

STRATEGIES FOR THE REVITALIZATION OF THE WATERCOURSE LANDSCAPES: A CASE STUDY OF THE LIELUPE RIVER



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Abstract. River tourism is a popular type of recreation across the globe. There is a strong tradition of river tourism in Latvia, mainly boating and rafting in wildlife areas. Zemgale district, with its slowly flowing rivers and predominantly agricultural landscape, is not among the most popular boating destinations. However, the main river of Zemgale – Lielupe River has a tremendous history of river shipping traffic, which nowadays is largely neglected. Seeking a way to revive this kind of river traffic, this paper examines the river's forces on human society to find a way of river traveling that is compatible with ecological and human comfort necessities. The territory of the Lielupe River floodplain section from Bauska to Sloka towns is characterized according to a travel perspective, considering a passage both on the river and alongside it. The sustainability of the territory is analyzed from the aspects of accessibility, attractiveness, and environmental quality. Since river travel is not imaginable without public access to the riverbank, this paper discusses the development of public waterfronts. It proposes examples of tourist routes along the river and the development of public infrastructure for shipping and boating. The places and character of primary development are considered. The research fits in the framework of the policy of sustainable development of the Latvian countryside. **Keywords:** landscape planning, sustainability, river tourism, waterfronts

Introduction

Human habitats emerge near rivers for several reasons related to the basic needs of human beings, as described in the hierarchy of needs by Abraham Maslow [1]. The beneficial impact of river presence is noticed in every basic need of humans. It is a source of food, a guardian, a provider of new routes, and an establisher of relationships, as well as a developer of self-esteem [2]. The interaction between rivers and humans is the most important realization in port cities. As the sea is the ultimate destination for every river, the port is the ultimate substance fulfillment for a city, with the utmost manifestation of both positive and negative features. Looking at the growth of ports [3], a common problem can be noticed, which is true for every feature of human impact – that the uncontrolled growth of infrastructure outgrows the capabilities of the environment to sustain it and finally destroys both itself and the environment. Therefore, sustainable development planning, which correlates the scale of development with the capabilities of the location, is crucial. The attempts to revitalize the areas previously depleted by the overgrowth of industrial development since 1970ties have brought ideas of the viability of new efforts [4]. Several institutes have formulated their recommendations. "Cities on Water" offers the following territorially oriented principles of successful revitalization: 1) Secure the quality of water and the environment; 2) Waterfronts are part of the existing urban fabric; 3) The historic identity gives character; 4) Mixed use is a priority [5]. "Project for Public Spaces" again defines the following socially oriented principles: 1) look first at the public space; 2) make sure public goals are the primary objective; 3) build on existing assets and context; 4) create a shared community vision; 5) create multiple-use destinations by tapping the "Power of 10"; 6) connect destinations along the waterfront; 7) maximize opportunities for public access; 8) balance environmental benefits with human needs; 9) start small to make big changes [6]. The common thing among these points is that river and water features provide a multi-faceted and multifunctional value that cannot be reserved for only one need. Therefore, public access means a multifunctional approach. The second idea is to create harmony between water and human environments. Humans should feel at home by the river, not in a place that is somehow strange and unfamiliar. The water itself makes the difference. Therefore, it is suitable to place buildings of all kinds of use near the river if the collaboration of water and building masses is considered. A variety of public-use building functions is used in contemporary waterfront development projects: 1) commercial; 2) culture, education, environment; 3) historical; 4) entertainment; 5) industrial; 6) residential [7]. Their challenge is to create a new model of coexistence where humans and nature supplement each other. As a part of this new coexistence, environmental tourism, and recreation must be considered. Term recreation (from Latin *re* + *creation*) includes the idea of human beings experiencing the processes of dismantling the original creation in a manmade environment, and its (creation's) need for renewal. Humans return to the natural environment, especially water, to renew themselves. Since renewal is

more a process than a position, it is accompanied by sensible acts, which are best described as a road or being together on one's path. In the same way as planning a local landscape is done, one can plan a landscape of movement instead of a fixed design using a dynamic type of design. Nowadays, this kind of planning is enhanced by modern technologies, which can depict a landscape not in picture type but like a movie or a view with a time dimension [8]. British architect Gordon Cullen defines this as "serial vision" [9]. It emerges from the human sense of environment - from the need to feel 'here' - the environment where the spectator is now and the eyesight given the possibility to see the environment which is 'there.' The tension between 'here' and 'there' creates the notion of making 'there' into 'here.' This is important for movement motivation, for it explains why human beings move from one place to another. If the space is not plain and transparent so that a human may climb to a high place and see all the surroundings as the 'here' place without the intrigue of 'there,' then such an intrigue moves a human toward exploration – to go 'there' and see and feel. This intrigue and intrigue-based movement is rooted in the hierarchy of needs. It offers the possibility of fulfilling the needs or the possibility of danger; therefore, it is an important element of environmental planning. Relating this pattern of exploration toward a river, one can distinguish the following types of journeys: paths of everyday life, evacuation routes in case of a flood, recreation routes, and sports distance. Every type has its specifics, but mostly, all demand straight routes and quick passage. Only the recreation route demands the experience of esthetical discovery. Therefore, the river, with its curvy flow, provides needs for recreational purposes, leaving the fulfillment of other needs for another means of transportation. Two basic types of passage can describe the time-space experience of the journey. Architecturally, it is solved as two types of connecting spaces: corridor (Fig.1.1) and enfilade (Fig.1.2). Man-made connections are usually made like corridors – straight segments connecting two functional destinations. A typical feature of a corridor is its separation from surrounding spaces. Their advantage is providing privacy for the adjacent spaces, but the main disadvantage is a lack of purpose other than transportation from one point to another. On the contrary, Enfilade is designed for gradual flow, with many opportunities for flow regulation and the organization of public spaces based on hierarchical and scale-based principles [10]. Enfilade in open spaces is mostly connected with the need to achieve emotional intensification during a visit to a prominent person. The arrangement of spaces prepares the visitor for the most important. Concerning the character of river flow, the most appropriate description would be enfilade because a river is an arrangement of experiences the water encounters in a certain location. Water's sense of place is what creates river space. Riverbeds, banks, and floodplains emerge out of the interaction of water with ground structures, water capturing the sense of 'here,' feeling its space. Traveling along a river, the traveler can share the water's experience and feel not only sights but the character of

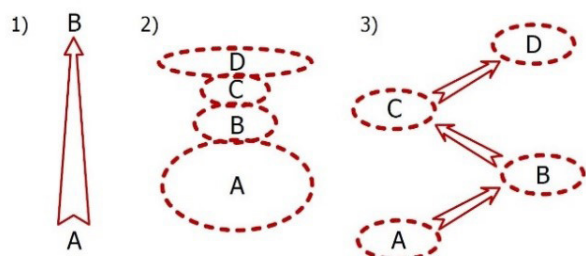


Fig. 1.1-1.3. Types of passage between different spaces. A to D – stages of passage [Cērpis, 2025]

interaction, thus learning to encounter his own life experience – a lesson that cannot be learned in man-made corridors. In real-life situations, every journey consists of both principles, combining their advantages. Tourists quickly reach their destinations, where they can slowly process through the place, capturing its sense. Journey planning can be expressed as the order of several such places of sense connected not by thresholds but by various corridors (Fig.1.3). Tourism, especially country tourism nowadays, offers not only the usual 'sightseeing' but much more 'life-experiencing' for acquaintance with lifestyles inaccessible to city inhabitants. That supposes considering not only esthetical considerations but also social aspects during route planning. The cultural landscape comprises local inhabitants' daily and festive activities and traditionally noticed architectural and natural features. Characteristics of successful tourism destinations have been formulated by institute "Project for public spaces": 1) Surrounding Buildings Enhance Public Space; 2) Limits are Placed on Residential Development; 3) Activities go on Round-the-Clock and Throughout the Year; 4) Flexible Design Fosters Adaptability; 5) Creative Amenities Boost Everyone's Enjoyment; 6) Access Made Easy by Boat, Bike and Foot; 7) The Water Itself Draws Attention; 8) Local Identity is Showcased; 9) Iconic Buildings Serve a Variety of Functions; 10) Good Management Maintains Community Vision [11]. Summarizing these points, one can see that a successful tourism destination is a public, multi-functional space accessible to different people with different ideas and a place of experimentation and cooperation.

The paper introduces the concept of sustainable public waterfront development as applied to the Lielupe River section from Bauska to Sloka.

Materials and Methods

Territory is studied according to the specifics of the given topic, and evaluation is done according to the stated goal of vitality – a diverse, publicly accessible, and attractive river landscape. For this purpose, description criteria based on diversity, sustainability, and resilience are proposed to represent the accessibility, attractivity, and environmental quality of the landscape. In order to provide a more detailed evaluation of the landscape and to represent the dynamics of change, the territory is divided into 19 landscape areas – territories with common characteristics and visually united structure. Landscape passports have been created to characterize these landscape areas and provide transparency in research.

The evaluation criteria. Accessibility is a critically necessary feature for public landscape, and several components specify it: 1) distance to the driveway; 2) road surface material; 3) availability of transportation hubs and connectivity; 4) pedestrian and cycling infrastructure; 5) water transport infrastructure; 6) type of property ownership. Attractivity is characterized by the esthetical viewpoint and the availability of public objects. The following components have been chosen: 1) objects of cultural and public activities; 2) objects of public services; 3) objects of local identity and landmarks; 4) viewpoints of particular esthetical quality; 5) natural objects of importance; 6) character of local building. Environmental quality and comfort define whether the interaction of society and nature provides sustainability and resilience for both sides. In-depth research of the ecological situation of a given territory is done by LVGMC (Centre of Latvian Environment, geology, and Meteorology) in the "Plan of flood-risk management and catchment basin management of Lielupe River for years 2022 -2027" [12]. The needs of the current research are provided by visual evaluation. The following components are chosen for the criterion: 1) natural diversity, 2) riverbank quality, 3) floodplain quality, 4) windiness, 5) safety, and 6) amenities.

Results and Discussion

The research results show that vitality is the leading indicator for the success of revitalization measures. The presence of the river is vitalizing itself, as shown previously, which means that solving the revitalization of river space mainly includes finding the obstacles preventing a river from performing its natural function. Therefore, one success factor for revitalization is accessibility. The possibility of transportation along the river is essential. The survey shows two main factors that influence accessibility – the presence of roads and restrictions due to private property. Restrictions show more influence since one can restrict access even if the road quality is good. That is why the public state of the territory is the primary key to success and vitality [13]. It obliges the owner of private property to realize himself as a part of society and to find a way to increase his well-being and that of all of society. Thus, the belonging tier of Maslow's hierarchy of needs is stimulated, and the added value of vitality is created. This added value is primarily generated as a service of hospitality or tourism, which private owners near the river provide. A higher stage than local service may emerge by creating a whole tourism route that demands the cooperation of individual landowners and the creation of a public initiative. In such a way, it may turn into the revitalization of the society, which is the main goal – to activate the society along the river and give it an identity larger than the private backyard. That correlates with the balance of rights and responsibilities and the understanding of land property as a part of one's part of social responsibility. This responsibility is reflected in the criterion of environmental quality, which is an equally important factor of vitality. At the same time, it is strongly connected to sustainability. One can say that sustainability is the second name for vitality because vital is everything that can sustain its energy of life. The river's ecological quality is the primary premise for further revitalization activities. With uncontrolled access to water objects, their surroundings may turn into waste disposal areas. To prevent that is the role and positive value of private property. The third function of private property or human presence is the creation of the attractivity of a place. The added esthetical value of the area raises interest in other people coming and seeing it. The necessary parts for reaching the goal of revitalizing the river landscape are: 1) measures to improve the quality of the environment and provide sustainable management; 2) measures to improve accessibility; and 3) measures to offer objects of attractivity. These three steps form a concept of the public river Lielupe.

Further elaborations of this concept include a close focus on accessibility, leaving the design of the attractivity objects to local entrepreneurship efforts, and locating the zones of optimal placement for such objects. Revitalization measures are complex – they include territorial and social aspects [14]. The same relates to route planning since the road also consists of these two aspects – territorial and social. Therefore, two proposals are considered for a cultural landscape: environmental and social activities. Social activities can be divided into usual cultural and festive events, sightseeing, and not-so-usual activities connected to traditional rural households and agriculture. The territorial aspect is represented in the sequence of the touristic route. The previously detected landscape areas can be used to evaluate this sequence. It is not good to keep human attention in constantly increasing tension since it grows wary very soon, and the route could be abandoned without reaching its destination. Therefore, it is better to vary places of tension with places of relaxation. It correlates with the human rhythms of life [15], where growth alters with decline, and focus alters with distraction. This rhythm of increasing and decreasing attention is shown as three-a stage index given to the landscape areas (Fig. 2). They are 1) destination, which is the space with the maximum level of attention created by high-level indexes of attractivity, accessibility, and environmental quality; 2) secondary destinations, which are places with several high-level indexes of attractivity, not so much influenced by other criteria and 3) transitory zones, which offer the least levels

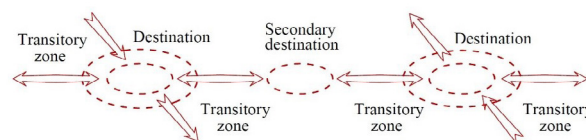


Fig. 2. Stages of the route [Cērpis, 2025]

of attractivity and primarily serve as a place of relaxation before the attention arousal given by two other positions. These stages may also relate to property type: 1) mainly public area with state or municipality-owned property; 2) semi-public area with mixed-type property; 3) mainly private property with restricted access. The correct sequence of these stages helps to keep the flow of the route and maintain its vitality.

A successful tourism route must consist of all three stages, starting and ending at the destination stage. Thus, one must first seek destinations, which are areas with good and diverse connections, and then draw possible routes to desired neighboring destinations, trying to include enough secondary destinations en route to provide the necessary attractivity. This method will be applied to a case study of the Lielupe River.

Case study. Potential tourism routes

along Lielupe River

Why Lielupe? The following factors have been considered when choosing the research area: 1) it is one of the big Latvian rivers with its characteristic river-generated landscape; 2) it is a river with a dominative proportion of cultural landscape, so it has a rich history of interaction between natural and human environment, 3) compact length fit for the scale of research, 4) diversity of landscape and river functions. The human component of the river landscape at first enclosure seems to fit the pattern of route development since it is symmetrically built – its flow is marked by three towns at its beginning, middle, and end and some smaller settlements in between. Thus, it can be a good example of drafting a route. Based on the scheme of Figure 2, it is possible to extract two routes: 1) Bauska – Jelgava (Fig. 3) and 2) Jelgava – Sloka (Fig. 4).

Route 1, part 1. Nature and cultural landscape

route Bauska – Mežotne. Nature park “Bauska”

Routes can be planned from the upper part of the Lielupe River downstream as it parallels a possible route for the boat trip. Thus, the town of Bauska is the right place to start. According to the Bauska Centre of Tourism Information Route Bauska – Rundāle is one of the most popular routes in Latvia, and Rundāle palace is an object of ultimate recognition on a European scale. Lielupe River flows along this major route, but somehow, its picturesque valley has remained absent from the focus of most travelers. The end of this part of the river route is in Mežotne – a location of rich historical, cultural, and scenic value slowly emerging out of neglect and gaining its deserved attention at the side of Rundāle palace. The main characteristics and proposed actions for the vitalization of the route are as follows.

Environmental quality. The advantage of the route is the status of the territory of Natura 2000, which means it is properly maintained and monitored by environmental protection services. **Accessibility.** The main access road is an old route along the river, which has been largely neglected since the construction of the new highway Bauska–Eleja. This is an advantage, though, for creating a slow-speed road fit for pedestrians, bicycling, and even horseback riding, developing the necessary amenities. It is recommended that big tourist buses are kept out of this scenic road. The opposite riverbank remains reserved for private property with limited access. **Attractivity.** The total attractivity of the route is higher than average even if not all the attractivity objects are handled the best way. The main challenge is to find the necessary activities to attract the public interest. The unifying activity for this part of the route would be sightseeing and recreation for a weekend. **Connections and links to other routes.** Guest houses in Mežotne and Rundāle offer the possibilities for staying for a night and continuing the journey in two main directions – 1) following the river flow to Jelgava or 2) Dobeles with side destinations at Eleja and Tērvete. Additional linkage for the first direction could be visiting another palace of Rastrelli. The second could be the rich historical heritage and scenery of Zemgale Plain. To keep with the river route, we should seek objects that attract attention in this direction.

Route 1, part 2. Countryside cultural landscape

route Mežotne – Jelgava

Unlike the previous route, a significant contribution to the revitalization of the landscape is needed here to be considered attractive to tourism. One offer that could be developed from this perspective is estate tourism, which is the intermediate link between castle and rural tourism. Historically, it can be seen that the network of estates along

the Lielupe River has been quite thick. However, currently, below Mežotne, none of them is involved in the initiative of the Latvian Palace and Manor Association. A more realistic option, therefore, is to create a rural cultural landscape route, not emphasizing estates but offering a view of the countryside where an element of estates is included, among other elements, matching sightseeing objects that reflect the countryside's history, daily activities, and festivities. Stalģene village, which provides the processing of agricultural products, cultural life, education, and historically important buildings, serves as the local center of rural life. Such a combination creates a potential point of gravity to orient the flow of rural tourism. The point can be expanded into an attractive area to include the culturally historically significant Salgale and “Auči” estate of the first President of the Latvian Republic, Jānis Čakste. Such a district can create enough offers for full-day or weekend activities. From the point of view of water transport, the total length of the route is approximately 40 km; such distance cannot be accomplished by rowing boat within one day; therefore, it should be divided into two sub-sections, Bauska – Emburga and Emburga – Jelgava. Emburga is traditionally the destination of river vessel traffic, so this split may also include changing the vessel from a rowing boat to a motorboat. Such a change provides an opportunity for another type of transport change, such as bicycle or hiking. This, in turn, creates an opportunity for a hospitality service offering in Emburga or Stalģene. Here we mark the route node where several travel options meet.

Part Mežotne – Stalģene. Environmental quality. Since, at this stage, the river is surrounded by agricultural areas for almost the entire length of the river, the most topical measure to ensure the quality of the environment is to prevent the establishment of arable lands in the floodplain area instead of taking measures to preserve or restore the grasslands. This can be facilitated by granting ecologically sensitive status, subsidies, or the education of farmers in environmental matters. **Accessibility.** To improve accessibility, it would be critical to asphalt the existing gravel road in the Mežotne – Stalģene section. This would be the necessary infrastructure for cyclists and pedestrians alike. From the point of view of water transport, coastal accessibility can be ensured by restoring the grasslands. On the upstream side, approximately till Emburga, such a measure is enough to draw boats and let them into the water. **Attractivity.** The main attractiveness of objects of the area lies in the cultural and historical heritage of Emburga and Salgale, which, unfortunately, is in a poor state, so it requires revitalization solutions that are more social-related, namely economic development and population growth, to generate a critical mass for the restoration and revitalization of public infrastructure. The unifying activity of the area includes rural products and everyday lifestyle. **Connections and links to other routes.** This is a linear route with slight variation. As one gets to Stalģene, choosing one way from three is the only possibility to get to Jelgava. The logical destination is Jelgava, which offers a wide range of following destinations.

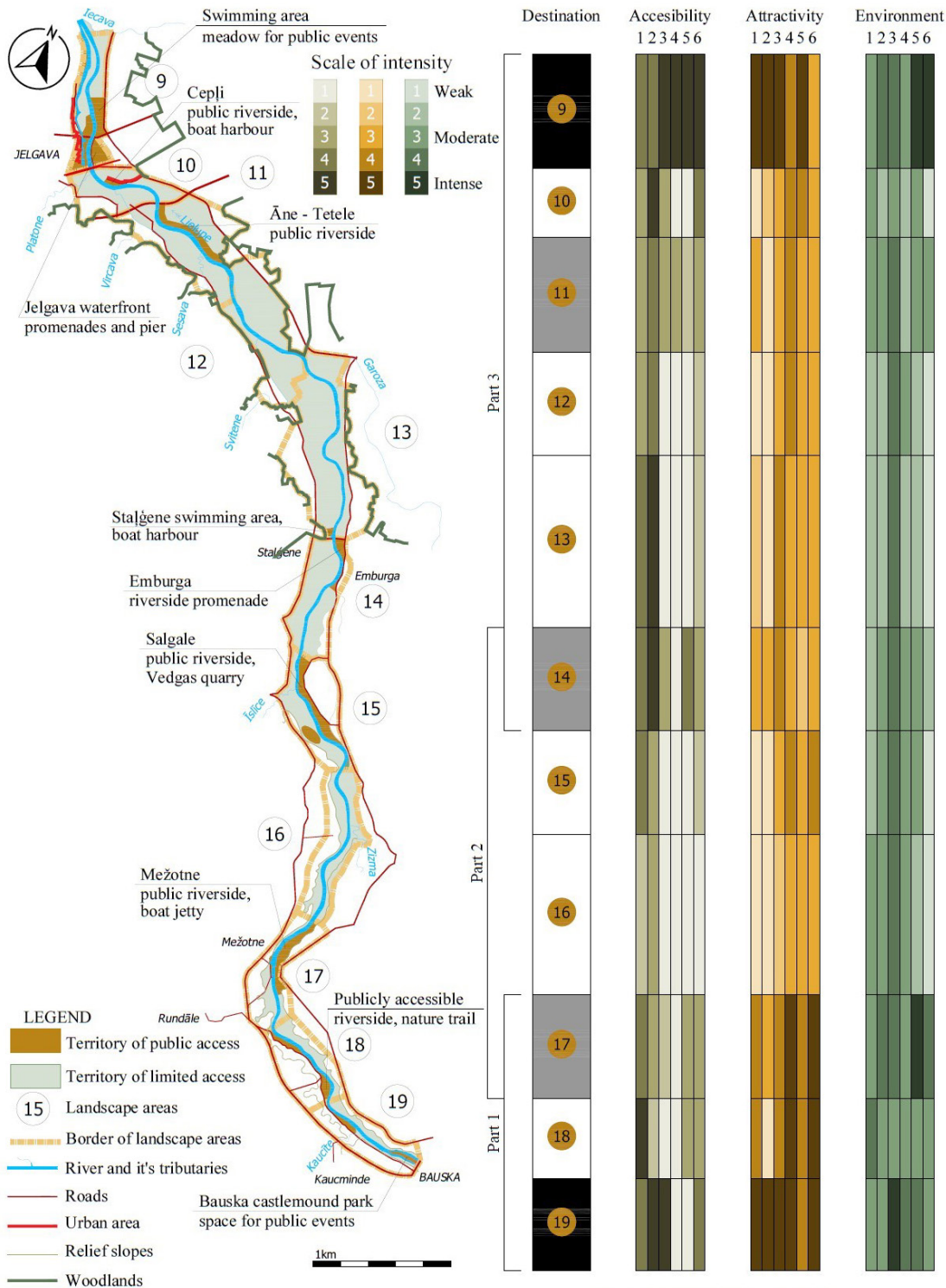
Part Stalģene – Jelgava. Environmental quality. At this stage, the agro-landscape of the Zemgale Plain changes to the woodland of the Piejūras lowland, the flow of the Lielupe River becomes slower, and the width of the valley increases. Here, too, the state of the floodplain meadow ecosystem needs to be given main attention. In addition, wildlife appears here, which can serve as a source of appeal. Particular attention should be paid to the state of the riverbanks, protecting them from erosion. **Accessibility.** This section of the route is quite remote and sparsely populated, so access to the river would be required at larger settlements. The considerable width of the valley requires boating to use the tributaries of the Lielupe River to get from the edge of the valley to the river itself. Svitene River is used to access Vecsvirlauka village and Garoza River to Garoza village. Closer to Jelgava, starting in Tetele, public and private boat jetties must be developed, with the possibility of staying there longer. **Attractivity.** This stage is like a transition between the countryside and the natural landscape. The man-made attractions cluster near the end points of the section, while the middle is plagued by calm. Enjoying peace by swinging in river waters and breathing the air of meadows and woodland to welcome the city's approach with a new boost of impressions is a key element of attraction at this stretch of the route. Closer to Jelgava, starting from Pūciši cemetery, a scenic stretch begins with ensembles of former estates on the riverbank, choosing former Tetele and Ane estates as points of public infrastructure. There is also a need to develop service infrastructure

and potentially restore an old tradition for urban trips by nature, expanding the availability of holiday homes and, in particular, water rest. Unifying activity – holiday rest. **Connections and links to other routes.** It is a section with increased attention leading to Jelgava as the route's destination. Traveling from Jelgava as a large-scale transport hub in all directions – by train, car, and water transport is possible. While remaining in Jelgava, it is possible to create separate river routes, the attraction objects overlapping with the longer routes. These routes are circular since it is possible to do them by departing from Jelgava and returning there. This would be consistent with the old habit of Jelgava citizens in arranging entertainment trips to suburban estates to spend their spare time there. Langervalde and Tetele were popular places. Ozolpils and Valgunde are in the

opposite direction at a similar distance. These can be the outermost points reached by river transport within a reasonable period of time. An additional amenity is the availability of public city bus transport within these borders.

Route 2. Nature route Jelgava – Sloka - Jelgava

The total length of the route in one direction is approximately 45 km. As this is a stretch of the lower Lielupe River, where the river is broad and deep, an officially navigable stretch, the primary focus should be on the traffic of larger-gauge craft, resp., ships and motor boats, and the corresponding infrastructure. As opposed to the development of river transport, the environment is becoming more and more wild, so this is rightly called a natural route. It is located in the important



Explanation of Criteria - see Fig.4

Fig. 3. Evaluation of the qualities of the route 1 Bauska – Mežotne – Jelgava [Cērs, 2024]

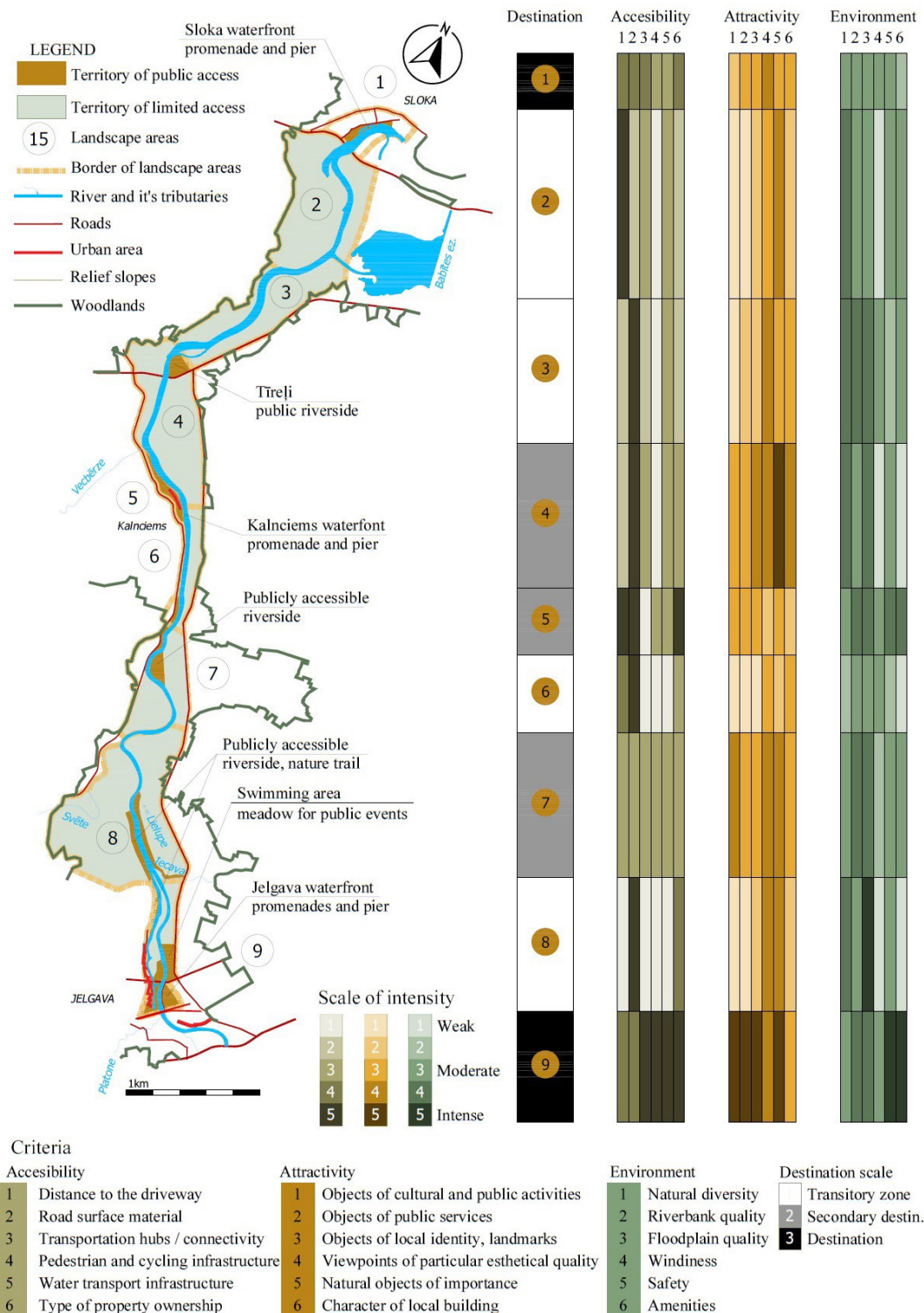


Fig. 4. Evaluation of the qualities of the route 2 Jelgava – Sloka [Cērs, 2024]

landscape area of the Lielupe Valley and the Ķemeri National Park, and the essential objects of the territory are related to nature values and their protection. The nature of the route is more for watching than for activity-oriented measures. Nature and its occupants serve as objects of attraction here. Unlike the upper Lielupe route, it is not desirable to divide this route into smaller sections since the planned speed of travel is higher, so the agglomeration of Kalnciems situated in the middle of the section does not serve as a place of stay, but rather as a stop for essential services. A separate Valgunde landscape area is to be distinguished as a place for holiday recreation to enjoy the landscape of rural life and the scenic river curves of the Lielupe River. The route can also be carried out parallelly along the road on both sides of the river, which means that a combination of modes of transport is possible, for example, by taking a bicycle on board and then continuing on the road from a further stop. The other difference is that this route can be used in both directions.

This means that each landscape area can have a dual visual function, depending on the direction of the view.

Environmental quality. The advantage of the route is that a large part of the adjacent areas are Natura 2000 sites. The environment's quality here demands increased attention and is monitored by the services responsible. The remaining areas must comply with the conservation rules for the floodplain meadows. In addition, the conditions for maintaining polder grasslands, protective ramparts, and necessary infrastructure must be maintained in this area. **Accessibility.** Overall, river accessibility is above average at this stage. The Tušķi – Kalnciems road has been included in the planning documents of the municipality [16] as a road with exceptional landscape value but has not been asphalted. Improving its coverage and equipment would also provide a better opportunity to revitalize potential attraction objects. Widened road borders

for parking should also be planned in favorite fishing areas. The jetty at the old location of the ferry has to be connected to the Riga -Liepāja highway and the means of transport it offers. Optimizing the cycle route requires solving the Gāte crossing, possibly with a pedestrian bridge. **Attractivity.** Historically, this has not been a densely populated area; few cultural and historical sites exist here. Instead, a natural landscape must be maintained and protected to be a significant attraction. Basic attention should be paid to the social climate and well-being of the settlements, particularly Kalnciems and Sloka. The Sloka riverfront needs to undergo a cardinal transformation, restoring its former qualities and giving a solution according to contemporary requirements. Both locations must renovate or create a central square linked to the riverfront space. In the vicinity of Celmaugciems (part of Kalnciems), it is necessary to connect the riverbank and the residential area and maintain or partially improve it. **The unifying activity** includes nature tourism, recreation trips, and ship traffic. **Connections and links to other routes.** Transport nodes are at the end of the route and potentially at the Riga -Liepāja highway crossing, where access to public transport is currently impoverished. In the case of both Sloka and Jelgava, transport accessibility is excellent and varied. In Sloka, a continuation of shipping traffic to Majori and Riga should be planned. In Jelgava, it is necessary to consider improving traffic connectivity and extending the function of the planned bus station and Railroad Station complex to include the river traffic station in the nearest suitable location. The two destinations must be closely linked to Riga; therefore, it is an advantageous possibility for the inhabitant of Riga or tourist to make a boat travel on the Lielupe within one day.

Public spaces

Planning and design ideas are offered for public space development. Priority spaces with a developed public component are designated as follows: 1) Bauska Castle Mountain Park, applicable measures – maintenance of existing public infrastructure and equipment for boat embarkment and disembarkment; 2) The left bank of Lielupe along the old road to Bauska, the applicable measures – development of pedestrian and bicycle infrastructure, placement of information stands regarding cultural history and nature values, designing stops at places of most expressive views; 3) The right and left river banks at Mežotne, the applicable measures – maintenance of meadows, establishment of infrastructure for public events – car parking, picnic places, placement of information stands regarding cultural history and natural values, equipment for boat embarkment and disembarkment; 4) Salgale riverbank and Vedgas quarry, applicable measures – establishment of a recreation space with a picnic place, establishment of an infrastructure for public events near the church – car parking, location of information stands regarding cultural history values, equipment for boat embarkment and disembarkment; 5) Emburga waterfront, applicable measures – maintenance of floodplain meadows, establishment of infrastructure for public events – car parking, picnic places, information stands regarding cultural history values, equipment for boat embarkment and disembarkment; 6) Stalģene boat harbour – establishment of water transport and swimming facility infrastructure; 7) The waterfront of Ane – Tetele, the applicable measures – development of pedestrian and bicycle infrastructure, establishment of recreational places; 8) The shore of the Cepļi neighborhood – the establishment of a boat harbour and public recreational infrastructure; 9) Jelgava pier – newly established connection with the public traffic hub; 10) Jelgava promenades – additional measures are not being proposed; 11) swimming facility at the end of the Robežu Street – establishment of public recreational infrastructure; 12) the banks of Valgunde-1 and Vārpa polders – creation of a nature trail, equipment for boat embarkment and disembarkment; parking place for anglers' cars; 13) site of Valgunde Manor – establishment of a public boat jetty for the use of guesthouses, rental of water bikes, on the opposite bank – establishment of a nature trail; 14) Kalnciems coast promenades – a maintained natural riverside with place and equipment for outdoor activities, development of pedestrian and bicycle infrastructure, equipment for the boats' traffic, next to the local municipality building – an expanded and improved ship jetty; 15) Kalnciems Manor site (Tīreļi village) – establishment of a public jetty, car parking and equipment for the boats' traffic, information stand; 16) Sloka Coast Promenade – a set of measures for the establishment of a representative urban waterfront.

Conclusions

Recognizing that the development of waterfronts is an endless and necessary process but can never be completed, just as the river flow is never-ending, it can be concluded that the solutions presented in this paper are just one step toward revitalizing the Lielupe River landscape. The complement of this will surely trigger the following stages, which will be just as interesting and helpful for further healthy and vital interaction of humans and nature. Finding the right impact points is also essential to start the process. In this case, we see the Sloka town as a critical point whose development would revive a considerable area upstream. The second point of impact is the Salgale neighborhood. Improving these objects could start a more serious development of tourism infrastructure in the Lielupe area. Regarding river traffic, it is visible that the intensity of private traffic is increasing, and solutions will soon be needed for its organization and optimization, which could be a separate theme for exploration. The focal point for further development should be sustainability and resilience, i.e., finding the correct scale and intensity of interaction between human needs and natural capacity, which could benefit all.

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Kopsavilkums

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