

## Urban Revitalisation of Small Settlement in the Regional Context: Case study Kneževo in Baranja Region in Croatia

*Lea Petrović Krajnik, Damir Krajnik, Petra Banić*

(Associate Professor dr.sc. Lea Petrović Krajnik, Faculty of Architecture, University of Zagreb, Kačićeva 26, 10 000 Zagreb, Croatia, lea.petrovic@arhitekt.hr)

(Full Professor dr.sc. Damir Krajnik, Faculty of Architecture, University of Zagreb, Kačićeva 26, 10 000 Zagreb, Croatia, dkrajnik@arhitekt.hr)

(Petra Banić, Faculty of Architecture, University of Zagreb, Kačićeva 26, 10 000 Zagreb, Croatia, pbanic@arhitekt.hr)

### 1 ABSTRACT

Spatial, socio-economic and demographic characteristics of individual areas of the European Union define numerous specific settlements and regions, among which the peripheral areas and small settlements, are particularly interesting and challenging for both researchers and planners, thus they represent the main research problem. It is particularly important to create revitalisation strategies for such areas at the regional and local level, based on the specific characteristics of the place and set within the framework of national and European development criteria. The importance of this research for readers is to highlight the necessity of comprehensive planning and the use of the scenario method, the foundations of which can be mastered in education at the Spatial Planning Workshop, and later applied in urban and spatial planning practice. The aim of this paper is presentation of thematic workshops as education method for future spatial planners, urban planners and architects based on European sustainable development documents, which enables research, analysis and planning at the regional level through application of the scenario method, as *par excellence* tool for definition of future development. The possibility for students to choose both the subject area and the specific topic during the workshop represents an opportunity for further education and development of a visionary approach not just at the regional but also at the local level with the possibility of planning revitalisation strategy for small settlements in the following semester. The case study of Baranja region in eastern Croatia was chosen for the purpose of this research, because of its geographical isolation and depopulation, a lack of micro-regional centres, neglected industry and a relatively old population. On the other hand, its diverse natural and cultural heritage, historical agricultural significance, and the regional specificities of individual settlements, especially Kneževo, represent spatial potential which should be activated in order to stimulate its regional, and consequently, local development. On the basis of the detailed analysis, and the application of scenario method, the result of the work is definition of six possible scenarios for the Baranja region development, determined by dominant activities (smart villages, agriculture, tourism, energy, industry and livestock) which are further broken down into two basic models of space activation approach. The proposed scenarios are based on global sustainable development goals and specific possibilities of spatial revitalisation, which enables definition of an integral scenario (as a result of the valorisation of individual scenarios), further elaborated as a vision of development and revitalisation of the Baranja region with macro and micro projects acting as space activators. The special emphasis is placed on Kneževo, a small settlement with historically significant urban and industrial features which experienced a significant economic and demographic decline due to the dynamics of business and deindustrialization trends in the late 20th century. The introduction of the new function is seen as a potential activator of Kneževo settlement revitalisation, where the construction of a film studio is proposed as the most suitable scenario. It would contribute to the development of culture and media at the national level, while the development of supporting functions and an increase in the number of temporary and permanent residents would enhance the revitalisation of the settlement and the surrounding area.

Keywords: space activation, sustainable development goals, scenario method, spatial planning, revitalisation strategy

### 2 INTRODUCTION

Spatial, socio-economic and demographic characteristics of individual areas of the European Union define numerous specific settlements and regions, among which the peripheral areas are particularly interesting and challenging for both researchers and planners.

The term “periphery” has numerous interpretations from spatial to socio-developmental perspectives. Péntzes and Demeter (2021) stress that considerations of peripheral areas and their delimitations themselves can be

based on different approaches, and specific indicators should be considered in order to determine their level of development. The ESPON applied research PROFECY (2017) point out the inner peripherality is the result of multiple combinations of processes, features and evolutionary dynamics affecting all kinds of territories across Europe. The combined action of different processes and features on a specific territory can cause significant limitations in its development potential. Peripherality is not only determined by geography but also by non-spatial processes and factors. Some delineations of peripheral areas are: higher travel time to regional centres, lower economic potential, poor access to services of general interest and depletion. Considered in the territorial context, the most peripheral areas in geographical terms frequently appear as inner peripheries and border regions. Regarding the future development of such areas, development policies on the regional and local level should be based on specific characteristics of peripheral areas and the characteristics of their settlements, defined by national and European criteria. Smaller settlements represent a particular challenge because dynamic processes on higher levels leave greater effects on the local level, thus more attention should be paid to direction of their development.

The main research problem are peripheral areas and small settlements, for which it is necessary to create long-term revitalisation strategies. The importance of the research to the reader is to emphasize the need for comprehensive planning and the use of scenario method in planning both at the regional and the local level, the foundations of which can be mastered in education at the Spatial Planning Workshop.

The aim of this paper is to present thematic workshops as education method for future spatial planners, urban planners and architects, which enables research, analysis and planning on the regional level through application of the scenario method as par excellence tool for definition of future development based on European sustainable development documents. The possibility for students to choose both the subject area and the specific topic during the workshop represents an opportunity for further education and development of a visionary approach on the regional and local level with the possibility of planning revitalisation strategy for small settlements, in this case Kneževo settlement in the Baranja region in eastern Croatia.

The paper will show how students at the Faculty of Architecture in Zagreb in the Spatial Planning workshop on the Master's course in Architecture and Urbanism are directed to think strategically about space through comprehensive planning, using the planning scenario tool.

As a part of Workshop 3: Spatial planning at the Faculty of Architecture of the University of Zagreb, under the mentorship of Professor Lea Petrović Krajnik, head of the workshop, student Petra Banić, created a vision for the development of the Baranja Region named "Re: Baranja: Development and Revitalisation Scenarios" (Banić, 2023a). Afterwards, she further developed specific location and theme on the scale of urban planning project as the graduation thesis "The Revitalisation of Kneževo", under the mentorship of Professor Damir Krajnik (Banić, 2023b).

### 3 SPATIAL PLANNERS' EDUCATION AND SPATIAL PLANNING WORKSHOPS

Strategic visions can be considered as the basis for creating high quality places and delivering a more sustainable future for communities as well as to achieve their long-term needs. The comprehensive planning has to be pointed out as the effective tool for enabling communities to formulate strategic visions of their future development goals. The integrative approach in spatial planning allows an evaluation of the strengths and challenges of the specific area, the definition of opportunities and scenarios, and selection of optimal vision and spatial policies for the future development. Spatial planning operates at all scales, from European, transnational, national, regional to local plans, so spatial planners must have the abilities to cope with different scales and different levels of territorial planning.

According to the Charter of European Planning (ECTP-CEU, 2013) spatial planners play the key role for changes that are needed to manage existing and create new cities and regions. They need to be leaders of change, political advisors, designers, urban managers, and scientists. This would make achievement of the Vision and application of the Charter of European Planning Principles easier.

ECTP-CEU (2017) points out that spatial planning is a distinct profession with its own areas of expertise in territorial development processes. The planners' core commitments, embodied in the Charter of European Planning, include research and analysis, advocacy and mediation, the ability to envision, evaluate and promote potential future options for urban, spatial, and territorial development. Planners need to combine scientific and creative conceptual thinking with practical approaches in order to harmonize society and

environment at various territorial levels. ECTP-CEU explains the framework of guidance based on three needs and the related eight core competences of spatial planners:

- Critical thinking and understanding of the rationale of planning and its theoretical and legal basis (The Rationale of Planning)
- An understanding of the spatial systems (Socio-economic systems, The Built Environment, Environmental systems)
- Technical and creative competence needed to engage in planning practice (Planning Techniques, Planning Instruments, Planning “Products” and Independent Research).

In the spatial planners' education, during the Undergraduate and Graduate Studies in Architecture and Urbanism at the Faculty of Architecture of the University of Zagreb, students encounter various tasks in the field of urbanism and spatial planning: from planning low-density residential areas, high-density residential areas, planning a new part of the city, designing public space, the urban-architectural project of the transformation of a specific city area, and the integral vision of development of cities and municipalities.

On the third semester of the Master Study in Architecture and Urbanism students have the opportunity to choose between fourteen workshops led by professors from the Faculty of Architecture. Workshop 3 - Spatial planning is one of three workshops led by professors of the Department of Urban Planning, Spatial Planning and Landscape Architecture. The main goal of the course is to propose a vision of the spatial development of chosen area (region or city) based on the principles of sustainability and the proposed topic depending on the academic year. The work on the course is adapted to the student, or group of students, and takes place in stages in accordance with the timetable, depending on the chosen subject coverage. The first stage of students' work includes a consideration of theoretical starting points and a detailed analysis of the existing situation and spatial planning documentation, which ends with a SWOT analysis as a basis for the second stage.

Students are guided to perceive spatial strengths, weaknesses, opportunities, and threats from different perspectives, that is, to immerse themselves in the different roles played by various actors in the space, in order to be able to determine possible development scenarios. In addition, in the initial stages of planning, they are encouraged to use surveys to determine the key issues and needs of residents and users of the subject area. In the second stage, students independently or in group research and conceive different scenarios for the future development of the chosen area, taking into account complex systems and numerous processes taking place in them. Based on the set criteria, students choose the most appropriate development scenario and propose a development vision and a concept for the subject area (graphics, model). In the third stage, a more detailed elaboration of the program for the selected location and the proposal of strategic and development projects are made.

The scenario method is used as a par excellence tool for determination of the future development possibilities of a certain area. Scenario methods are research subject of many authors, considering the use of scenarios, which has a special significance for spatial planning, and which encourages strategic thinking and helps to overcome thinking limitations. There are numerous definitions of scenarios depending on the authors and areas of application.

Kahn and Wiener (1967), the founders of future studies and scenario planning, define scenario as “a set of hypothetical events set in the future constructed to clarify a possible chain of causal events as well as their decision points”. Godet and Roubelat (1996) perceive a scenario as a description of the future state and the sequence of events leading to the future state. Shearer (2005) points out that the scenario is not a “variant of the future” but a mean to achieve the desired state.

The use of the scenario method expanded after WWII, when it was linked to military planning at the RAND Corporation. In addition, the methodology was used during the 1960s for the purposes of social forecasting, public policy analysis and decision making. In the 1970s, scenario planning gained a new dimension in the private sector thanks to the unconventional French oil director Pierre Wack. During the last decades, the use of scenario method has particularly increased, not only in the business sector but also in the field of spatial planning. (Bradfield et al., 2005)

Rothman (2008) emphasizes that scenarios can be presented in textual and graphic form (pictures, graphs, maps, etc.), which enables better perception and understanding of the future. In comparison to other future-

oriented approaches, Ljubenović et al. (2014) stress that scenario planning usually provides a more qualitative description of how the present will evolve in the future, rather than quantitative numerical accuracy which is typical for simulations. They point out that in the scenarios the range of possible outcomes resulting from uncertainty is explored, while creating a vision builds a picture of desired future together with strategies for achieving goals. Friedmann et al. (2004) believe that it is a way of questioning the future for optimal decisions in the present, which have to be based locally. He points out that a detailed investigation of strategic issues is necessary in the context of different assumptions or scenarios in order to enable the assessment of the outcomes and effects on different aspects of sustainability. Kok et al. (2006a, 2006b) point out that scenarios created for lower levels are based on scenarios from higher levels. Higher-level scenarios are usually developed by scientists and stakeholders on the regional and national levels, while local scenarios are developed by local stakeholders.

Radeljak Kaufman (2016) points out the existence of different types of scenarios such as scenarios of exploratory / normative, qualitative / quantitative, expert / participative and basic / managerial character, which indicates the significance of the selected typology in research and spatial planning. She emphasizes that the scenario method is useful in spatial planning because of the creation process during which knowledge about development trends and spatial elements is expanded, but also because of the final results that are important for management strategies and measures.

During studies in spatial planning workshops, students are directed to strategic thinking and the use of the scenario method, which presents an efficient tool to articulate concepts of an uncertain and complex future. Scenario planning serves as a basis for defining an integrated vision of development of cities and regions. The intention to stimulate students' intuition and creativity is achieved by applying scenario planning based on Intuitive logics school which does not use any mathematical algorithms. The methodology proposed by Stanford Research Institute International (SRI) is one of the most popular and frequently used. The advantage of the SRI approach is the development of flexible, internally consistent scenarios from an intuition and logical perspective (Huss and Honton, 1987). Students are taught the importance of flexibility in the process of creation of a spatial development vision, as well as the need to create four scenarios which enable an open discussion and the combination of different interests of stakeholders in the process of defining the preferred model and creating a common development vision (Vogelij, 2010).

Urban revitalisation represents a special issue in urban and spatial planning. It's definition according to the CEMAT Spatial development glossary (2007) is: „urban regeneration and revitalisation which aims at transforming the obsolete socio-economic base of certain urban areas into a more sustainable socio-economic base through the attraction of new activities and companies, modernisation of the urban fabric, improvement of the urban environment and diversification of the social structure.“ Urban revitalisation is a complex and long-term process that brings back to life spatial structures encompassing different dimensions such as urbanistic, architectural, technical, cultural, aesthetic, social and natural. Strezelecka (2011) points out that it is understood as a process involving spatial, social and economic transformations of towns. Urban revitalisation should be carried out systematically, in the context of environmental improvement and political and institutional development, in order to enable implementation of adopted strategies in legal frameworks and organizational conditions.

The process is associated with the concept of sustainable development since it is a comprehensive approach which considers three main aspects of urban life, the ecological, social and economic, and puts emphasis on quality of life of town residents. In the process of revitalisation, particular attention has to be paid to social, infrastructural and spatial development (preserving cultural heritage through renovation, modernization and conservation of historical monuments, buildings and public spaces and improvement of the natural environment). Zagroba and Gawryluk (2017) dealt with a revitalisation as a method of planning sustainable development of historic towns. They point out that simultaneous protection of cultural heritage and restoration and improvement of usable functions and strengthening social integration is particularly challenging in the process of revitalisation of a historic town centre.

There are various initiatives and programs for revitalisation of small settlements in Europe. The European Council for the Village and Small Town (ECOVAST) was set up in Germany in 1984 in order to further the well-being of rural communities, and safeguarding of the rural heritage throughout Europe. Its main aim is to foster the economic, social and cultural vitality and the administrative identity of rural communities in

Europe, to safeguard and promote the sensitive and imaginative renewal of their built and natural environments. Nowadays ECOVAST has more than 500 members in 20 countries in East and West Europe, and it can be seen as a bridge between decision-makers and those who are active at local level, between experts and practitioners (ECOVAST, 2023). The Cittàslow movement emerged in Italy in 1999 and has spread to 33 countries during the years, connecting over 287 towns not in Europe and around the world. Bernat and Flaga (2022) stress that membership in the International Cittàslow Network can constitute an alternative development path for the revitalisation of small towns in peripheral areas. Honoré (2005) points out that the idea of slow town is a part of the so-called “slow movement”, conceived as a response to the progressing globalisation and in the context of the sustainable development paradigm.

At national level specific policies and tools for small and medium-size towns have been recently developed across Europe (Gros-Balthazard & Talandier, 2020; Rauhut & da Costa, 2021). A series of initiatives have been implemented in some European countries, in order to address the challenges faced by territories defined as internal, peripheral, or lagging-behind places. For example, in France “The national policy Petites villes de demain - Territoires de cohésion au coeur de la relance” was established in 2020, “Kleinstadt Akademie (The German Small Town Academy)” in 2021 in Germany, “Piano Nazionale di Ripresa e Resilienza - Bando Borghi (Call for Villages)” in 2020 in Italy, “Estratégia Portugal 2030. Documento de Enquadramento Estratégico” in 2020 in Portugal, and “Plan de Recuperación. 130 Medidas Frente al Reto Demográfico (2021-2023)” in 2020 in Spain. (ESPON, 2022)

#### 4 CASE STUDY: BARANJA REGION AND KNEŽEVO

The Baranja region and the settlement of Kneževo were chosen because of their specific location and characteristics, i.e. as the peripheral area with special challenges of depopulation and deindustrialization, but also a great potential of natural and cultural heritage and historical industrial significance for the entire area of northeastern Slavonia and Croatia.

##### 4.1 Specificities of the Baranja Region

Geographically, the Baranja region covers parts of the territory of Croatia and Hungary, of which the Croatian part is 20.5% of the total region area. The Croatian part of Baranja occupies the northeastern part of the Osijek-Baranja County, territorially defined by the Drava River on the south and the Danube on the east, while the northwestern border with Hungary is defined administratively. The Croatian part of Baranja has 30,782 inhabitants, which represents 12% of the population of Osijek-Baranja County. Compared to the previous population census from 2011, Baranja recorded a loss of 8,000 inhabitants, which represents a total of 20%. (Croatian Bureau of Statistics, 2023; Banić, 2023a)

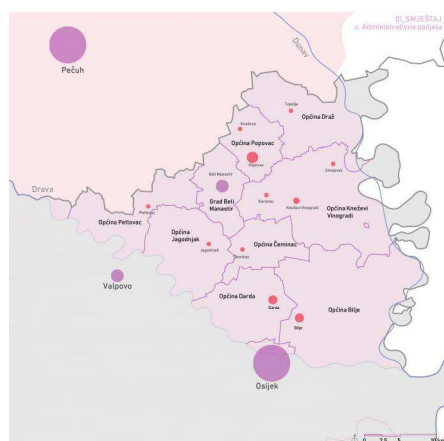


Fig. 1: Administrative Division of Croatian Part of the Baranja Region. Source: Banić, 2023a.

The A5 highway, which is an integral part of the pan-European Vc corridor (Ploče - Sarajevo - Osijek - Budapest) and the European route E73 passes through the Baranja region. The completion of the highway route to the state border with Hungary (from 5 km north of Beli Manastir to the state border) is planned in 2024. The Pan-European Corridor Vc railway route is also planned, which should become an important transport route, especially for freight traffic. The area is well connected by local road infrastructure which



connects settlements and enables daily migrations to larger regional centers, while the public transport network is insufficiently developed.

The Baranja Greenways bike path passes through the area, a multipurpose path that supports: walking, horseback riding, cycling and other forms of movement without a motor (Mecseka - Osijek). In its southern part, it passes through the municipalities of Bilje and Kopački rit, passing through Zlatna Greda, Tikveš and Kopačevo. The Pannonian Road, the bicycle path (Osijek - Sombor) passes towards Bilje to the gate of Kopačko rit - Kopačevo, passes through the wastelands of Podunavlje, Kozjak, Sokolovac and Mirkovac, continues via Suza and Zmajevac to Batina. The Danube bicycle route (EV6) has a total length of 4,450 km and passes through 10 European countries, connecting 11 UNESCO World Heritage sites and 6 European rivers. In a length of 150 km, it passes through the eastern part of Croatia through two counties (Osječko-Baranjska and Vukovarsko-Srijemska county), following the course of the Drava and Danube rivers.

The area has a rich natural heritage. A significant part of the Baranja is protected by the NATURA 2000 ecological network, the area along the Drava and the Danube (special reserve Gornje Podunavlje and nature park Kopački rit). The area has a developed network of public facilities: cultural (five museums and one library), educational (five kindergartens, 31 primary schools, one high school and three vocational high schools) and health (three health centers and seven clinics). (Banić, 2023a)

The region is also rich in cultural heritage: manors, sacral buildings and complexes, rural and industrial settlements, archaeological zones and sites. A rich industrial history is evident in numerous complexes called “pustare”, which were established in the 19th century, and in the first half of the 20th century. Today, “pustare” are mostly abandoned or have maintained an exclusively productive function, while their spatial potential remains unused. (Ministry of Culture and Media, 2023; Matišić et al., 2017)

In the Croatian part of the Baranja, the main economic branches are agriculture and tourism. The main tourist zones are the Kopački rit nature park and the settlements in the zone of Bansko brdo with tourist offer based on sports and recreation.

Based on the analysis of the existing situation and spatial planning documentation, a SWOT analysis was made pointing out strengths (natural and cultural diversity, agricultural importance, rich tourist offer and numerous specific settlements), weaknesses (geographical isolation, neglected industry, older population and lack of micro-regional centers), advantages (international connection, modernization of industry, activation and attraction of population and formation of regional centers) and threats (exclusively tourism based economy, excessive industrialization, abandonment of agriculture and loss of the historical character of settlements).

## 4.2 Development and Revitalisation Scenarios of the Baranja Region

Based on the conducted analyses, possible development and revitalisation of the Baranja region is considered through six basic scenarios determined depending on the dominant economic activity in the area, which are further broken down into two basic models of space activation approach. In the process of creating basic scenarios, an attempt is made to investigate the current activities and their impact on the economy and population of Baranja in order to define steps for possible improvement. The proposed scenarios are based on global sustainable development goals and specific possibilities of spatial revitalisation. Evaluation of individual scenarios is carried out in order to determine an integral scenario which is later elaborated as a vision of development and revitalisation of the Baranja region with macro and micro projects as space development activators.

### 4.2.1 Smart villages

According to the European network for rural development (2003) smart villages are the concept of communities in rural areas that use innovative solutions to improve their resilience. In order to improve their economic, social and/or environmental conditions, they rely on a participatory approach in development and implementation of development strategies and solutions offered by digital technologies. Additional benefit can arise from the cooperation with other communities and actors in rural and urban areas. The basic prerequisite for the development of smart villages is internet networking and internet literacy. Although Croatia is largely covered by a Wi-Fi network, not all areas have broadband Internet (HAKOM, 2023). As a part of the concept of smart villages development, it would be necessary to improve the internet infrastructure and implement the digitization of health, administrative and commercial services (Pavić-

Rogošić, 2019). Since almost all settlements in Baranja, with the exception of Beli Manastir, have a rural character, their survival and development can be achieved through transformation into smart villages.

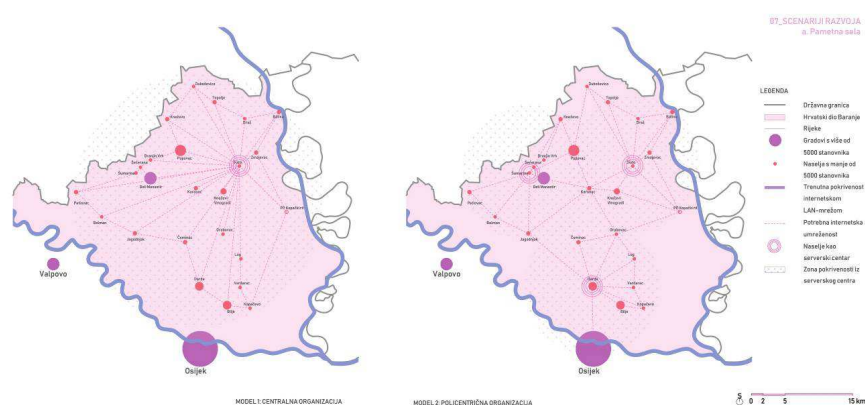


Fig. 2: Development Scenario: Smart Villages - Central Organisation Model (left) and Policentric Organisation Model (right). Source: Banić, 2023a.

The central organization model envisages concentration of digital server and administrative functions in one place, which would thus become the digital center of the Baranja region. The Suza settlement is chosen as the center, due to its undergoing revitalisation and several settlements in the vicinity with high economic potential.

The polycentric village organization model assumes division of the Baranja region into three sub- areas with centers in Darda, Suza and Šumarina, which were chosen due to their location in gravity zones of larger cities. The activation of centers is perceived through new function which ensures creation of new work places, thus improving living standard of inhabitants.

#### 4.2.2 Agriculture

The most important economic branch of Baranja is agriculture, with production of corn, wheat, sugar beet, fodder and industrial plants. The current challenge of agriculture in Baranja is the lack of irrigated areas and the absence of processing facilities. Agricultural production is not on the technological level which would ensure production results in accordance with the quality of the soil. As a solution for improvement of agricultural production, construction of a processing plant which would ensure the export of finished products, resulting in higher revenues (Croatian Chamber of Commerce, 2023; Glas Slavonije, 2023). Two models of the organization of processing centers are proposed.

The central organization model envisages the establishment of one processing center, which is planned in the Čeminac settlement due to the good traffic connection with Osijek as a macro-regional centre. It is located along the railway corridor and is well connected to other settlements in Baranja. Farms and biogas plants are located next to it, which would ensure its supply. The construction of the processing centre would create numerous working places for the residents of Čeminac and its surroundings.

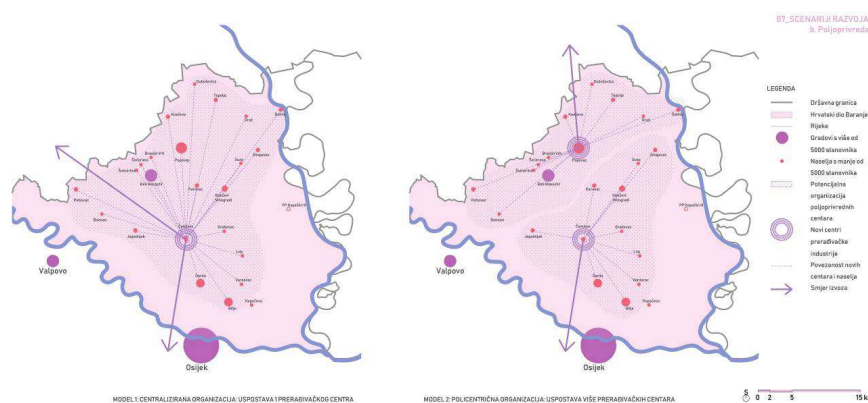


Fig. 3: Development Scenario: Agriculture - Central Organisation Model (left) and Policentric Organisation Model (right). Source: Banić, 2023a.

The polycentric organization model proposes establishment of two processing centers, one in Čeminac and the other in Popovac settlement. The processing center in Popovac would be focused primarily on the export of goods to the European Union via Hungary, and would cover the agricultural production of the settlements north of BANSKO BRDO. It was chosen because of its central location in northern Baranja and proximity to Beli Manastir as a regional centre. In this way, the northern settlements of Baranja region would also be activated and new working places created.

#### 4.2.3 Tourism

The existing tourism offer in Baranja is concentrated in two zones: the nature park Kopački rit and the southern slopes of BANSKO BRDO. Kopački rit is the center of active tourism in nature, while the area of BANSKO BRDO is the center of rural tourism focused on the production of local products, mainly wine. Kopački rit is easily accessible from Osijek, and Kopačevo is the starting point for organized tourist route to the presentation and education center in newly renovated Tikveš manor in the north. The activation of new tourist zones and the integration of the tourist offer is proposed. (Baranja Tourist Board, 2023)

The model of integration of the existing tourist facilities is based on the connection of two main existing tourism assets, with minor expansions west of Beli Manastir.

The model of activation of new tourist centers is focused on the restoration and preservation of existing cultural assets and the formation of new tourist hotspots. These are cultural centers with classicist and historicist manors and parks in Bilje, Darda and Kneževo, while Topolje is a center of traditional rural architecture. Existing centers with already recognized cultural heritage, such as Zmajevac, are not included in this model.

The integration of both models and the overlap of the tourist offer is proposed.

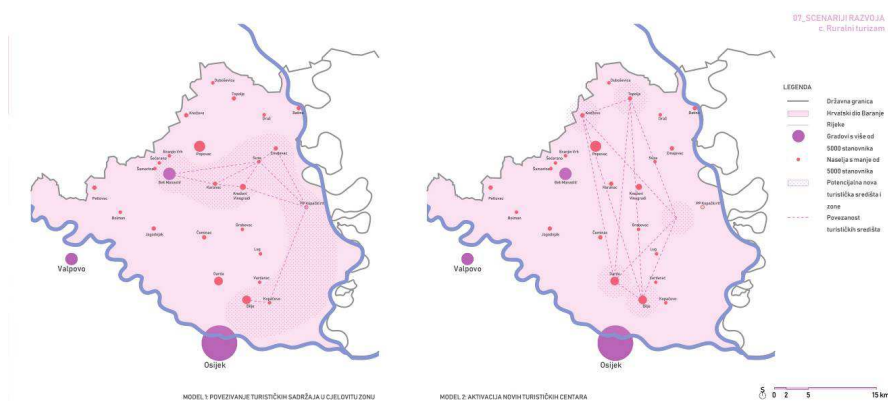


Fig. 4: Development Scenario: Tourism – Model of Connecting Tourist Facilities into a Complete Zone (left) and Model of Activation of New Tourist Facilities (right). Source: Banić, 2023a.

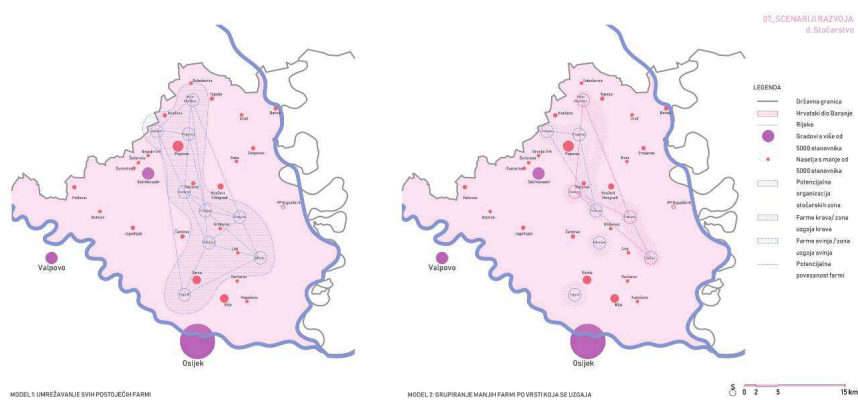


Fig. 5: Development Scenario: Livestock – Networking Model of all Existing Farms (left) and Model of Connecting Smaller Farms Depending on the Type of Livestock (right). Source: Banić, 2023a.



#### 4.2.4 Livestock

Cattle breeding is the second most important branch of agricultural production in Baranja. It is divided into two types: small family farms and large-scale breeding on farms of the Belje industry. Cattle raised on family farms are mainly used for processing into dried meat products and for local use, while the production on Belje farms is organized according to the highest technical standards and it is quantitatively and economically dominant. Additional technological improvement and improvement of production standards on family farms are proposed. (Agroklub, 2008; Kult plave kamenice, 2016)

The model of existing farms networking assumes their digitalization and integration. Digitalization would facilitate communication and migration of experts and the exchange of knowledge, while the centralization would facilitate access to the market and control of prices and quality. It can be assumed that this model has been partially implemented since most of the farms are managed by Belje, but there is certainly a need for additional improvement.

The model predicts the connection of small farms depending on the type of livestock. Optimization of cultivation is foreseen by connecting small farms in a network thus enabling the competition with larger farms.

#### 4.2.5 Energy

In the Baranja region there are five larger power plants, the goal of which is self-supply of the farms they are built next to. The biogas power plants next to the Topolnik and Mitrovac farms use biomass, which is a byproduct of the farm's production, while the solar power plant in Zmajevac is for irrigation of vineyards. As a part of the rural development project, the municipalities of Baranja plan to install solar collector panels on roofs of county and municipal buildings, which is a step towards energy self-sustainability, but larger projects are also necessary in order to achieve the best possible results. The goal of this scenario is to create an energetically self-sustainable Baranja region using the existing spatial potential - the construction of biogas power plants next to farms and the installation of solar power plants. (Lider, 2022; Savez energetičara Slavonije i Baranje, 2023)

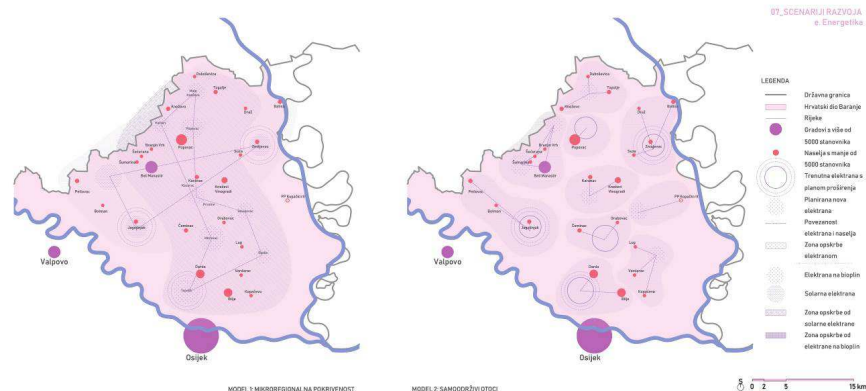


Fig. 6: Development Scenario: Energy – Microregional Coverage Model (left) and Model Self-Sustainable Islands (right). Source: Banić, 2023a.

The microregional coverage model proposes the creation of a microregional energy network that would equally supply the entire Baranja area. This model does not assume power plants next to every farm. It is based on total production which has to be equal or greater than the total energy consumption of each microregion. Two overlapped networks are shown - the network of solar power plants and the network of biomass power plants.

The self-sustainable islands model envisages the construction of power plants next to group of settlements in order to provide the source of energy for each “energy island”. In this way, an even development and energy independence of all settlements would be achieved, while power plants in terms of energy production are assumed to be the same as in the previous model.

#### 4.2.6 Industry

The Baranja region has a rich industrial history. For centuries it has been the center of the Belje agricultural estate, with seasonal migrations of workers from various regions. The process of deindustrialization led to the fact that the former industrial plants are now mostly abandoned, with the exception of a few smaller factories. Former factory workers today mostly daily migrate towards the city of Osijek. The scenario envisages the transformation of existing industrial facilities for the needs of new technologies, in accordance with global trends, which would lead to changes in migration process. (Bug, 2018)

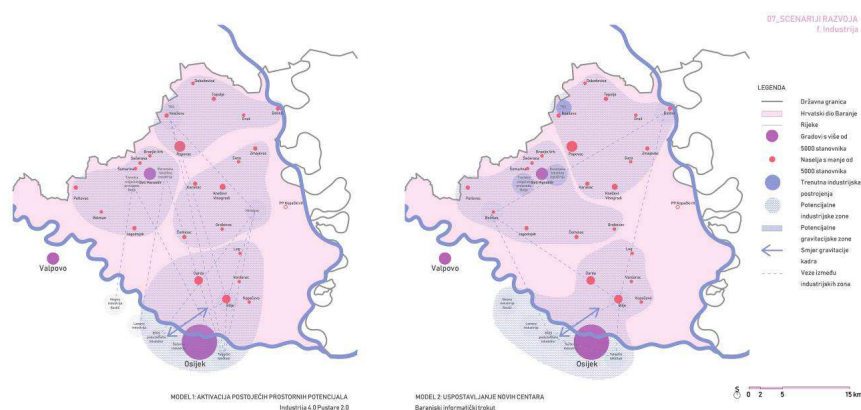


Fig. 7: Development Scenario: Spatial Potential Activation Model (left) and New Centers Model (right). Source: Banić, 2023a.

The model of activation of existing spatial potentials proposes the conversion of former “pustara” settlements and other brownfield areas for the needs of information technology. The establishment of an IT campus in one of the “pustara” settlements (e.g. Mirkovac or Kneževo) would enable a strong relationship between professional staff and students with Osijek.

The model for the establishment of new centers foresees the activation of hitherto inactive industrial areas and suggests Batina, Bolman and Bilje settlements as centers. Their peripheral location encourages activities related to international cooperation with neighboring countries. The scenario is based on smaller business incubators and the idea that IT companies are not necessarily tied to a specific location.

#### 4.3 Vision of Development and Revitalisation of Baranja Region - Re: Baranja

The comparative analysis of six scenarios and the valorization of elements of different models according to the set criteria resulted in a combination of scenarios providing that the integral scenario has an impact on the further development of the Baranja region as positive as possible. The integral scenario represents the basis for development vision and revitalisation of the Baranja region. The proposed vision particularly activates the settlements of Suza, Šumarin, Darda, Čeminac, Bilje, Kneževo, Jagodnjak and Mirkovac, as well as farms and agricultural fields.

In order to realize the vision, macro and micro projects have been proposed, with a defined period necessary for the realization of each project.

Macro projects include various infrastructural, marketing, educational and digitization projects. Planned infrastructural projects include extending the LAN/optical network through all settlements as a prerequisite for digitalization (seven years), increasing the capacity of existing power plants as a prerequisite for the energy transition (ten years), connecting existing producers as a step in the digital transition (two years), maintenance and management of IT systems as an accompanying process to digitization projects (continuous process). Marketing projects include integration of the tourist offer and promoting new destinations as a step in the activation of tourist destinations (three years) and connecting renovated manors into a regional or international network as a step in the activation of tourist destinations (five years). Digitalization projects include digitalization of services as a prerequisite for the realization of smart villages (five years). Education projects include digital education of the population as a step in the revitalisation of the village (two years + continuous), education of farmers as a step in the improvement of agriculture (two years + continuous) and cooperation with Osijek faculties as a result of digital and industrial improvements (continuous).

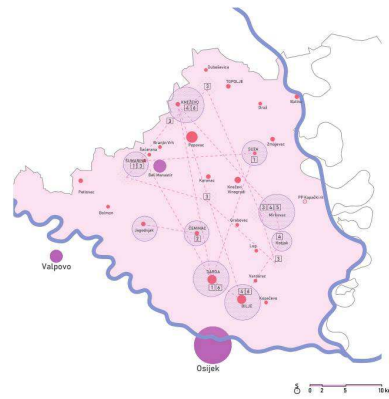


Fig. 8: Development and Revitalisation Vision of the Baranja Region. Source: Banić, 2023a.

Micro projects at specific locations were also proposed (Figure 8): 1) establishment of IT incubators with server centers, 2) establishment and construction of a processing and distribution center, 3) construction of new power plants (biogas power plants in addition to existing farms and solar power plants); 4) conversion of abandoned brownfield sites for new industry, 5) construction of the IT campus and 6) revitalisation and conversion of manors.

#### 4.4 Kneževo

The special emphasis is on Kneževo, a small settlement with historically significant urban and industrial features (one of the main centers of the Baranja region after the WW2), which experienced a significant economic and demographic decline due to deindustrialization trends in the late 20th century.

##### 4.4.1 “Pustare” in Croatian part of Baranja

Kneževo represents one of the seventy “pustara” settlements in Croatian part of Baranja. The basic meaning of “pustara” comes from the Hungarian word “puszta”, which originally refers to a spacious plot of land intended for open-air cattle breeding. In Croatia, “pustare” represent planned industrial settlements with residential areas and public and social facilities (educational, cultural, administrative, etc.). They are located in rural areas and have a rural-urban character. Their history is connected with the manor estate, and later with the industry of Belje. In 1697, Archduke Eugene of Savoy acquired a property on the southern border of Baranja, in today's Bilje, where he builds a manor from which he manages the entire property and economy of Baranja region. In 1825, the center of Belje moved to Kneževo, when intensive industrialization and the construction of most “pustara” settlements began. After WW1 they have been adapted to new industrial conditions and additional facilities were constructed, which resulted in improved quality of life. Although located in completely rural environment, settlements gained urban characteristics which makes them unique construction complexes. (Živković and Horvat, 1986)

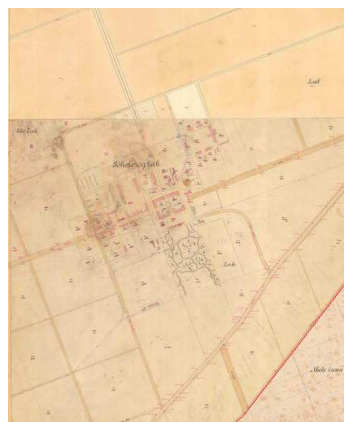


Fig.9: Kneževo on the 19th Century Habsburg Empire Cadastral Map. Source: Arcanum (2023).

Settlements usually have an orthogonal urban scheme, simple rectangular buildings and a central administrative building with a landscaped park. They are characterized by division into three zones; production/agricultural, residential and administrative/social zone. Originally, they did not have the cemetery

or the church. They are low density settlements, mainly with collective one-story buildings with several apartments (6-12 housing units) and shared auxiliary buildings in the garden. The apartments of managers, administrators and doctors were located in separate buildings of a higher standard in the administrative zone. The agricultural or production zone depended on the economic branch and contained stables and warehouses, and later industrial halls and industrial facilities. (Ravas and Stober, 2017)

#### 4.4.2 Specificities of Kneževo

The village of Kneževo is located in the very north of the Croatian part of Baranja, in Osijek-Baranja County, in the municipality of Popovac. The municipality of Popovac, which includes the settlements of Popovac, Branjina and Kneževo, is on the border with the town of Beli Manastir to the east and the municipality of Draž to the west. According to the 2021 census, the municipality of Popovac has a total of 1,446 inhabitants, and the settlement of Kneževo has 485 inhabitants.

The development of the Kneževo settlement dates back to 1818, when the construction of the manor of the Archduke Friedrich Habsburg began by the order of the Habsburg Emperor Karl Ludwig. Various commercial and administrative buildings had been built next to the manor, gradually forming the settlement. Since the end of the first third of the 19th century, Kneževo has been the seat of administration of the Belje estate. Intensive development followed the industrial revolution and construction of the railway in the 1890's. Until 1914, the settlement was connected by a narrow-gauge railway to Beli Manastir, and from there to other pustara settlements and the river wharf on the Danube. After the collapse of the Austro-Hungarian monarchy, the property became the state property of the Kingdom of Yugoslavia. The period between two World wars was marked by production stagnation and economic decline. During the WW2, the settlement was devastated, and production stopped. With the establishment of Yugoslavia, Belje experienced a transformation into the Belje agricultural-industrial complex as a federal agricultural asset, the intensive reconstruction of settlements and production began, and in the 1950s and 1960s Kneževo had a population of around 1,600. In the 1980s, new plants were built as part of the food industry, but due to the war in 1991, production stopped on the entire Belje estate. After the war it has been only partially restored. (Kukulić, 2021)

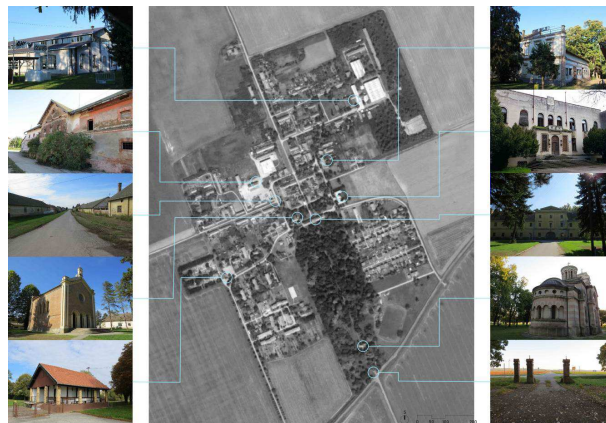


Fig. 10: Characteristic Buildings in Kneževo. Source: Banić, 2023b.

The central element of the settlement is a classicist manor with a 11 hectares park, which represents a valuable example of classicist residential architecture. It is a protected cultural heritage, enlisted in the National register of cultural assets. The transverse (NW-SE) axis of the manor forms the orthogonal axis of the entire settlement. Next to it, the oldest part of the settlement with administrative and commercial buildings that make up the block northwest of the manor and continue into the two main streets is situated. The buildings on that stretch are mostly single-story residential blocks with 4 to 10 residential units, each with separate entrances and auxiliary buildings in the garden. The apartments of clerks and coachmen were originally located in that block. In the southeastern zone, along Graničarska Street, production facilities and apartments for workers were situated, while southeast of the manor there were public facilities: school, kindergarten, teacher's apartment, clerk's apartments and a church. Northeast of the manor in the same axis there were the doctor's and dentist's apartments and the infirmary. A cemetery was built outside the rectangular base of the settlement along its western edge, and the existing railway station was converted into a morgue. The northern zone of Kneževo was a production area, with industrial production (mechanical



workshop for locomotives and machines, a steam mill and a brickyard) in the eastern part, and agricultural warehouses and stables in the western part. The architecture in the settlement is unusually representative, the brick buildings have numerous design details, profiled wooden beams and decorated brick fences and portals. Numerous public facilities and the architecture quality of buildings clearly indicate that the conditions and quality of life in “pustara” were above the standards of the time. (See Figure 10)

The new zone of the settlement consists of two parts, with apartment buildings to the west of the park and family housing area east of the park. In the late 1980s, five multi-apartment two-story buildings were built, housing a clinic, a shop and a cafe, while a new primary school was built next to the park. Most of the residents live in the area with family houses that have been built since 1980s.

Public and social buildings and service facilities are located in the southern part of the settlement. In the old part, north of the manor, there is a local post office and the area of the local board. Most of the facilities (local general practice clinic, dentist's office, pharmacy, cafe and small shop) are located in the zone with multi-residential buildings west of the manor park. To the east of the park, there is a new community center and a soccer field. There are two churches in the settlement - the Catholic Church of St. Hildegard northwest of the manor and the Orthodox Church of St. Gregory in the southern part of manor park. Along the eastern edge of the settlement, there is a local cemetery with a morgue.

In the northern zone of the settlement, there are remnants of the former industry and the Equipment and Machinery Factory plant, which today operates on a reduced scale. The settlement used to have a cinema, a restaurant, a hospital and a kindergarten.



Fig. 11 (left): Spatial Plan of Popovac Municipality – Land Use. Source: Banić, 2023b. Fig. 12 (right): Proposal for the Conceptual Zones of Kneževo. Source: Banić, 2023b.

The area around the settlement is surrounded by particularly valuable arable land and commercial forest. Northeast of the settlement, next to the planned business zone, there is an agricultural airport with a grass runway. In the area of Kneževo, there are three protected archaeological areas: Brickworks along the southeastern edge of the settlement (from the Roman period, dating from 1st to 3rd century BC), Buziklica - Malo Kneževo (from 5300 BC to 1400 AD) and Črna bara-Buziklica (from 800 CE to 1400 AD) northeast of the settlement, along the border with Hungary. The manor of Frederick II. Habsburg is a protected cultural heritage, enlisted in the National register of cultural assets, while the manor park is a monument of park architecture.

#### 4.4.3 New Purpose as a Revitalisation Activator of the Settlement

Based on the proposed vision of the development and revitalisation of the Baranja region and detailed analysis of Kneževo settlement, the introduction of a new function is seen as a potential activator of its revitalisation. Based on the research and consideration of the most suitable scenario for Kneževo, the construction of a film studio is proposed, given that movies have already been filmed in the historic part of the settlement and that many of existing buildings have the potential to be transformed to be suitable for the needs of film production. The introduction of a new function would contribute to the development of culture and media at the national level, while the development of supporting functions and an increase in the number of temporary and permanent residents would contribute to the revitalisation of the settlement.

The National Development Strategy of the Republic of Croatia until 2030 (2021) states the development of culture and media as one of five priority areas of public policies, in order to achieve strategic goal 1. “Competitive and innovative economy”. The strategy emphasizes that Croatia has been recently profiled as an attractive and cost-competitive location for filming series and movies of foreign production companies, thus attracting considerable foreign capital. This is supported by one of the most profitable state aid programs with a direct economic impact on the audiovisual industry, the international promotion of Croatia, but also the profitability of all related economic branches, primarily tourism. Feasibility studies for the project of a new studio complex in the Republic of Croatia sees Croatia as a possible location for international productions (Olsberg SPI, 2020). The availability of a film studio in the Republic of Croatia would generally enable a longer stay in the country and the realization of larger investments, which would have a positive economic and cultural effect not only at the local level but also at the regional and national level.

From a comparison of the European film studios Cinecitta in Rome and Studio Leavesden in London and the recommended parameters for planning, it is evident that, in terms of necessary area and existing structures, the historical part of the settlement is suitable for a film studio for international production.

#### 4.4.4 Film studio in Kneževo

The existing organization of the settlement is based on two orthogonal axes. The concept proposes densification of the orthogonal street network in order to provide access to existing and planned buildings. The existing settlement is characterized by three zones in which specific interventions are proposed.

In the southern zone, on the area of the existing residential area, minimal interventions of new pedestrian paths are planned in order to connect residential areas east and west of the manor park. The northern zone, where remnants of former industrial complex are located, is planned for functional and structural transformation for the needs of an international film studio. The central zone is designed as a transition zone between the film studio and the residential zone. New public, social and tourist facilities are planned (facilities for film production participants, restaurant, auditorium, part of the film studio intended for educational and local needs, etc.). In the central part of the zone, preservation of the original architecture and its functional transformation according to the needs of new functions for both groups of users is planned.

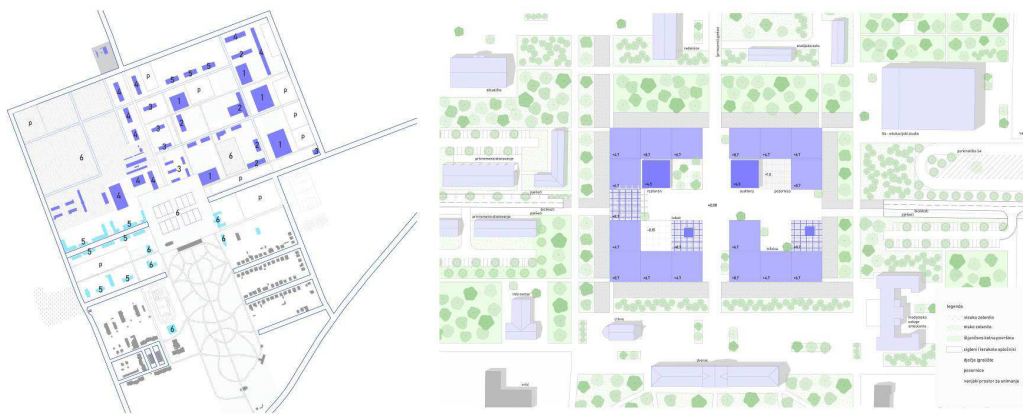


Fig. 13 (left): Planned Structure in Kneževo. Source: Banić, 2023b. Fig. 14 (right): New Central Square of Kneževo. Source: Banić, 2023b.

The system of planned public spaces together with the road network serves to connect and integrate the existing settlement and the planned film studio. The existing public spaces of the settlement (the manor park and the lawn north of the manor) are planned to be supplemented with a new, central square planned as a central public space for all users, while new squares and parks in the northern zone would have a semi-private character. The central square area is designed as a modern architectural interpretation of historical urban block, with public and commercial facilities (auditorium, market, catering facilities, etc.).

## 5 DISCUSSION

The spatial planning workshop is a platform where students are taught expertise in the processes of spatial / territorial development. In the last workshop before the graduation, students “practice” the application of knowledge acquired during their studies and acquire new knowledge about research and analysis, the field of

advocacy and mediation, the ability to imagine, evaluate and promote potential options for urban, spatial and territorial development. Students are encouraged to think critically and understand the logic of planning and its theoretical and legal basis, learn to understand spatial systems that, in addition to the built and natural environment, include socio-economic systems, and improve the technical and creative skills necessary for their inclusion in the planning practice.

The use of the scenario method in the education process, not only as a theoretical basis but also as practical application in workshops, is particularly significant because it encourages strategic thinking, the development of intuition and helps to overcome thinking limitations. In order to enable a comprehensive overview of the needs and possibilities as well as aspirations of various stakeholders, the development of several possible scenarios is particularly important, above all for an open discussion and flexibility in the later process of creating a spatial development vision.

The result of this case study is the definition of six possible scenarios for the Baranja region development which are further broken down into two basic models of space activation approach. Various scenarios give a better overview of the spatial possibilities and create a basis for evaluation and decision-making on the direction of further development. Conceiving scenarios based on the global sustainability goals indicates an awareness of the importance of development based on global principles, which through planning and interventions at lower levels contribute to the achievement of global goals.

The possibility to choose an area or location as a task of the spatial planning workshop according to the detailed selection criteria, opens up the possibility to do planning tasks in a familiar area or an area students want to perceive better. In addition, there is the possibility of connecting the task at the spatial planning workshop and the graduation thesis, which enables a more detailed elaboration of the chosen location, and a critical reflection of planning decisions with an offset of one or two semesters.

This paper shows how the work which was focused on the regional development and revitalisation scenarios for Baranja region is in the next step focused on Kneževo, a small settlement with historically significant urban and industrial features which, due to the dynamics of business and deindustrialization trends in the late 20th century experienced a significant economic and demographic decline. The development and revitalisation vision of Baranja region set a wider framework for development planning of the Kneževo settlement, i.e., the settlement was singled out as one of the primary regional centers. On the basis of the knowledge about the specific location and consideration of the national needs defined by the National Development Strategy of the Republic of Croatia until 2030, a new urban function of the film studio was chosen as the optimal activator of the settlement's revitalisation. The implementation of "unusual" facility in the area represents a challenge in the process of planning and design of the necessary infrastructure, while meeting the needs of film studio users and permanent residents, in terms of achieving the best possible quality of life. By introducing a new cultural and media industry in Kneževo, in addition to contributing to the revitalisation of the settlement at the local level and in the regional context, the former industrial character of the area would be preserved, and at the national level it would contribute to the realisation of one of the strategic national development goals - the establishment of a "Competitive and innovative economy".

## 6 CONCLUSION

In addition to the theoretical knowledge in spatial planning at the local and regional level acquired during the studies, practical application is essential in order to prepare the future planner for the roles that await him in professional practice. Spatial planning workshop is one of the platforms where strategic thinking is encouraged, research, analysis, synthesis, critical reflection and understanding of spatial systems are practiced, as well as forecasting and planning on different spatial levels. The possibility to choose a workshop according to personal affinity, respectively the possibility to choose both the subject area and specific the topic during the workshop represents an opportunity for further education and development of a visionary approach on the regional and the local level.

The scenario planning methodology is used in spatial planners' education in order to enable future planners to deal with complexity and predict the future development of cities and regions and to conceive consequences regarding specific interventions. Over and above, the scenario planning tool encourages

creativity and intuition and provides a possibility to think “outside the box” and at least one step further in the future.

In addition to European documents on sustainable development, national, regional and local strategies and plans relevant to territorial development and existing spatial planning documentation are taken as starting points. Students are encouraged to take a comprehensive overview of the area and development process and to determine the scenarios evaluation criteria as a basis for development vision concept. Critical thinking of planning decisions, and consideration of causes and consequences through specific development projects is the basis for creation of new spatial planning documents. Flexibility in planning is a characteristic that stands out as particularly important for achieving harmonization of dynamic circumstances in space and time with the set goals of the long-term development and the legislative framework, in order to accomplish a better quality of life, i.e. sustainable development of the selected area.

## 7 REFERENCES

- AGROKLUB (2008). Farma Topolnik – čudo u Baranji / Topolnik Farm - a miracle in Baranja. [Online] Available from: <https://www.agroklub.com/stocarstvo/farma-topolnik-cudo-u-baranji/292/> Accessed [09/06/2023].
- ARCANUM (2023). Cadastral maps. [Online] Available from: <https://maps.arcanum.com/en/> Accessed [13/06/2023].
- BARANJA TOURIST BOARD (2023) About Baranja. [Online] Available from: <https://tzbaranje.hr/> Accessed [09/06/2023].
- BRADFIELD, Ron, WRIGHT, George, BURT, George, CAIRNS, George, VAN DER HEIJDEN, Kees: The origins and evolution of scenario techniques in long range business planning. In: *Futures*, 37 (8), pp. 795–812. Elsevier, 2005.
- BANIĆ, Petra: Re: Baranja: Development and Revitalisation Scenarios. Workshop 3 – Spatial Planning. University of Zagreb, Faculty of Architecture, Zagreb, 2023a.
- BANIĆ, Petra: The Revitalisation of Kneževo. Master Thesis. University of Zagreb, Faculty of Architecture, Zagreb, 2023b.
- BUG (2018). HUP-ICT: Hrvatska je spremna za digitalizaciju, vrijeme je za postavljanje ambicioznih ciljeva / Croatia is ready for digitization, it is time to set ambitious goals. [Online] Available from: <https://www.bug.hr/istrazivanja/hup-ict-hrvatska-je-spreman-za-digitalizaciju-vrijeme-je-za-postavljanje-5114> Accessed [09/06/2023].
- CEMAT: Spatial development glossary – European Conference of Ministers responsible for Spatial/Regional Planning (CEMAT). Council of Europe Publishing, Bruxelles, 2007.
- CROATIAN BUREAU OF STATISTICS (2023). Census 2021 [Online] Available from: <https://popis2023.hr/> Accessed [09/06/2023].
- CROATIAN CHAMBER OF COMMERCE (2023). Poljoprivreda i prehrambena industrija / Agriculture and food industry. [Online] Available from: <https://hgk.hr/zupanijska-komora-osijek/poljoprivreda-i-prehrambena-industrija> Accessed [08/06/2023].
- ECOVAST (2023). European Council for the Village and Small Town. [Online] Available from: <http://europeanheritagealliance.eu/members/ecovast/> Accessed [27/07/2023].
- ECTP-CEU: Charter of European planning. ECTP-CEU, Bruxelles, 2013.
- ECTP-CEU: Guidelines on professional competences in spatial planning. ECTP-CEU, Bruxelles, 2017.
- ESPON: PROFECY - Processes, Features and Cycles of Inner Peripheries in Europe (Final Report). ESPON, Luxemburg, 2017.
- ESPON: ESPON TOWN Spin-off Denmark - Small and medium sized towns in Denmark (Final Report). ESPON, Luxemburg, 2022.
- EUROPEAN NETWORK FOR RURAL DEVELOPMENT (2023) Smart Villages Portal. [Online] Available from: [https://ec.europa.eu/enrd/smart-and-competitive-rural-areas/smart-villages/smart-villages-portal\\_en.html](https://ec.europa.eu/enrd/smart-and-competitive-rural-areas/smart-villages/smart-villages-portal_en.html) Accessed [08/06/2023].
- FRIEDMANN, John, BRYSON, John, HYSLOP, John, BALDUCCI, Alessandro, WIEWEL, Wim, ALBRECHTS, Louis, HEALEY, Patsy: Strategic Spatial Planning and the Longer Range. In: *Planning Theory & Practice*, 5(1), pp. 49-67. Taylor & Francis, Abingdon, 2004.
- GLAS SLAVONIJE (2023). Bez razvitka prerađivačke industrije Slavonija i Baranja nastavit će gubiti stanovnike / Without the development of the processing industry, Slavonia and Baranja will continue to lose inhabitants [Online] Available from: <https://www.glas-slavonije.hr/505022/1/Bez-razvitka-preradivacke-industrije-Slavonija-i-Baranja-nastavit-ce-gubiti-stanovnike> Accessed [08/06/2023].
- GODET, Michel, ROUBELAT, Fabrice: Creating the Future: The Use and Misuse of Scenarios. In: *Long Range Planning*, 29 (2), pp. 164-171. Elsevier, Amsterdam, 1996.
- GROS-BALTHAZARD, Marjolaine, TALANDIER, Magali: Cooperation, proximity, and social innovation: Three ingredients for industrial medium-sized towns' renewal? In: *Urban Science*, 4(2), 15, MDPI, 2020.
- HAKOM (2023). Overview map of broadband availability and speed. [Online] Available from: <http://bbzone.hakom.hr/hr-HR/InteraktivniPreglednik#sthash.sxgbUjDo.dpbs> Accessed [08/06/2023].
- HONORÉ, Carl: Praise of Slow - How a Worldwide Movement Is Challenging the Cult of Speed. Orion, London, 2005.
- HUSS. William R., HONTON, Edward J: Scenario planning - What style should you use? In: *Long Range Planning*, 20 (4), pp. 21-29. Elsevier, Amsterdam, 1987.
- KAHN, Herman, WIENER, Anthony J.: The Year 2000: A Framework for Speculation on the Next Thirty-Three Years. Hudson Institute, New York, 1967.
- KOK, Kasper, ROTHMAN, Dale S., PATEL, Mita: Multi-scale narratives from an IA perspective: Part I. European and Mediterranean scenario development. In: *Futures*, 38 (3), pp. 261-284. Elsevier, Amsterdam, 2006.
- KOK, Kasper, PATEL, Mita, ROTHMAN, Dale S., QUARANTA, Giovanni, 2006b: Multi-scale narratives from an IA perspective: Part II. Participatory local scenario development, *Futures*, 38 (3), pp. 285-311. Elsevier, Amsterdam, 2006.
- KUKULIĆ, Ivan: Trenutono stanje i perspektive prenamjene brownfield lokacija industrije Belja / The current state and perspectives of the conversion of brownfield sites of the Belje industry. Master's Thesis. University of Zagreb, Faculty of Science, Zagreb, 2021.



- KULT PLAVE KAMENICE (2016). Farma Mitrovac kako funkcionira veliki kravli sanatorij u Baranji / Mitrovac farm, how the large cow sanatorium in Baranja works [Online] Available from: <https://plavakamenica.hr/2016/04/11/farma-mitrovac-kako-funkcionira-veliki-kravlji-sanatorij-u-baranji/> Accessed [09/06/2023].
- LIDER (2022). Na karti solarnih elektrana u Europi Hrvatska ne stoji baš najbolje / Croatia does not do very well on the map of solar power plants in Europe. [Online] Available from: <https://lidermedia.hr/zeleno-i-digitalno/na-karti-solarnih-elektrana-u-europi-hrvatska-ne-stoji-bas-najbolje-142512> Accessed [09/06/2023].
- LJUBENOVIĆ, Milica, MITKOVIĆ, Petar, MITKOVIĆ, Mihailo: The scenario method in urban planning. In: *Facta universitatis - Architecture and Civil Engineering*, 12(1), pp. 81-95. University of Niš, Niš, 2014.
- MATIŠIĆ, Mislav, JAKOPIČIĆ, Luka, PEŠIĆ, Dinko, RICL, Jesenka: Revitalizacija Baranjskih pustara / Revitalisation of Baranja "pustare". In: *Drugi hrvatski ruralni parlament - Interdisciplinarnom suradnjom do bolje kvalitete života u ruralnim prostorima*. Hrvatska mreža za ruralni razvoj: Sveti Martin na Muri, 2017.
- MINISTRY OF CULTURE AND MEDIA (2023). Pretraživanje Registra kulturnih dobara Republike Hrvatske / Searching the Register of Cultural Properties of the Republic of Croatia. [Online] Available from: <https://registar.kulturnadobra.hr/#/> Accessed [07/06/2023].
- OFFICIAL GAZETTE (2021). Nacionalna razvojna strategija Republike Hrvatske do 2030. Godine / National Development Strategy of the Republic of Croatia until 2030 [Online] Available from: [https://narodne-novine.nn.hr/clanci/sluzbeni/2021\\_02\\_13\\_230.html](https://narodne-novine.nn.hr/clanci/sluzbeni/2021_02_13_230.html) Accessed [16/05/2023].
- OLSBORG SPI: Studija izvedivosti projekta novog studijskog kompleksa u Hrvatskoj / Feasibility study of the project of a new studio complex in Croatia. Ministry of Culture and Media of the Republic of Croatia, Zagreb, 2020.
- PAVIĆ-ROGOŠIĆ, Lidija: Globalni ciljevi održivog razvoja i ruralni prostor / Global goals of sustainable development and rural areas. In: *Treći hrvatski ruralni parlament - prezentacija*. Hrvatska mreža za ruralni razvoj: Vodice/Tisno, 2019.
- PÉNZEŠ, János, DEMETER, Gábor: Peripheral areas and their distinctive characteristics: The case of Hungary. In: *Moravian geographical Reports*, 29(3), pp. 217-230. The Czech Academy of Sciences and Institute of Geonics, Ostrava-Poruba, 2021.
- RADELJAK KAUFMAN, Petra: Metoda scenarija u istraživanju i planiranju prostora / Scenario Method in Spatial Research and Planning. In: *Hrvatski geografski glasnik*, 78(1), pp. 45-71. Hrvatsko geografsko društvo, Zagreb, 2016.
- RAUHUT, Daniel, DA COSTA, Nuno Marques: Territorial Cohesion in Denmark, Finland, Norway and Sweden 2007 and 2017. In: *Geografisk Tidsskrift - Danish Journal of Geography*, 121(1), pp. 1-14. The Royal Danish Geographical Society, Taylor & Francis, Oxfordshire, 2021.
- RAVAS, Mirela, STOBBER, Dina. Pregled prostornograditeljskog potencijala pustara u ruralnom razvoju Baranje / Review of Spatial Building Potential of Pustara Settlement in Baranja's Rural Development. In: *Urbano ruralne veze*, pp. 187-195. Institute for Spatial Development, Zagreb, 2017.
- ROTHMAN, Dale S.: A Survey of Environmental Scenarios. In: *Environmental Futures: The Practice of Environmental Scenario Analysis* (ed. Alcamo, J.), pp. 37-65. Elsevier, Amsterdam, 2008.
- SAVEZ ENERGETIČARA SLAVONIJE I BARANJE (2023). Društvo energetičara Osijek u obilasku bioplinske elektrane Mitrovac-Belje / The Osijek Energy Association on a tour of the Mitrovac-Belje biogas power plant. [Online] Available from: [http://www.energeticar.hr/index.php?option=com\\_content&task=view&id=138&Itemid=1](http://www.energeticar.hr/index.php?option=com_content&task=view&id=138&Itemid=1) Accessed [09/06/2023].
- SHEARER, Allan W.: Approaching Scenario-Based Studies: Three Perceptions about the Future and Considerations for Landscape Planning. In: *Environment and Planning B: Urban Analytics and City Science*, 32 (1), pp. 67-87. Sage Journals, Thousand Oaks, 2005.
- STRZELECKA, Elzbieta: Rewitalizacja Miast w Kontekście Zrównoważonego Rozwoju / Urban revitalisation in the context of sustainable development. In: *Budownictwo i Inżynieria Środowiska*, 2 (4), pp. 661-668. Wydawnicza Politechniki Białostockiej, Białystok, 2011.
- VOGELIJ, Jan: Fifteen Steps towards Territorial Cohesion. ECTP-CEU, Bruxelles, 2010.
- ZAGROBA, Marek, GAWRYLUK, Dorota: Revitalisation as a Method of Planning Sustainable Development of Old Town Complexes in Historic Towns. In: *IOP Conference Series: Earth and Environmental Science*, 95 (5), 052002. IOP Publishing, Bristol, 2017.
- ŽIVKOVIĆ, Zdravko, HORVAT, Manja: Pustare na Belju / "Pustare" in Belje. In: *Tri stoljeća Belja*, pp. 421-430. JAZU, Osijek, 1986.