise the role of a strong regional council as a mediator and moderator in resolving complex intermunicipality issues and playing a significant role in urban sprawl repair by providing a framework and identifying densification zones in its spatial plan. More detailed comparison of the situation concerning planning approaches and practises, social potential and community perception is presented in Tables 2 and 3.

Table 2. Comparative overview of interview results. Planning approaches and practices

Questions	Answers		
	Kekava County Katlakalns/Rāmava villages	Mārupe County Spilve/Mežāres villages	Ādaži County Stapriņi village
Team of planners after reform (ATR)	The same team of planners	A new team of planners	A new team of planners
Problems of the previous planning periods	Land reform at the beginning of the 1990s before regulations in planning resulted in fragmented monofunctional development. Lack of municipal land. Detailed plans without implementation contracts. 'Fragmented' ownership of the street network. Lack of centralised sewerage and water supply systems.	Gated communities. Planned residential zoning in polder areas. Lack of a unified street network. Private streets. Lack of centralised sewerage and water supply systems.	Planned huge village conglomerate – one village with another one having joint borders, mono-residential zoning. Lack of municipal land. Detailed plans without implementation contracts. Scattered development. Private streets. Lack of centralised sewerage and water supply systems.
Actualities in the case area	<u>Positive:</u> New detailed plans with implementation contracts. Implemented detailed plans from the start to the keys. The municipality has bought land for public functions. Implementation of the public space improvement plan has started.	<u>Positive:</u> New gated communities are not allowed any more. <u>Negative:</u> Continues fragmented development of the private house construction areas. The area in the local spatial plan foreseen for a mixed-used village centre is currently being built up by private houses.	<u>Negative:</u> A lot of detailed plans have not been implemented. Continues fragmented development. Need for the connections with the bordering Ādaži town. The lack of municipality property prevents the creation of a mixed-use center.
Policies for the case area	Policy – diversification and densification.	No specific policies.	No specific policies.

Questions	Answers		
	Kekava County Katlakalns/Rāmava villages	Mārupe County Spilve/Mežāres villages	Ādaži County Stapriņi village
Changes in views about urban growth	Recognition that urban sprawl has reached its peak. Investment in infrastructure as a prerequisite for the development.	Different opinions. Some support to further urban growth. Greater emphasis to be placed on infrastructure provision.	Support for urban growth, determining that development will be accepted in areas with access to infrastructure and services.
Changes in local planning practice since reform (ATR)	In the currently adopted spatial plan, some land use changes from residential to agricultural or mixed-use; critical places of accessibility and connectivity are evaluated to prevent weak accessibility.	A new spatial plan is currently being developed with proposals to provide a common approach for all residential areas: mixed-use, green areas, an interconnected, publicly accessible street network.	Planners are seeking new practices during the elaboration process of the spatial plan. They will reconsider the residential zoning in the forest area.
Five qualities of the built environment in practice	Considers all five qualities, but recognises limited capacity to improve them. Addressing accessibility and diversity in the spatial plan.	Considers all five qualities, but recognises limited capacity to improve them. Addressing accessibility, diversity, and density in the spatial plan.	Considers all five qualities, but recognises limited capacity to improve them. Addressing accessibility and diversity in the spatial plan.
Plans as tools for creation of complete NB	Neither local government spatial plan nor detailed plans are the right tools for creating complete neighbourhoods.	Neither spatial plans nor detailed plans are the right tools for the creation of complete neighbourhoods.	Neither spatial plans nor detailed plans are the right tools for the creation of complete neighbourhoods.
Changes needed in planning	A shorter spatial plan approval process. Development of village plans. Business plan development before starting detailed plan. Integration of functions in the mono-residential zones. Regulations which determine that more than 20% of the detailed plan territory must be provided for public needs.	Tools to insist on respecting public interests and the quality of the living environment. Legislation forbidding gated communities.	Legislation: For the flexible procedures for changes in the local spatial plans. For the development of local areas. Preventing the creation of private streets. Clear land exchange mechanism.
Tasks for the local government to repair sprawl	Implement existing county plans. Improvements of the public space.	Provide infrastructure. Management and connection of all streets, connections of gated communities. Plan cross-border spaces.	Provide infrastructure. Good connections to the neighbouring Ādaži town.
Tasks for the regional level to repair sprawl	Create a strong Riga region Council. Determine a unified approach for financial support in the region. Identify densification zones.	Region as a mediator for cross-border issues. Urban sprawl repair framework. Management of public transport.	Region as a moderator between local politicians and planners. A platform for addressing spatial issues collaboratively. Develop a hierarchically higher spatial plan.
Tasks for the national level to repair sprawl	An urban development policy with a regional perspective.	Clear urban development policy.	State plan against urban sprawl. Quality criteria for the development of villages.

Source: elaborated by authors.

Public participation and community activity are significant when identifying social potential. However, local community initiatives in the research territories are relatively limited (Table 3).

Organised communities are not observable in the case areas, except for the Katlakalns village. There are some informal social activities in other villages as well, but they occur locally between households or in the gated communities. Ādaži municipality stands out with community coordinator work.

It should be emphasised that all strategies of the case study municipalities prioritise the concept of 'active communities'. Significant attention is devoted to a community-oriented approach – the functioning of the resident's advisory councils. Municipalities are adopting a top-down approach through participatory budgeting activities to initiate community engagement and foster a commitment to collaborative efforts within communities.

Table 3. Comparative overview of interview results. Social potential and community perception

Questions	Answers		
	Kekava County Katlakalns/Rāmava villages	Mārupe County Spilve/Mežāres villages	Ādaži County Stapriņi village
Ways of public participation in the planning and development processes	Workshops and discussions in various formats. Public participatory budgeting projects. Annual meetings with politicians before budget adoption.	Resident's advisory board. Interactive surveys using the GIS tools. Public participatory budgeting projects.	Meetings with village communities at an early stage of the spatial plan development process. The strategy sets the community's approach for public participatory budgeting and resident's advisory board.
Community activation	No real activation activities. No resident's advisory board in the county. During the elaboration process of the spatial plan residents were engaged in the determination of neighbourhoods.	No real activation activities. Representatives from the case area are not among participants of the municipality's resident's advisory board.	A county community coordinator recently started working. No resident's advisory board in the county.
Local community groups	One local community group. One NGO as mentor.	Micro community groups in the gated communities.	None.

Source: elaborated by authors.

Survey of residents – results and comparison

In November 2023 surveys of residents assessing the qualities of the suburban built environment, satisfaction level and indications of social structuration in study case areas were conducted.

Across all villages, most survey participants (59-92%) had relocated from Rīga to their current residence. This trend is especially noticeable in Mežāres village (92%). In the case of Katlakalns/Rāmava villages, the third part of the respondents moved to their current place from another location in Pierīga. The common specific features of the location were crucial for the respondents when selecting a place of residence. The most critical factors were proximity to nature, a countryside atmosphere, and an area of private houses associated with greater peace. Real estate prices and available public transport were also critical criteria. On the other hand, in none of the cases did residents evaluate the quality of services, educational institutions or public outdoor space as a priority. These factors were considered as significant by only 10-20% of the respondents.

The majority of village residents (45-68%) commute outside their village multiple times a day, including those, who commute once a day, the percentage goes up to 67-93%. Only 8-14% of respondents cycle to work. Although public transport is generally available, only 5% of respondents regularly use it. The respondents indicated that pedestrian and other micro-mobility infrastructure must be more present or developed. This lack of infrastructure makes it difficult to access the nearest public transport stop safely and comfortably, potentially reducing the desire to use it. As a result, the car stays the primary means of transportation. In contrast, the evaluation of walkability varies. A comparison of the pedestrian environment shows better results in Katlakalns/Rāmava villages. 59% of respondents from Rāmava/Katlakalns villages walk to the nearest destination, in Stāpriņi village – 50%, and in Mežāres village – only 28%. The lack of pedestrian infrastructure is strongly evident throughout all responses from Mežāres residents.

The residents of Mežāres and Stāpriņi villages claim that there are no centers in their villages. In Mežāres gated communities are seen as local centers, while in Katlakalns/Rāmava villages, historical sites are perceived as centers, although visits to these places are infrequent. Among all villages, 60% of respondents in Katlakalns/Rāmava villages indicated the presence of public outdoor space for leisure and socialising. Only 14% of Mežāres village residents reported having such spaces, while Stāpriņi village does not have designated public outdoor spaces at all.

Regarding the future development of the villages, residents in all study areas favour having more private houses or semi-detached houses. However, the residents do not support the construction of multi-apartment dwellings, even if they are small. It's worth noting that 58% of respondents from Katlakalns/Rāmava villages support the introduction of new public functions, as well as 50% of the residents of Mežāres village. On the other hand, the residents of Stāpriņi strongly oppose such new functions.

In all three case areas, most respondents (50-67%) are familiar with their closest neighbours within the block or street. Residents' participation in the village life is limited to mutual acquaintance and daily contact (72-78%). Only 14% of survey participants from Katlakalns, 31% from Stāpriņi, and 48% from Mežāres village are involved in local community activities. Additionally, only 1% of respondents from Katlakalns/Rāmava and Mežāres villages cooperate with the policymakers of their municipalities, while this level is a bit higher in Stāpriņi village.

Looking at dissatisfaction factors, residents in Katlakalns/Rāmava villages are not satisfied that there is no longer a rural idyll nor services and infrastructure corresponding to the current number of inhabitants, especially noting the absence of a school and problems related to the streets. In Stāpriņi village, on the contrary, people are happy that no significant development is taking place, only stating that it is necessary to make a convenient connection with Ādaži town, improve the quality of the access roads and provision of the school bus.

The respondents of Mežāres village prefer to live in gated communities. While gated communities are considered a condition that increases the quality of life and unites the community, they admit common deficiencies in the area, which include a lack of connections between gated communities, poor pedestrian and micro-mobility infrastructure, a lack of access to public transport and various local services such as grocery stores, health-care facilities and recreational areas.

Despite the various challenges and differences in their living environments, a significant majority of residents in all villages (57-72%) express satisfaction with their lives there. Half of the respondents are only partially satisfied with how the village's development is contin-

uing, while the amount of dissatisfaction ranges from 22% to 46%. It is important that 82-92% of the residents who participated in the survey would choose to live in their village again, because currently the positive factors outweigh the negative ones. At the same time the survey revealed that for the new residents of Pierīga the qualities of the built environment become much more important with time living there and population growth.

Discussion and Conclusions

The case study explores selected suburban villages in three municipalities of Pierīga – Ķekava, Mārupe and Ādaži, clarifies opinions about spatial and social transformation, offers remarkable insights into planning limitations, highlights challenges, examines first urban sprawl repair efforts showing the challenge for Pierīga municipalities to transform (retrofit) the „non-places” created as a result of urban expansion.

The urbanisation trends of the past two decades have made it challenging to implement sustainable spatial development policies in various, both continuously and scattered built-up, mono-functional areas. As a result, research municipalities need to address the mistakes of the previous planning periods, which are primarily recognised by the new teams of planners, who began to work after the administrative territorial reform in 2021.

The research outcomes indicate both similarities and differences between the studied suburban villages. During studies a lot of development shortcomings were observed and despite the case studies represent three different physical forms of urbanised Pierīga they share a common set of problems. All three areas are monofunctional, very distinctly private transport oriented and lacking public infrastructure. Other negative features are absence of village centers with services and public space. As it is similarly reflected in the case area assessment and in residents’ surveys, the newly developed suburban areas do not meet essential built environment qualities – accessibility, availability, density, diversity and nodality, resulting in rather low satisfaction among the residents. But despite all identified disadvantages - loss of rural idyll, lack of infrastructure and services – residents, as given in their answers, will choose the same place for living again. The pressure on municipality’s services will increase.

In previous planning periods, upon receiving the request of landowners who regained their properties in the course of land reform and with strong political support for urban growth, the zoning of single-family residential houses was widely expanded. This created several village conglomerates of continuous settlements available for future urban development, including forests and polder areas, making it possible to develop any part of the village in a scattered manner, forming an unconnected network of streets, most of them – private, lacking public infrastructure and centralized water and sewage systems. The benefits of individual landowners/developers are resulting now in the municipality’s incapacity to take over the management of private infrastructure or lacking municipality’s property to develop new public objects addressing the needs of a growing population.

Planning instruments are intended to shape future spatial organisation of the place. Sustainable development strategies of national and regional level as well as the strategies of case area municipalities have determined policies to steer development in a sustainable direction. However, the study shows that unsustainable practices continue - urban sprawl is not effectively managed having numerous challenges as continuing monofunctionality, low density, lack of green spaces, etc. The analysis of the strategies indicates that they include appropriate policies and guidelines

for limiting urban sprawl, but they are not appropriately implemented in the local government spatial plans.

All research cases represent a common issue - the village conglomerates are physically large, several times exceeding the size of nearby towns, but mentally are still considered 'rural' despite location in 'urban spaces'. Also planning of these areas as 'rural' continues by elaborating separate detailed plans without future visions to transform villages into complete urban neighbourhoods.

The legislation's weaknesses allow these unsustainable practices to continue. Municipalities struggle to approve new local government spatial plans due to the lengthy process and emerging new proposals during the repeated public consultations. They are concerned that even if a mixed-use zone is intended in the spatial plan, the land use zoning can be changed by developing a local plan. Developers use this legislation shortage. In such a situation, the municipality tries to insist on a long-term vision, which leads to disagreements with developer. To be specific, planning more and more takes place under the guidance of lawyers through decisions in the court and it becomes difficult for the municipalities to support public interests.

Despite the identified problems, interviews with municipal representatives provide a sense of optimism – changes in planning practice can be observed. Two of the three research area municipalities – Ādaži and Mārupe – recognize the challenges and are developing their local government spatial plans mainly with their own capacity. They, as well as the experienced planners of Ķekava municipality, are working to improve them in the participatory processes. Notwithstanding the differences in local governments' perspectives on urban growth all municipalities consider that greater emphasis must be placed on infrastructure provision, are signing the administrative contracts with developers for better implementation of detailed plans as well as have recognised their own tasks to improve the suburban built environment and activate communities.

The first examples of urban sprawl repair can already be seen in Ķekava County. In the newly adopted local government spatial plan, the functional zoning in several villages was changed from the single-family residential to Mixed Center or Agricultural territory. These first successful changes reduced some of the previously planned vast monofunctional residential areas. Also, the municipality has purchased land for public needs in the Katlakalns village and started the implementation of the Public space action plan. Its challenge now is to include private roads into a unified municipal street system, enhance micro-mobility, integrate green/blue infrastructure within the urban fabric and ensure that public services are provided in the most convenient manner according to the population's needs.

Ādaži municipality has the challenge of revising the monofunctional residential functional zoning of almost entire area of the county in the process of developing the new spatial plan and to develop, as outlined in the strategy, village plans in parallel with the spatial plan. This also includes planning the street structure, determining centres or 'nodes' and ensuring that forests are preserved.

The challenge for Mārupe municipality is to engage residents in discussions about including gated communities into the overall urban fabric, creating a well-connected public street structure and opening the recreational zones of gated communities for public accessibility.

Successful planning processes, community participation in neighbourhood life and local collaboration in the development processes are qualities that significantly impact territories' liveability and social attractiveness. Research shows slightly positive trends in growing social potential from both bottom-up and top-down perspectives in case areas. All three strategies of the case area municipalities stress the role of communities. During the development of Mārupe and Ķekava County strategies communities were involved in the process of defining neighbourhoods.

The neighbourhood advisory council has begun its operations in Mārupe municipality, a social worker with special community work tasks has started working in Ādaži municipality and Katlakalns village has created their community group. Self-organisation tendencies can be observed among local inhabitants' which are supported by the municipalities in the form of participatory budgeting activities and more active involvement of residents in the development planning processes.

The study contributes to the planning and research of suburbs in metropolitan areas. Its results highlight the scale and scope of challenges that need to be addressed for sprawl repair. In terms of future interventions, it can contribute to a reevaluation of national and regional policy and local planning approaches, and help develop proposals for future research, planning and actions.

For that purpose it is necessary to highlight the earlier scientific findings. It is indicated that current suburban transformation efforts, in most cases, are fragmented (Talen, 2011, Vall-Casas et al., 2016), emphasising that such a transformation process will not be able to address the sustainability issues of complex territories and their inhabitants. Therefore, individual interventions must be part of a broader vision (Vall-Casas et al., 2016) and integrated planning approaches (OECD, 2018). Scholars also advocate for a stronger role of regional policy, especially in the Baltic States (Lang et al., 2022).

For such a broader vision for Pierīga, a more precise national urban development policy with a regional perspective, appropriate legislative changes and stronger coordination of spatial planning on all levels are needed so that the anti-sprawl, sustainable and compact development policies included in the higher-level and local government strategies are appropriately reflected in the spatial plans.

As research has revealed, every municipality has already started to introduce changes in planning practice and their own solutions for urban sprawl repair. Nevertheless, competition for new inhabitants exists among municipalities, and the regional level must play a more significant role in this situation. A set of goals can be formulated at the regional level, and a spatial framework for planning activities at lower levels can be proposed (Nuissl & Couch, 2007).

Consequently, the role of Rīga Planning Region must be much stronger. The Region should more actively facilitate communication between suburban municipalities and serve as a platform for addressing common issues. A strategic spatial plan for Pierīga should be developed in collaboration with Rīga and Pierīga local municipalities, agreeing on a common vision and goals. Such a plan should include priority areas for sprawl repair, guidelines for planning new urban spaces, quality criteria of suburban built environment and the quality of life.

At the municipal level improvements of spatial planning practices are crucial. At first development of the new local government spatial plans with changes in functional zoning will be a challenge. Secondly, as it is recognized by the authors of the study and the representatives from all three municipalities, the existing spatial planning instruments, such as the local government spatial plan and detailed plan, are not appropriate tools for planning and repair of suburban areas. New ways must be sought. The fact that there is a need to plan closer to the population is recognized by the New Leipzig Charter, which indicates that citizens often interact at different spatial scales in their everyday lives, and therefore, measures focusing on local developments should be designed at the appropriate spatial scale, and the neighbourhood level needs to be enforced (EC, 2020). Also Sharifi (2016) points out that planning at the neighbourhood scale is essential for achieving sustainable development.

For that municipalities should closely cooperate with local communities, study the needs of residents' at the most appropriate scale and develop strategic spatial plans on a neighbourhood level and for village conglomerates through participatory bottom-up processes. Also the develop-

ment and implementation of the thematic plans for public space or infrastructure should be put into practice, planning public space and infrastructure on a larger scale than in the separate detailed plans of one property or unit of land.

Suburban transformation processes have been studied in Latvia, but more specific research is needed on Pierīga and local levels, which would create a base for future planning and transformations. For Pierīga – Rīga metropolitan 'core' area – where the urban sprawl processes have been the sharpest compared to the other four regions of Latvia – the main tasks are to examine the current situation, latest trends in suburban planning, efforts of local governments of sprawl repair and related spatial and social transformation processes.

At the local and neighbourhood level, research on the qualities of the suburban built environment, residents' satisfaction with it and the quality of life that emerged as a result of suburbanisation, and on social potential and community development are needed. As social context in the urban sprawl processes is crucial, further research should focus on identifying the active part of population, identification of leaders and sense of belonging to a community, which have a visible significance in the formation of societal interconnections.

Since minor signs of urban sprawl processes can be found in other regions of Latvia as well, for example in the surroundings of Jelgava city, Zemgale region, and Valmiera city, Vidzeme region, their suburban areas should also be the focus of future studies. -

In conclusion. Based on global experiences and approaches, a harmonised coordination of measures – research, planning and synergic actions at all official planning levels and at the neighbourhood level – is necessary for the urban sprawl repair and sustainable future of the village conglomerates of Pierīga.

References

- Bērziņš, M. (2009). Apdzīvojuma cikliskā attīstība [Cyclical development of population]. *Scientific Papers University of Latvia*, 67, 21–23.
- Bērziņš, M., Krišjāne, Z., & Krūzmētra, Ž. (2010). Peri-urbānās attīstības iezīmes Pierīgā [Features of peri-urban development in Pierīga]. *Scientific Papers University of Latvia*, 752, 253–267.
- Çalışkan, O., & Şevik, E. (2022). Urban Form and Liveability: Towards a Socio-Morphological Perspective. *Built Environment*, 48(3), 301–316. <https://doi.org/10.2148/benv.48.3.301>
- Chazdon, S. A., & Lott, S. (2010). Ready for engagement: Using key informant interviews to measure community social capacity. *Community Development*, 41(2), 156–175. <https://doi.org/10.1080/15575331003646173>
- Cimdiņš, R. (2013). Social potential: Cooperation and communicative aspects in development planning. In S., Rajalo, K., Putane & M., Vadi. (Eds.). *Management Theory and Practice: Synergy in Organizations* (pp. 92–108). Tartu: University of Tartu.
- Cirtautas, M. (2014). Changing form of the Baltic cities: resurrection of the suburbs. *21st International Seminar on Urban Form: Our common future in Urban Morphology*, 2, 121–133.
- Cocheci, R.M., & Petrisor, A.I. (2023a). Assessing the Negative Effects of Suburbanization: The Urban Sprawl Restrictiveness Index in Romania's Metropolitan Areas. *Land*, 12(5), 966. <https://doi.org/10.3390/land12050966>
- Cocheci, R.M., & Petrisor, A.I. (2023b). Extended suburbanisation and land cover dynamics in post-socialist metropolitan areas. Evidence from Romania. *disP – The Planning Review*, 59(2), 88–102. <https://doi.org/10.1080/02513625.2023.2257490>
- Couch, C., Petschel-Held, G., & Leontidou, L. (Eds.). (2007). *Urban Sprawl in Europe: Landscape, Land-Use Change and Policy*. Oxford: Blackwell Publishing.
- De Vidovich, L. (2019). Suburban studies: State of the field and unsolved knots. *Geography Compass*, 13(5), e12440. <https://doi.org/10.1111/gec3.12440>

- Dinić, M., & Mitković, P. (2016). Suburban design: from “bedroom communities” to sustainable neighborhoods. *Geodetski vestnik*, 60(1), 98–113. <https://doi.org/10.15292/geodetski-vestnik.2016.01.98-113>
- Dunham-Jones, E., & Williamson, J. (2011). *Retrofitting Suburbia: Urban Design Solutions for Redesigning Suburbs* (Updated edition). Hoboken, NJ: John Wiley & Sons.
- EC (2020). New Leipzig Charter – The transformative power of cities for the common good. European Commission. Retrieved from https://ec.europa.eu/regional_policy/whats-new/newsroom/12-08-2020-new-leipzig-charter-the-transformative-power-of-cities-for-the-common-good_en (accessed 18.12.2023)
- Ence, A., Bojārs, M., Kārklīņš, V., Ločs, K., Bērziņa, I., Osītis, A., Kadiģe, L., Dūduma, I., Krēmere, I., Punculis, I., Puiķe, A., Liepa, V., Žīgure, D., Kamoliņa, I., Levanoviča, L., Zadovskis, G., Kursiša, J., Lontone-Ievina, A., Pikše, P., Štolcers, G., Cvetkova, D., & Vilciņa-Rugāja, M. (2022, January 26). *Mārupes novada ilgtspējīgas attīstības stratēģija 2022-2034.gadam* [Mārupe county sustainable development strategy 2022-2034]. Municipality of Mārupe County. Retrieved from https://www.marupe.lv/sites/default/files/inline-files/STRATEGIJA_gala_dokuments.17.01.2022.pdf (accessed 09.12.2023)
- Felcis, R., Ņikišins, J., & Zača, E. (2014). *Pētījuma rezultātu atskaite “Pierīgas iedzīvotāju dzīves vietas izvēles kritēriji”*. Latvijas Universitāte Sociālo zinātņu fakultāte Socioloģijas nodaļa. Retrieved from https://sus.lv/sites/default/files/media/faili/lu_szf_rd_pierigas_iedzivotaji_atskaite_par_petijumu.pdf (accessed 09.12.2023)
- Keil, R., & Wu, F. (Eds.). (2022). *After suburbia: urbanization in the twenty-first century. Global suburbanisms*. Toronto: University of Toronto Press.
- Krisjane, Z., & Berzins, M. (2012). Post-socialist Urban Trends: New Patterns and Motivations for Migration in the Suburban Areas of Rīga, Latvia. *Urban Studies*, 49(2), 289–306. <https://doi.org/10.1177/00420980114022>
- Lang, T., Burneika, D., Noorkõiv, R., Plüschke-Altöf, B., Pociūtē-Sereikienē, G., & Sechi, G. (2022). Socio-spatial polarisation and policy response: Perspectives for regional development in the Baltic States. *European Urban and Regional Studies*, 29(1), 21–44. <https://doi.org/10.1177/09697764211023553>
- Leontidou, L., & Couch, C. (2007). Urban Sprawl and Hybrid Cityscapes in Europe: Comparisons, Theory Construction and Conclusions. In C., Couch, G., Petschel-Held & L., Leontidou (Eds.). *The Urban Sprawl in Europe Landscapes, Land-Use Change and Policy* (pp. 242–268). Oxford: Blackwell Publishing.
- LR CSP (2022). *Iedzīvotāju skaits gada sākumā, tā izmaiņas un dabiskās kustības galvenie rādītāji reģionos, pilsētās un novados 1967 – 2022. [Population at the beginning of the year, its changes and main indicators of natural movement in regions, cities and counties 1967 - 2022.]*. Latvijas Republikas Centrālās statistikas pārvalde [Central Statistical Office of the Republic of Latvia]. Retrieved from https://data.stat.gov.lv/pxweb/lv/OSP_PUB/START__POP__IR__IRS/IRS030 (accessed 09.12.2023)
- Mandell, J. (2010). Picnics, participation and power: Linking community building to social change. *Community Development*, 41(2), 269–282. <https://doi.org/10.1080/15575330903548760>
- Mantey, D. (2021). Objective and Subjective Determinants of Neighborhood Satisfaction in the Context of Retrofitting Suburbs. *Sustainability*, 13(21), 11954. <https://doi.org/10.3390/su132111954>
- Mantey, D., & Pokojski, W. (2020). New Indicators of Spatial Chaos in the Context of the Need for Retrofitting Suburbs. *Land*, 9(8), 276. <https://doi.org/10.3390/land9080276>
- MoAC (2018, March 27). *Ādažu novada teritorijas plānojums* [Adaži County Spatial Plan]. Municipality of Adaži County. Retrieved from https://geolatvija.lv/geo/tapis#document_11127 (accessed 09.12.2023)
- MoAC (2021, July 27). *Ādažu novada ilgtspējīgas attīstības stratēģija 2013-2037* (2021. gada aktualizācija) [Sustainable Development Strategy of Ādaži County 2013-2037 (2021 update)]. Municipality of Adaži County. Retrieved from <https://www.adazunovads.lv/lv/media/517/download?attachment> (accessed 09.12.2023)
- MoKC (2013, June 11). *Ķekavas pagasta teritorijas plānojums 2009.-2021. 2013. gada grozījumi*. Municipality of Ķekava County. Retrieved from http://kekava.lv/uploads/filedir/arturs/Kekavas_AN_konsolid_ar2013groz_1.pdf (accessed 09.12.2023)

- MoKC (2022, October 12) *Ķekavas novada Ilgtspējīgas attīstības stratēģija līdz 2030.gadam* (2021. gada aktualizācija) [Sustainable development strategy of Ķekava county until 2030 (2021 update)]. Municipality of Ķekava County. Retrieved from <https://kekava.lv/ilgtspejigas-attistibas-strategija-lidz-2030-gadam/> (accessed 09.12.2023)
- MoKC (2023a, July 19). *Ķekavas novada labiekārtošanas plāns. Alternatīvas un rīcības plāns* (2023. gada aktualizācija) [Public space plan of Ķekava county. Alternatives and Action Plan (2023 update)]. Municipality of Ķekava County. Retrieved from https://kekava.lv/wp-content/uploads/2023/07/alternativs-2_sej_Labiekart_plans.pdf (accessed 09.12.2023)
- MoKC (2023b, March 22). *Ķekavas novada teritorijas plānojums (administratīvā teritorija līdz 01.07.2021.)* [Ķekava Municipality Spatial Plan (administrative territory until 01.07.2021)]. Municipality of Ķekava County. Retrieved from https://geolatvija.lv/geo/tapis#document_26747 (accessed 09.12.2023)
- Mouratidis, K. (2021). Urban planning and quality of life: A review of pathways linking the built environment to subjective well-being. *Cities*, 115, 103229. <https://doi.org/10.1016/j.cities.2021.103229>
- Mulliner, E., & Maliene, V. (2011). An introductory review to the Special Issue: Attractive Places to Live. *URBAN DESIGN International*, 16(3), 147–152. <https://doi.org/10.1057/udi.2011.11>
- Muminovic, M., & Caton, H. (2018). Sustaining Suburbia – the Importance of the Public Private Interface in the Case of Canberra, Australia. *ArchNet-IJAR*, 12(3), 11–26. <http://dx.doi.org/10.26687/archnet-ijar.v12i3.1793>
- Narbutis, I. (2018). *Apdzīvoto vietu veidošanās un plānošanas principi Pierīgā* (Publications No. 66138) [Master Thesis, University of Latvia]. E-resource repository of the University of Latvia. Retrieved from <https://dspace.lu.lv/dspace/handle/7/38978> (accessed 09.12.2023)
- Nuissl, H., & Couch, C. (2007). Lines of Defence: Policies for the Control of Urban Sprawl. In C., Couch L., Leontidou & G., Petschel-Held (Eds.). *The Urban Sprawl in Europe Landscapes, Land-Use Change and Policy* (pp. 217–241). Oxford: Blackwell Publishing.
- Nuissl, H. & Rink, D. (2005). The 'production' of urban sprawl in eastern Germany as a phenomenon of post-socialist transformation. *Cities*, 22(2), 123–134. <https://doi.org/10.1016/j.cities.2005.01.002>
- OECD (2018). *Rethinking Urban Sprawl: Moving Towards Sustainable Cities*. Paris: OECD Publishing. <https://doi.org/10.1787/9789264189881-en>
- Pichler-Milanovič, N. (1994). The role of housing policy in the transformation process of central-east European cities. *Urban Studies*, 31(7), 1097–1115. <https://doi.org/10.1080/00420989420080>
- Pichler-Milanovič, N., Gutry-Korycka, M., & Rink, D. (2007). Sprawl in the Post-Socialist City: The Changing Economic and Institutional Context of Central and Eastern European Cities. In C., Couch, L., Leontidou & G., Petschel-Held (Eds.). *The Urban Sprawl in Europe Landscapes, Land-Use Change and Policy* (pp. 102–135). Oxford: Blackwell Publishing. <https://doi.org/10.1002/9780470692066.ch4>
- PMLP (2023). *Population Register*. The Office of Citizenship and Migration Affairs. Retrieved from <https://www.pmlp.gov.lv/en/services/population-register-0> (accessed 26.01.2024)
- Putnam, R.D., & Goss, K. (2000, September 24). *It's about time: Who has time to enjoy family life, connect with the community or be an active citizen?* The San Francisco Chronicle.
- Pužulis, A., & Šķiņķis, P. (2009). *Pierīgas apdzīvojuma struktūras izpēte* [Study of the population structure of Pierīga]. Rīga. Rīgas plānošanas reģions [Riga planning region].
- Pužulis, A., & Šķiņķis, P. (2011). Representations of boundaries in the context of private and public relationships: Latvian example. *European Integration Studies*, 5, 97–101. <https://doi.org/10.5755/j01.eis.0.5.1083>
- Radzinski, A., & Mickiewicz, A. (2015). Post-socialist cities between suburbanisation and reurbanisation. In J., Condie & A.M., Copper (Eds.). *Dialoguees of Sustainable Urbanisation, Social Science, Research and Transitions to Urban Contexts* (pp. 317–319). Penrith: University of Western Sydney. Retrieved from <https://ugec.org/files/2015/08/Dialogues-of-sustainable-urbanisation-Social-science-research-and-transitions-to-urban-contexts-6.pdf> (accessed 09.12.2023)
- Rice, L. (2010). Retrofitting suburbia: is the compact city feasible? *Proceedings of the Institution of Civil Engineers-Urban Design and Planning*, 163(4), 193–204. <https://doi.org/10.1680/udap.2010.163.4.193>

- RPR (2020, January 10). *Action Plan for the Development of the Riga Metropolitan Area*. Riga Planning Region. Retrieved from https://rpr.gov.lv/wp-content/uploads/2021/01/Action-Plan-for-the-Development-of-the-RMA_Web-1.pdf
- RPR (2023). *Rīgas plānošanas reģiona ilgtspējīgas attīstības stratēģija 2014-2030*. [Riga Planning Region Sustainable Development Strategy 2030]. Riga Planning Region. Retrieved from https://rpr.gov.lv/wp-content/uploads/2023/04/RPR-Strategija_2030.pdf
- Saeima (2010, June 10). *Latvijas ilgtspējīgas attīstības stratēģija līdz 2030.gadam [Sustainable Development Strategy of Latvia until 2030]*. Parliament of the Republic of Latvia.
- Šavraka, I. (2023). *Priekšlikumi piepilsētu urbānās izplešanās pārvaldībai un dzīvojamās vides transformācijām* (Publications No. 95804) [Master Thesis, University of Latvia]. E-resource repository of the University of Latvia. Retrieved from <https://dspace.lu.lv/dspace/handle/7/63481> [accessed 09.12.2023]
- Sechi, G., Zhitin, D., Krisjane, Z., & Berzins, M. (2022). Post-Soviet Suburbanization as Part of Broader Metropolitan Change: A Comparative Analysis of Saint Petersburg and Riga. *Sustainability*, 14(13), 8201. <https://doi.org/10.3390/su14138201>
- Sharifi, A. (2016). From Garden City to Eco-urbanism: The quest for sustainable neighborhood development. *Sustainable Cities and Society*, 20, 1–16. <https://doi.org/10.1016/j.scs.2015.09.002>
- Šķiņķis, P., & Cimdiņš, R. (2015, May 25-27). *The socio-spatial structuration in Riga metropolitan region*. Regional Studies Association Annual Conference 'Global Growth Agendas: Regions, Institutions and Sustainability'. Universita Cattolica del Sacro Cuore, Piacenza, Italy.
- Streimikiene, D. (2015). Quality of life and housing. *International Journal of Information and Education Technology*, 5(2), 140–145. <https://doi.org/10.7763/IJNET.2015.V5.491>
- Sýkora, L. (1998). Commercial property development: Budapest, Prague and Warsaw. In G., Enyedi (Ed.). *Social Change and Urban Restructuring in Central Europe* (pp. 109–136). Budapest: Akadémiai Kiadó.
- Tachieva, G. (2010). *Sprawl repair manual*. Washington, DC: Island Press.
- Talen, E. (2011). Sprawl Retrofit: Sustainable Urban Form in Unsustainable Places. *Environment and Planning B: Planning and Design*, 38(6), 952–978. <https://doi.org/10.1068/b37048>
- Talen, E. (Ed.). (2015). *Retrofitting Sprawl: Addressing Seventy Years of Failed Urban Form*. Athens, GA: University of Georgia Press.
- Tsenkova, S. (Ed.). (2006). *Places and People: Planning New Communities*. Calgary: University of Calgary.
- Uribe, F. A., Sandalack, B., McCormack, G., Doyle-Baker, P., & Shiell, A. (2017). Walkability Makeover for Suburbia: Retrofitting Calgary's Suburbs, an Economic Evaluation (breakout presentation). *Journal of Transport & Health*, 7, S55. <https://doi.org/10.1016/j.jth.2017.11.090>
- Vall-Casas, P., Koschinsky, J., Mendoza-Arroyo, C., & Benages-Albert, M. (2016). Retrofitting Suburbia Through Systemic Densification: The Case of the Metropolitan Region of Barcelona. *Journal of Architectural and Planning Research*, 33(1), 45–70. <https://doi.org/10.1057/udi.2011.9>
- Wilson, L.-A. M., Giles-Corti, B., Burton, N. W., Giskes, K., Haynes, M., & Turrell, G. (2011). The Association between Objectively Measured Neighborhood Features and Walking in Middle-Aged Adults. *American Journal of Health Promotion*, 25(4), 12–21. <https://doi.org/10.4278/ajhp.090421-QUAN-144>
- Winston, N., & Eastaway, M. (2008). Sustainable housing in the urban context: International sustainable development indicator sets and housing. *Social Indicators Research*, 87(2), 211–221. <https://doi.org/10.1007/s11205-007-9165-8>

