



PLANNING AND DESIGNING INFRASTRUCTURE AND SERVICES FOR SUSTAINABLE BICYCLE TOURISM ALONG THE EUROVELO ROUTES IN THE DANUBE REGION

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Abstract

Before the Covid-19 pandemic air travel was growing steeply and “flight shame” became one of the catch phrases of the climate crisis. Too often urban citizens undermined eco-friendly workday mobility with long-distance holiday air travel. The arrival of the Covid-19 pandemic posed new challenges. The recreational needs had to be satisfied by domestic tourism closer to home. There is a need for innovative sustainable tourism products and concepts to respond to both of these trends. Bicycle tourism combined with public transport for destination access and egress is a promising candidate for low carbon and regional tourism concepts. The Danube region is among the most important European cycle tourism destinations. A long stretch of the EuroVelo route 6 follows the river Danube, other EuroVelo routes cross the region. The European Interreg-project EcoVeloTour combines three main elements to support new sustainable tourism concepts in this corridor: ecotourism, use of public transport to access the destination or starting and final points of cycle tours and cycling within the destination region. Key elements of the EcoVeloTour approach are sustainable mobility and ecotourism guidelines. The guidelines utilize synergies between sustainable multimodal mobility planning, including cycling infrastructure, and cyclist ecotourism related services and ecotourism development (e.g. destination management, marketing, product development) along the EuroVelo routes. The guidelines for sustainable bicycle tourism provide a comprehensive basis for planning and improving all relevant mobility-related infrastructure and services. The chapter “Infrastructure for high-level bicycle tourism” deals with relevant road infrastructure elements like different types of tracks, intersections and roundabouts, route signposting, bicycle parking, shelters for cyclists, lighting and maintenance. The chapter “Transport services and intermodality” addresses public transport use for transfers to origin and from final destination of bicycle tours. It describes infrastructure, information and services needed at intermodal nodes. Regional bicycle tourism strategies and pilot projects are elaborated based on the EcoVeloTour guidelines. An interactive self-assessment tool to support strategy development and pilot actions of the regions was developed and tested in transnational learning interactions.

Keywords: bicycle tourism, ecotourism, intermodality, public transport, infrastructure

1 Introduction

Before the Covid-19 pandemic air travel was growing steeply. In the decade 2009-2019, the number of air passengers worldwide increased from 2.6 to 4.5 billion [1]. This corresponds to a growth of 80 per cent. The annual growth rate varied between 3.6 per cent (2018) and 8.7 per cent (2009). In the same period, the number of passenger kilometres travelled increased

from 4,565 billion to 8,686 billion. This corresponds to a growth of 90 per cent. The average length of a flight increased by around six per cent. As air travel is the source of large amounts of greenhouse gas emissions, “flight shame” became one of the catch phrases of the climate crisis and the Fridays for Future movement [2]. In the past urban citizens have undermined their eco-friendly workday mobility too often with long-distance holiday air travel. This trend calls for innovative products and concepts to mitigate the climate crisis and create a sustainable future tourism sector. Bicycle tourism combined with public transport for access and egress of holiday destinations is a promising candidate for future low carbon tourism concepts. Arrival and departure of the average cycling tourists is much more climate-friendly than that of the average summer tourists. Arrival and departure of the average German cycling tourist produces 56 kilogram CO₂ emissions while the average German tourists produces 248 kilogram CO₂ emissions [3]. While cycling tourism is still a niche market, its popularity was continuously rising in recent years. In 2018 about four per cent of the summer tourists in Austria stated cycling as the main motive for their summer holiday [4]. In Germany the number of cycling tourists increased from 4.0 million in 2014 to 5.4 million in 2019 [5]. This corresponds to an increase of 35 per cent in five years or an average yearly growth rate of six per cent.

The arrival of the Covid-19 pandemic in Europe posed new challenges for our society in general and the tourism industry in particular. Travel restrictions and lockdowns had a severe impact on tourism. In the year 2020 tourism suffered its deepest crisis. International arrivals dropped by 74 per cent worldwide and by 71 per cent in Europe [6]. Under these conditions the basic human need for recreation had to be satisfied by domestic tourism and travel closer to home. Open-air activities, nature-based products and rural tourism have emerged as a popular travel choice [6]. This trend was accompanied by a rising interest in ‘slow travel’ and community-based tourism, linked to a more sustainable, authentic and responsible experience [7]. During summer 2020 cycling tourism has proven its resilience and its capability to satisfy basic recreational needs of a population in lockdown. In such times touristic cycling infrastructure helps to meet the need for physical outdoor activities and hence supports the resilience of cities [8]. During the first Austrian lockdown starting on the 15th of March 2020 mobility in Vienna collapsed by between minus 46 per cent (workplace) to minus 86 per cent (retail and recreation) [9]. Between calendar week eleven and twelve the number of bicycle trips measured by the twelve Viennese automatic counting points decreased by 22 percent [10]. Contrary to this bicycle traffic increased between four and 32 per cent at three locations on routes along riverbeds which have a high share of recreational use. This observation reflects the importance of adequate cycling infrastructure for the local and regional population in times of crisis. Providing appropriate infrastructure for cycling improves the resilience of a society.

The Danube region is among the most important European cycle tourism destinations. A long stretch of the EuroVelo route 6 follows the river Danube and other EuroVelo routes cross the region. On the EuroVelo route 6 between Passau and Vienna a total of 774,000 cyclists was counted in 2019 [11]. About 23 per cent were multi-day tourists, 33 per cent day tourists and 41 per cent everyday cyclists. All these trends and facts form the starting point and background of the Interreg-project EcoVeloTour (Fostering enhanced ecotourism planning along the Eurovelo cycle route network in the Danube region) [12].

2 The project EcoVeloTour

2.1 Study area

The Danube region was chosen as the case study area of the project EcoVeloTour for two reasons. First, as mentioned above parts of the region are already well developed destinations for cycling tourism. Second, the region has a unique natural ecosystem with a highly diverse biological and cultural heritage. Nevertheless, the region faces significant challenges. Some sections of the EuroVelo cycle route network run through less developed regions. As a result, the quality of cycling and tourism infrastructure also varies significantly along the Danube. Apart from the section Passau – Vienna many stretches of the EuroVelo network fail to attract tourists due to their poor infrastructure quality. Insufficient infrastructure and lack of workplaces, especially in rural areas, induce migration within the EU, leading to brain-drain and losses of social and cultural knowledge. This increases economic disparities in the Danube region. The unique ecosystem is negatively affected by increasing anthropogenic interventions. There is a need to change the mind-set towards services provided by nature. The ecosystem services concept provides a promising framework to simultaneously protect and utilise nature in the Danube region. The project team is led by the Municipality of Zuglo in Budapest and includes partners from Austria, Bulgaria, Germany, Hungary, Romania, Serbia and Slovakia. Hence, the study areas include seven of the eight countries along the river Danube.

2.2 Objectives

The main objective of the project EcoVeloTour is to develop coherent regional ecotourism offers along the EuroVelo cycle routes 4, 6, 9, 11 and 13 in the Danube region. The challenges mentioned in section 2.1 are tackled by combining the following three elements: ecotourism, use of public transport to access the destination or starting and final points of cycle tours and cycling within the destination region. The results of this combination are new sustainable tourism strategies and concepts, which can also be applied in similar regions elsewhere. Further sub-objectives of the project EcoVeloTour are:

- Create an environmentally sound management framework, and policy and planning recommendations to integrate ecosystem services into tourism.
- Utilize synergies between Eurovelo cycle route infrastructure and ecotourism development including coordinated inter- and intraregional sustainable mobility planning, ecotourism planning and product development.
- Facilitate the promotion of cyclist ecotourism destinations in the Danube region in line with ecotourism strategies including the implementation of small-scale pilot actions and targeted communication and awareness-raising activities.

The following sections describe the elements that are employed by the project EcoVeloTour to achieve the abovementioned objectives.

2.3 Market research and stakeholder analysis

The starting point of the project activities was a transnational market research about the actual situation and trends of cyclists' ecotourism across the Danube region. The aim of the transnational market research was to get an overview about regional specifics and structures of the tourism sector in the participating countries along the EuroVelo network, focusing on bicycle and ecotourism [13]. The sample consisted of the project partners and relevant stakeholders (e.g. tourism boards, administrative districts) from all seven partner countries.

In total 118 persons took part in an online survey carried out between February and April 2019. The results of the market research illustrate the heterogeneity of the different regions along the Danube. On average 48 per cent of the respondents stated that cycle tourism is a main focus point of their regions strategic positioning in tourism. The variation by country ranges from seven per cent in Romania to 97 per cent in Germany. The respondents from Austria, Germany and Slovakia see the age group 40 to 59 years as their main target group. In Bulgaria, Hungary, Romania and Serbia the main target group is the age cohort 20 to 39 years.

The market research was accompanied by comprehensive stakeholder analysis in the Danube region. In depth interviews with 18 experts from all involved countries have been carried out [14]. The interviews revealed that the stakeholders have positive attitudes towards ecotourism in the Danube Region and see the development of cycling as an important way to achieve the objective of sustainable development. Concerning a common Danube regional marketing strategy, the majority of respondents showed a positive attitude, although some doubts concerning the complexity of this task were raised.

2.4 Tools and guidelines for planning support

The second key element of the EcoVeloTour approach was the development of sustainable mobility and ecotourism guidelines [15], [16]. The aim of the guidelines is to facilitate the development of regional strategies and planning processes. The guidelines utilize synergies between sustainable multimodal mobility planning, including cycling infrastructure, and cyclist ecotourism related services and ecotourism development (e.g. destination management, marketing, product development) along the EuroVelo routes. The guidelines for sustainable bicycle tourism provide a comprehensive basis for planning and improving all relevant mobility-related infrastructure and services. The chapter “Infrastructure for high-level bicycle tourism” deals with relevant road infrastructure elements like different types of tracks, intersections and roundabouts, route signposting, bicycle parking, shelters for cyclists, lighting and maintenance. The chapter “Transport services and intermodality” addresses the topic public transport use for transfers to origin and from final destination of bicycle tours and holiday destinations. It describes the infrastructure, information and services needed at intermodal nodes.

An interactive self-assessment tool was developed on the basis of these guidelines. A mock-up of the tool was tested in transnational learning interactions. During the project EcoVeloTour the tool is used as an instrument to collect feedback from project partners and external stakeholders. The final version of the tool will be part of the EcoVeloTour e-learning platform. The main aim of the tool is to support stakeholders in the early phases the development of strategies and projects. The tool supports the users by asking concrete, practical and detailed questions, e.g.: How easily can tourists travel to your region in an eco-friendly way? How do you assess the maintenance of the bike routes? Is there enough information about bike rental services? Help texts direct users to specific sections of the guidelines if they are in need of support. Nevertheless, this strategic tool is not a substitute for detailed expert planning and assessment.

A more detailed planning and assessment tool for bicycle infrastructure has been developed at the Institute for Transport Studies. This tool enables a detailed quality-assessment of bicycle facilities for sections and longer routes of bicycle infrastructure, as well as whole regions. The tool can be applied to everyday cycling as well as to leisure or touristic routes. The core assessment starts with homogeneous stretches of infrastructure. Characteristic criteria are collected to rank each section according to internationally approved quality criteria. In a second step all intersections along the route are assessed for quality criteria, which are a different set. In a compilation, the average quality of the route or region can be assessed. In a

second step, also signposting and touristic offers like accommodation, gastronomy, resting places, cultural assets etc. can be assessed. The quality of a route cannot be simply defined as a mean value of all criteria values of all individual sections. If some criteria fall below certain thresholds, this cannot be compensated by good grading for other criteria. E.g. a section of the route running on a road with high levels of heavy goods traffic cannot be compensated by good resting places. Therefore, two categories of criteria were defined: strictly mandatory criteria (“must have”) and non-mandatory criteria (“nice to have”). The criteria and the complete assessment have been tested in real life conditions [17]–[19]. Currently the project team is working on harnessing synergies between these two tools.

2.5 Strategies and small scale investments

Six project partners elaborated regional ecotourism strategies based on the developed framework and guidelines (section 2.4), good practices, potential ecosystem service mapping of pilot areas and learning interactions at regional and transnational level. The strategies cover the most typical geographic regions within the Danube region. The guidelines and local knowledge have been put in practice in the development of these strategies. As an example, the strategy for the region Ruse in Bulgaria makes a proposal for a 185 kilometre long circular bicycle route. The purpose of the route is to combine unique natural and cultural features into a single touristic route using a brand, which summarises the characteristics of the area into one recognizable and distinct product. Based on a previous project the brand “Rivers of time”, referring to the history along the rivers Danube, Yantra and Rusenski Lom, was chosen. The strategy suggests a “Greenways” concept, which combines cycling with hiking, horse riding and other sustainable forms of tourism. The strategy furthermore developed a detailed plan for the construction of quality cycling infrastructure, promotion of cycling tourism, data collection and impact assessment.

Lessons learnt from the market research (section 2.3), the guidelines for planning support (section 2.4) and the strategy development were incorporated into seven concrete pilot projects covering the topics information and signposting, innovative accommodation and rest areas and automatic counting stations.

The Serbian project partner Danube Competence Center developed a concept for smart bicycle rest places [20]. Smart bicycle rest places are objects for temporary residence of hikers or cyclists along routes through the Republic of Serbia. It should be possible to locate the rest places directly at routes including environmentally sensitive areas. Therefore, the construction has to be minimally invasive and the supply with water and energy has to be self-sufficient. This results in a modular design based on standard shipping containers, solar panels and rainwater collection. In a pre-survey with a sample of 88 Serbian respondents about 58 per cent state that the concept makes perfect sense. Another 40 per cent state that the concept makes sense, but they are not certain how these would function in real life. Figure 1 shows a rendering of a smart bicycle rest place directly located at a bicycle route [20]. A bachelor student of the Institute of Transport Studies of the University of Natural Resources and Life Sciences Vienna used such renderings to test the attractiveness of the concept among young Austrian people [21]. About 41 per cent of the 173 respondents in the age group 14 to 30 years see the concept as very attractive (Figure 1, right side), another 43 per cent see it as attractive. Nearly 85 percent rate the concept as attractive or very attractive.



Figure 1 EcoVeloTour smart bicycle rest place concept [20], [21]

Some of the small scale investments have been implemented and are operational. A bicycle rest place including a watch tower was built in the Subotica-Palić region in Serbia. The opening ceremony took place on the 30th of October 2020. Automated bicycle counter have been installed along the EuroVelo route 6 in Serbia. Work on bicycle rest places, signposting and automated counters in the Kosice region is partially finished and partially ongoing.

3 Conclusions

Tourism is currently facing its worst crisis in history. Past and ongoing trends call for innovative, more sustainable and resilient tourism products. The combination of ecotourism and cycling tourism is a promising candidate for such new products. Especially when these are combined with sustainable, intermodal mobility offers for arrival and departure. A market research and stakeholder analysis carried out in the Danube region identified the high potential of this approach. On this basis, the project EcoVeloTour developed a range of planning tools. Guidelines for ecotourism and sustainable mobility are the backbone of these tools. The guidelines have been used and tested in the development process of ecotourism strategies for six regions. Feedback from this process will be incorporated into the final version of the guidelines, which will be published at the end of the project. An interactive self-assessment tool was developed as a spin-off of the two guidelines. This tool facilitates an easy assessment of the status quo ahead of strategy development and planning processes. It is possible to identify strengths and weaknesses of a route or region and thus, helps to focus resources in the most prominent areas. The tool can be easily combined with other planning tools on a more detailed level. Strategies and small scale investments have been developed and partly implemented on this basis. First surveys demonstrate the high acceptance of the EcoVeloTour concepts and products.

Acknowledgements

The work presented here was based on the project EcoVeloTour (Fostering enhanced ecotourism planning along the Eurovelo cycle route network in the Danube region). EcoVeloTour is co-funded by European Union funds (ERDF, IPA). More information about EcoVeloTour can be found here: <http://www.interreg-danube.eu/approved-projects/ecovelotour>. We would like to thank our project partners and the participants of our EcoVeloTour events for their invaluable contribution to our work. We would also like to thank Katharina Graus for allowing us to use the data which she gathered for her bachelor thesis at the University of Natural Resources and Life Sciences.

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