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Housing and service structure concepts for areas with decreasing and ageing population

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Abstract. Urbanisation has often a negative impact on the population structure in remote areas. Municipalities have to find strategies to anticipate the demographic change and steer territorial shrinkage. Moreover, the current service structure is not optimal for areas with decreasing population. The aim of this ongoing research and development project is to promote resilient service structure and health prevention as well as housing services in these areas. The project comprises five case studies in municipalities with less than 20 000 inhabitants. Existing urban structures and the potentials for re-use of buildings will be identified in collaboration with local stakeholders. The comparative analyses of the municipal structures will be done at Sotera Institute at Aalto University. For each municipality, one student in architecture will provide a solution for urban design, housing design or renovation of existing building. The results of the study will help municipalities to outline a local development strategy to promote a lively and attractive municipal centre and a resilient service structure to improve living environment in remote areas. Shared use of buildings will improve the local service production and service delivery models. Efficient service delivery and housing will keep these areas attractive to live in also in the future.

1. Introduction

This paper is describing an ongoing research and development project focusing on shrinking rural municipalities in Finland. It is the continuation of a series of projects carried out between 2015 and 2018 at the Research Institute for Health Care Facilities (Sotera) at Aalto University. These development projects have been related to the national reform of social affairs and health care in Finland. The political consensus about the reform has not yet been reached. Nonetheless, it will have important impact on the role of the municipalities. The need for development of resilient service structure and housing for older people in small municipalities came first into discussion during the project *Changing society - changing services* (2015 – 2017). The consortium gathered 20 experts from public and private service providers as well as non-profit organizations. The project focused on age-friendly urban environment as well as service delivery and housing services for older population [1], [2]. Furthermore, the Government key project *Täydentäen toimivaa* (2017 – 2018) was promoting networking of local stakeholders to enhance aging-in-place policy and care at home [3]. The shared use of existing service buildings, walking friendly environment and a resilient network of local service providers was promoted in three municipalities.

The ongoing research and development project *Vital municipalities* is targeted to small municipalities with less than 20000 inhabitants. The project is carried out in collaboration with municipalities or joint municipalities of Harjavalta, Keuruu, Kurikka, Pertunmaa and Suupohja with support of the Ministry of the Environment, the Housing Finance and Development Centre of Finland (ARA) and the Ministry of Social Affairs and Health. The municipalities face different challenges regarding their population and urban structures. The loss of population and demographic development have a negative impact on local tax revenues and possibilities to maintain the services and quality of the urban environment. Careful long-term planning is needed in order to maintain and to improve the quality of living environment in these remote municipalities. The focus of the project is on housing development, densification and quality of the center of the municipality. The actions against the degradation of the built environment may include refurbishment or demolition of existing buildings. Furthermore, the planning in the



shrinking-cities often means attempts to make them greener, more compact and sustainable [4]. The municipalities may reinforce their services accepting a decline of population and recognizing the local strengths as an opportunity.

2. Background

Urbanization has often a negative impact on the population structure in remote municipalities and influence the municipalities' capacities to maintain the services. Currently, more than half of the Finnish population is living within 200 km from Helsinki [5]. The demographic dependency ratio (share of population under 15 years old and 65 years old and older compared to working age population) is increasing especially in small remote municipalities. By 2040 in shrinking municipalities, the percentage of population 75 years old and older is projected to increase by 10% [6]. Therefore, the possibility to deliver local services in remote areas is becoming increasingly difficult. Scott et al. point out that *"without a cross-section of people living in the countryside, rural economies cannot function and key services cannot be provided"* [7]. In Finland many educational facilities in remote areas have been closed down or moved to bigger municipalities, public services and bank services are going online. At the same time, the network of local grocery shops has decreased [8]. The current way of delivering services would need a larger customer base [9]. Moreover, in rural areas, the mobility of residents is based on the use of private cars. Long distances and the lack of public transportation is affecting the accessibility of local services and possibilities to live in remote areas in old age. A survey about the best living area in Finland revealed that the residents consider local services and transport connections, active community, strong identity and nature as most important features of their living environment.

Municipalities have to find new strategies to anticipate demographic change and combat loss of population. They need to steer controlled territorial shrinkage and to identify and strengthen the local potential. The decrease of population may lead to the degradation of the built environment and general infrastructure in remote municipalities. The European DART project concluded, that the *"declining regions can and should generate no growth"* [10]. However, the local long-term plans need to ensure sustainable development and combat environmental degradation to ensure good living conditions in shrinking municipalities even in the future. Furthermore, the international examples show that successful local actions may stop the migration from small municipalities, improve the quality of life of residents and generate business opportunities. Currently, in the majority of Finnish municipalities, second homes outnumber permanent dwellings [11]. Therefore, the potential of second home owners for the local development need to be studied. This project is exploring the challenges and opportunities of shrinking municipalities in the Finnish context. The project is focusing on the built environment and urban form. The framework of the project is in shrinking cities, age-friendly communities and sustainable development.

2.1. Actions in shrinking municipalities

The challenge of shrinking municipalities is global. In some of the European countries, national policies and local actions have been targeting to stop the loss of population in remote areas. For example, Germany and Ireland have undertaken concrete actions to prevent the loss of population in these areas. In Germany, the actions were focusing on the urban renewal, improvement of infrastructure and transportation networks, refurbishment and demolition of existing buildings as well as on the management of the green landscape [12]. In Ireland the actions were focusing on the employment, promoting local services, leisure and cultural activities [13]. Furthermore, the national action plan was encouraging increased residential occupancy in town and village centres. The aim was to densify these local centres and make them attractive to live in. Moreover, the importance of mobile services, digital services and new innovative ways of delivering services was recognized [14]. The development both in Germany and in Ireland have been targeting to empower local communities.

2.1.1. Actions related to services

In Aschersleben, in Germany the strategy of the municipality was focusing on the reinforcement of the role of the municipal centre. The public services and schools were transferred from remote areas to the centre of the municipality and at the same time the buildings on the outskirts of the municipality were demolished [15]. The cultural services and art were used to improve the quality of life of residents. Small local businesses related to food production and tourism may also strengthen local economy. In Australia, for example, the improved economic situation of the small municipality of Beechworth is due to a small local bakery that became nationally known. The shrinking municipality with a population of 3000 inhabitants has become the place of the biggest bakery in Australia serving over one million customers per year [16].

2.1.2. Actions related to housing

The number of single person households has increased in all age groups. The local authorities need to be prepared to deal with the increasing number of older people and people living alone. Scott et al. [7] point out that young people who would be committed to remain in a rural areas may not be able to find an apartment to their needs. The private rented apartments and single family homes may be out of their reach, if affordable and government subsidised alternatives are unavailable. On the other hand, in Finland, the loss of population has led to the underutilization of the Government subsidised ARA-apartments in remote areas. These apartments built in the 1970's would need major renovations. Moreover, currently, the rents in these apartments are higher than in privately financed apartments [17].

2.1.3. Actions related to community

The social cohesion within the local community is one of the potential strengths of small municipalities. The challenge is to ensure participation and inclusion in society both at extremely low population density and an aging society [10]. Artistic and cultural activities may have important role in the community building. They are also building up the identity of the place. In Limburg area in the Netherlands, the Zachte G initiative has made visible the creative and artistic activity in the area. It has improved the visibility and attractiveness of the area [18]. Moreover, shared spaces for social activities are needed in the communities. In Erlau in Germany, the old railway station was transferred to a common living room for all local residents. It has enhanced the vitality and social activity in the municipal centre.

3. Aim and research questions

The aim of this research and development project was to support wellbeing and services in small municipalities with decreasing population and economy. The target was to promote resilient and inclusive service structure for remote areas and at the same time improve health promotion, mobility and housing for older population living in these areas.

The project will propose alternative development models to improve living conditions in remote areas. The local strategies in each of the municipalities participating in the project will promote a lively and attractive municipal centre and a resilient service structure. The solutions can combine new ways of delivering services and various service providers in shared premises. Shared use of buildings and collaboration with local stakeholders, public institutions and private sector will improve the local service production and service delivery models.

3.1. Research questions

The research questions are how can urban design help to increase and maintain the vitality of areas with decreasing population, and how to develop sustainable built environment, shared use of existing resources in small municipalities with shrinking economy?

4. Methods

The research and development project contains five case studies in the shrinking municipalities with less than 20 000 inhabitants. The multiple case study method enables to explore and describe the urban

form and situation in each of the municipalities. In horizontal comparison of the cases it was important to choose sites that were of the same scale, and to use units that were equivalent [20]. The sample of municipalities was chosen according to their size and population structure. The existing buildings and structures were analysed on-site and the potentials for re-use will be identified in collaboration with local stakeholders. The statistical analyses of local population structure, demographic development and population projections are bases for the development project. Moreover, workshops with local residents and other stakeholders are organized in each of the municipalities.

For each municipality, a student in architecture will provide a design solution for urban area, housing design or renovation of existing building. The designs for a specific need are based on local context and identified together with local actors. Five students in architecture will do field work on-site and participate in common workshops monthly in the Department of Architecture. The comparative analyses of the municipalities and the evaluation of population projections are carried out by the researchers at the Sotera Institute. The outcome of the project will be alternative development models for shrinking municipalities. The models will help municipalities to outline local long-term objectives for the strategic urban development plan in order to consolidate the municipal structure.

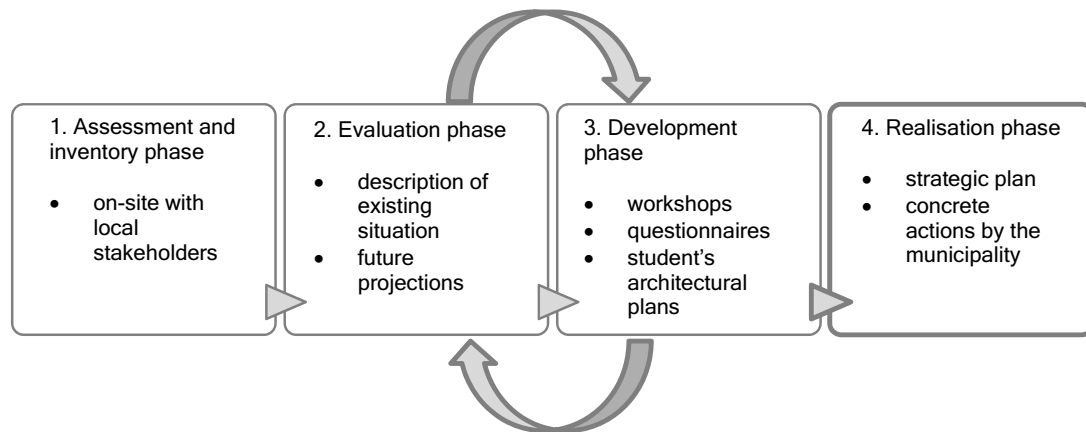


Figure 1. The development process in the project

An online questionnaire targeted to residents and workshops held in each of the municipality will provide information on the use of local services and the access to the services. Moreover, the residents are asked to report the most important places for social activities and meaningful spaces in their own community. Furthermore, they are asked to report the most important future development tasks in the municipality. The survey was launched during the spring 2019 and the final results will be published in the autumn 2019.

5. Preliminary results

All municipalities participating in the research and development project have an urbanized centre or several small centres. Population in each of the municipalities is projected to decline and get older (table 1). The challenge is to unify and to densify the urban structure in these shrinking municipalities in order to provide a good quality living environment for the residents also in the future. The preliminary results of the analyses target to identify the major development task in each municipality. The final result of project will provide a model and a process for small municipalities to improve their services. The model will help municipalities to outline an urban planning strategy based on local development actions.

Table 1. Total population and population 74 years old and older for 2018 and projections for 2030.

	total population (2018)	total population (2030)	population 74 years old and older (2018)	population 74 years old and older (2030)
Harjavalta	7 125	6 880	980	1 450
Keuruu	9 740	8 970	1 390	2 030
Kurikka	21 139	20 040	2 610	3 870
Pertunmaa	1 750	1 580	280	360
Suupohja	22 240	20 880	2 810	4 020

5.1. Harjavalta

Harjavalta municipality centre is divided between two distinct areas; a) the commercial area near the railway station and b) the public service area near the river. Some of the buildings in the commercial centre need renovation. Moreover, some of the commercial spaces are currently unoccupied. The need for good quality dwellings in the centre of the municipality has been recognised. The main challenge is to densify the commercial part of the municipality and replace old buildings with new housing development. However, the land and property ownership is one of the factors slowing down the urban development process. Moreover, the aim is to connect the areas of public and commercial services together. The project targets both short-term and long-term plans for the improvement of the urban environment that can be realised in phases. Prompt actions to improve the walking environment and green areas are possible. Moreover, the connection from the railway station to the centre would enhance the access to local services and pedestrian and bicycle lanes would connect the recreational area by the river.

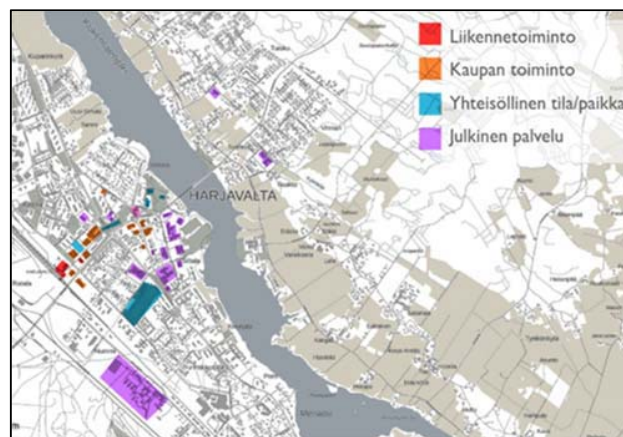


Figure 2. Commercial services and public services are located in different parts of the centre (Linnea Löytönen, 2018).

5.2. Keuruu

The historical centre of Keuruu as well as the cultural services are located near the railway station. The commercial small retail services are situated along the main street, which connects also to the public services in the north. However, a new large shopping centre has been built on the west of the old municipal centre. The challenge is to reinforce the quality and the role of the main street. This can be

done by renovating the existing buildings and, for example, by creating a new market square or a shared space near the town hall. The potential of the lake and open views from the main street to the lake can be reinforced. Moreover, the municipality is planning new housing services for the older population near the existing health care centre in the proximity of the town hall. Accessible pedestrian network along the main street and by the lake with street lighting may enhance mobility and wellbeing of all residents.

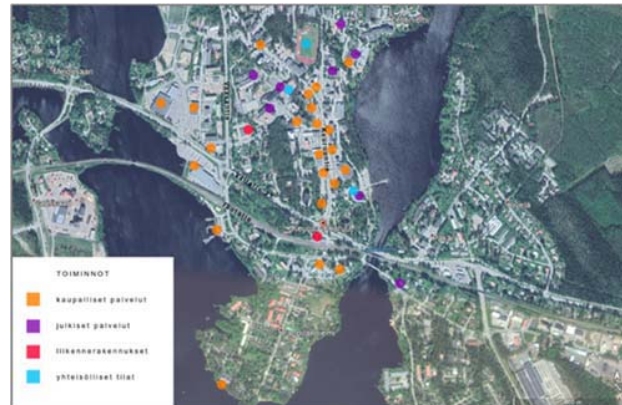


Figure 3. Retail shops and spaces for social activities are located along the main street (Susanna Leppänen, 2018).

5.3. Kurikka

Kurikka has recently gone through fusion of three small municipalities Kurikka and Jurva in 2009, Jalasjärvi in 2016. The new municipality has currently three urban centres with overlapping services in each. The student design project is focusing on the main municipal centre, Kurikka. The aim is to outline a comprehensive development plan for the municipal centre. In 2010, the municipality made an urban development plan in collaboration with the consulting company SITO. The proposal contained several concrete actions which were targeting to improve the quality and safety of streets and public spaces. As result, the municipality realized a Shared Space zone where pedestrians, bicyclists and cars share the same urban space. However, the Shared Space and other public outdoor spaces in the centre of the municipality would profit of some improvements. Moreover, the project will target to enhance the green environment and walking friendly environment in the municipal centre. The project includes densification of the centre as well as housing development suitable also for older population. Moreover, the project is aiming to find the reasons why the previous urban development plan has not been implemented.

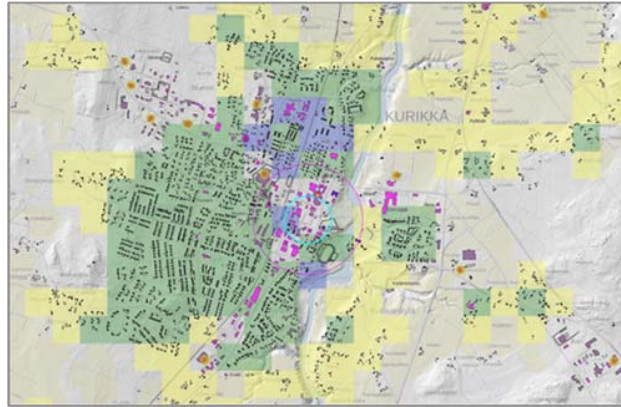


Figure 4. The main municipal centre (Nikolay Bobrov, 2018)

5.4. *Pertunmaa*

The municipality of Pertunmaa has currently two centres. The public administration, health care and cultural services as well as housing area are located in the old municipal centre by a lake. However, the commercial services and pharmacy as well as industrial companies with employment opportunities are situated near the highway at 10 km distance from the old centre. To access to the commercial services a private car is needed as there are no local public transportation services available. The municipality has many second homes. In the summer, the number of resident doubles from 1750 to approximately 3700 inhabitants. Since 2018 in the summer, an open market situated by the beautiful lake has been opened once a week. It has been an attraction for the local residents as well as for the second home owners. The aim is to strengthen the local community by creating a common living room for social activities in the municipal centre. The student will provide three alternatives, how to implement the project in a) a new building, b) in a refurbished building or c) by building an extension to an existing facility. A multi-use flexible building with an open design will be planned near the open market. Amongst other things, the building will include spaces for remote work for local residents and second-home-owners.



Figure 5. The public services and the market place are located in the centre of the municipality on a beautiful spot by the lake (Pirita Nykänen, 2018)

5.5. Suupohja

Suupohja is the service provider of the joint municipal authority formed by four municipalities Isojoki, Karijoki, Kauhajoki and Teuva. The overall aim is to enhance the vitality of each of the small centres but provide service jointly. Three of the municipalities are small: Isojoki and Karijoki both have approximately 2000 inhabitants and Teuva more than 5000. Kauhajoki is the biggest of the municipalities and has less than 14 000 inhabitants. The distances between these centres vary from 20km to 40km. The current public transportation services are poor and the connection between the municipalities are few. The service provider is targeting to create a network of services between the four centres, where each municipality will provide a service to all the four municipalities. The network will also include mobile and remote services. Moreover, a local transportation service based on private people may be promoted. This development work will be done together with local stakeholders and residents.

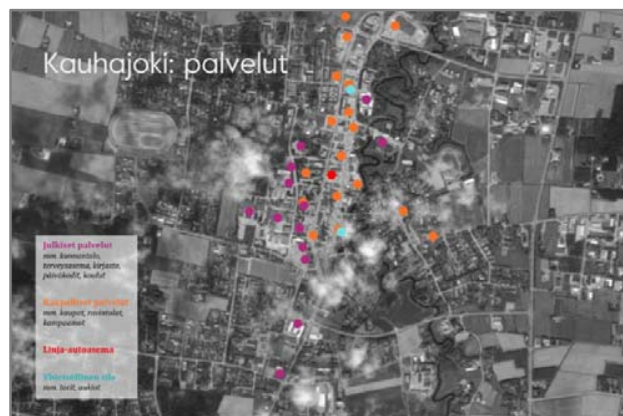


Figure 6. The public and commercial services in Kauhajoki are located along the main street (Rosa Väisänen, 2018)

6. Conclusions

The collaboration with municipal actors, local stakeholders and academic researchers may enable to enhance a resilient urban structure, with services and housing in the remote areas. The collaboration will highlight the strengths in each municipality and promote sustainable built environment in the small municipalities. The aim is to keep the remote areas attractive to live in also in the future. Many remote municipalities have a dispersed urban structure, they lack a clear municipal centre, and have no public transportation. Moreover, missing sidewalks and streetlights may decrease residents' physical and social activity opportunities, especially in winter. Densification of the municipal centre with housing, green environment and commercial and leisure activities may enhance quality of living in small municipalities. Access to local services and transportation increase mobility and daily coping. Moreover, an attractive space for social and cultural life, a common living room for residents may promote the vitality of these areas. Each of the municipalities have taken some isolated actions to improve the environment, however a vision and a comprehensive long term urban plan of the municipal centre is missing.

Second home owners are potential strength for small municipalities. However, according to Adamiak and al. [11], they do not use a great variety of local services and only rarely take part in local community activities. The local economy may benefit of the second home owners. On the other hand, they also bring instability in economic activity due to seasonality. The nature and local culture attract the second home owners and tourists. The potential growth of small municipalities may be in small businesses

related, for example, to organic food provision and capacity to purchase food directly from producers. The project enables municipalities to generate a plan for sustainable change and knowledge how to implement the plan. The contrast of remote areas from busy urban environment and activities related to the nature are potential strengths for municipalities. However, further research is needed to better understand the community resources and potentials to enhance residents' wellbeing.

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