DOI: 10.5817/CZ.MUNI.P210-6840-2014-109

JIHLAVA – TŘEBÍČ – RAABS CYCLE PATH: THE CHALLENGE OF REGION DEVELOPMENT

CYKLOSTEZKA JIHLAVA – TŘEBÍČ – RAABS: VÝZVA ROZVOJE REGIONU

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Annotation
A few decades ago the bicycle was regarded as no more than a means of getting from one place to another. Many sorts of different bikes appeared on the market and part of the population took up biking as a hobby. The cycling transport has not been supported in our country for many years. Only the sharp increase in the number of cars in the cities caused, that in some cities have begun the city halls support the construction of cycling infrastructure. Cycling in the Czech Republic is relatively young branch of sustainable tourism which came and still comes through dynamic changes in recent years, whether in terms of building a network of cycle paths and lanes or related infrastructure. Inappropriate investments, often in inappropriate locations and also a lack of supporting infrastructure meet the new cycling infrastructure building. However, the situation is gradually improving. Jihlava – Třebíč – Raabs cycle path, proclaimed as an easy family cycle path, represents an example of an investment in the Vysočina region representing the smallest density of cycle paths in the Czech Republic. However, is it an appropriate investment that meets the requirements?

Key words
cycle path, cycling investments, tourism, subsidy

Anotace
Před několika desetiletími sloužilo kolo pouze jako dopravní prostředek z jednoho místa na druhé. Na trhu se však začala objevovat kola různých značek a pro různé terény, čímž se kolo pro část populace stalo jejich zájmem. Po dlouhá léta nebyl rozvoj cyklistiky příliš finančně podporován, až postupný nárůst počtu aut ve městech vyvolal nezbytný rozvoj budování potřebná infrastruktury. Cykloturismus je v Česku zatím mladá forma udržitelného cestovního ruchu, která se stále vyvíjí a s ní se rozvíjí také budování potřebného zázemí. Postupně se tak objevila celá řada projektů financovaných převážně z fondů Evropské unie. Ne vždy však byly finanční prostředky vynaloženy účelně. Jednou z novějších investic je také cyklostezka Jihlava – Třebíč – Raabs, která v kraji Vysočina vyplňuje území s nejnižší hustotou cyklostezek v ČR. Předkládaný příspěvek sleduje dvě roviny. Mapuje jak zájem turistů o cykloturistiku, tak hodnotí oprávněné vynaložení finančních prostředků ve vztahu k výstavbě a funkci zmiňované cyklostezky.

Klíčová slova
cyklostezka, investice do cyklistiky, cestovní ruch, dotace

JEL classification: *H23*

Introduction

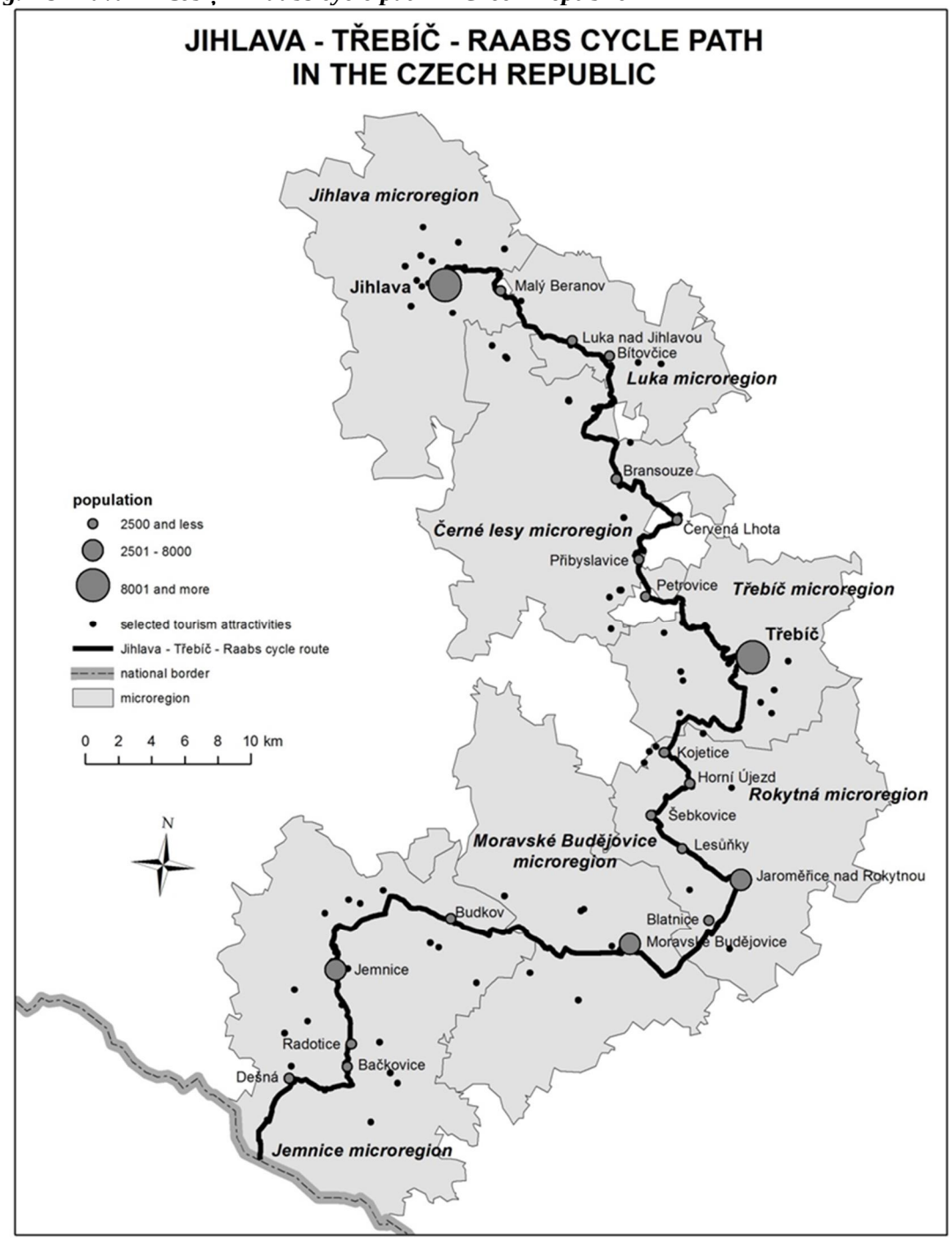
Cycling is healthy and environmentally friendly way of transport. Its demands on the consumption of non-renewable sources are minimal and include basically just the production of bicycles. It does not include the emission strain of the air or even significant noise. Also the spatial demands of cycling are significantly smaller than by other types of local transportation, except walking. The cycling transport usually takes place on the network of roads together with the car traffic. This carries negative factors for cycling, especially according to security, because cyclists are more vulnerable in the normal traffic than the motorists. Therefore, the cities which are trying to support cycling traffic as an alternative to the car traffic, are building special infrastructure for the cyclists. It should also include places for safe storage of bicycles, which is nowadays a big problem in the centers of larger cities (Adamec et al., 2005).

In the Concept of state tourism policy in the Czech Republic for years 2007-2013 (2007) is cycling defined as "an active travel, designed to explore the natural and social attractions in a particular area using mostly a specially adapted wheel travel."

Jihlava – Třebíč – Raabs cycle path
The Jihalava – Třebíč – Raabs cycle path (Fig. 1) is in the Czech Republic an unique project. It leads from Jihlava beside the river Jihlava over Luka nad Jihlavou and Přibyslavice to Třebíč, than through Jaroměřice nad Rokytnou, Moravské Budějovice and Jemnice to the state border. This is distance of 120 kilometres. Then it goes to the Austrian Raabs an der Thaya which is approximately another 10 kilometres. The route is leaded in parallel with the railway so it is possible to use the train for returning back. The idea to build the cycle path was founded in Třebíč as a reaction on increasing demand of residence and visitors of the region for active spending of leisure time and healthier lifestyle. From the beginning the emphasis was that the cycle path would lead along forest and field paths. In the section from Jihlava to Třebíč the main intention was to stick to the banks of river Jihlava. In case of using existing roads only not busy roads of the 3rd class were used.
The starting point of this paper is to compare conditions for the development of cycling (especially physical-geographical conditions and the number of monuments and other objects available for cyclists) and its actual condition (length of routes and trails). Allocation of financial resources from partial regional operational programs (ROP) and the State Fund for the Transport Infrastructure (SFTI) to the development of cycling since 2007 (the current programming period of the EU has begun) each will be also assessed.

Cycling is promoted as an environmentally friendly transport to the environment and together with agro tourism, ecotourism and rural tourism belongs to sustainable tourism forms, which in recent years become increasingly important. During the cycle routes building their impact on the landscape have not been seriously considered. Regarding this question, cycling is still neglected topic, although in recent years - particularly in connection with the development of cycling infrastructure thanks to the support of the operational programs – this question is being solved more efficiently. However, more often the development of cycling as an alternative means of transport in cities is assessed than as an active way of spending free time away from the city. With the development of cycle paths the interest in tourism potential of partial area should be assessed because of finding appropriately terrain with plenty of tourist objects that could attract cyclists (pull factors).

Fig. 1 Jihlava – Třebíč – Raabs cycle path in Czech Republic



Source: own processing

Theoretical basis

The beginning of the use of exact methods for the assessment of the tourism potential of the area in the Czech Republic can be found in the works of the Research Institute of the Construction and Architecture and Terplan in the seventies of the 20th century (Vepřek, 2002). Bina (2002) understands the potential of tourism as a formalized assessment of the possible outcome of a comprehensive range of localization factors and conditions for further development of tourism. Mariot (1971) sees the potential as a words synonym of competence or ability, and according that the potential interprets as the competence and ability of complex landscape conditions for tourism.

Tourism including cycling belongs to human activities, which in tourist areas represents a potential threat to the environmental, social and economic sphere. In foreign literature the impact of tourism is cited as tourist pollution (Goldsmith, 1974; Holden, 2008), which causes negative changes in the landscape, as well as the development of any other economic sector. Direct determination of tourism potential for the specific development of cycling is not available. In the foreign literature cycling is mentioned in connection with other forms of sustainable tourism as the greenways (Mundet et al, 2010). In the same way the European Commission has been developing and improving assessment tools for sustainability in urban development, known as Bequest Building Environmental Quality Evaluation for Sustainability since 2001 (BEQUEST, 2001). In addition, there are numbers of proposed methodologies in the context of assessing sustainability of human activities (eg. Life Cycle Assessment, Environmental Auditing, Ecological footprint, Adaptive environmental assessment, etc.). It is generally known, that the evaluation of the impact of sustainable tourism involves individual access to a range of social, economic and environmental indicators (Buckley, 2009).

Aim and methodology

During the assessment of tourism conditions a variety of methods can be used. Although for tourism there is no available data as in other sectors (eg. population or economy) and cycling has no official data available, it was necessary to do our own survey. During November 2011 questionnaire survey with 592 respondents was accomplished. Personal interviews and electronically using the online questionnaire created using google.docs were used. The selection of respondents was random, even that respondentsô structure corresponds to the structure of the population in the Czech Republic: from 592 respondents, 49.5% were men and 50.5% were women. Age structure of respondents shows a group of people travelling frequently. Therefore 62.3 % of respondents were aged 20 ï 29, 13.9 % of respondents were aged 45 ï 59, 11.8 % of respondents were aged 30 ï 44, 10.1 % were under 19 years and 1.9 % over 60 years. According to the results of the research 58.6 % rides a mountain bike, 20.6 % uses trekking or cross bike, 17.6 % ride a road bike and 3.21 % uses a different type of bike.
Results of a questionnaire survey were compared with the results of the official nationwide survey "Czech Rides", which was electronically conducted in August and September 2011 and was attended by 3 966 cyclists and in-line skaters from the Czech Republic. The aim of this investigation was to describe the behavior of active cyclists, bikers (riders who ride recreationally a field bike on off-road routes) and in-line skaters and identify their needs and expectations.

The slope analysis of the cycle path was described on the raster digital model of the terrain (DMT) implementing an ANUDEM method enabling creation of hydrologically correct DMT with a square length of 5 m. Required data including contour lines, rivers and elevation points has been obtained by "on screen" digitalization of the data base of National INSPIRE geoportal. This type of data collection was chosen with regard to the absence of subsidy for accurate detailed data (eg. ZABAGED data model - Fundamental Base of Geographic Data). Although it is available to use free databases Data200 (scale 1: 200 000) produced by the Czech Office for Surveying, Mapping and Cadaster, with regard to the scale of base map (1: 25 000) available through SOAP services of the National INSPIRE geoportal, "on screen" digitization was chosen. This may be in the case of inaccurate data collection a source of inaccuracies. Subsequently the mentioned cycle path was digitized to vector format and converted to 3D shapefile enabling to create an elevation profile of cycle path (3D Analyst extension tool). Digitized cycle path was also converted to raster format. Using map algebra helped to identify specific slope conditions with the applied range of 10 %.

Results

A result of a questionnaire survey clearly shows that respondents most often use bicycles for short trips and cycle trips. Survey "Czech Rides" then complements this finding that it is mostly short-term rides (1-2 hours).

Tab. 1: Possibilities of using bikes by different types

Use of bikes	Type of bike				Sum	
	mountain	other	road	terrain/cross	Abs.	Rel.(%)
to work or school	31	9	21	16	**77**	**13,0**
on holiday	21	1	4	9	**35**	**5,9**
on difficult terrain routes	41	2	2	9	**54**	**9,1**
on trips	247	5	69	83	**404**	**68,2**
for races and training	7	2	8	5	**22**	**3,7**

Source: own processing

Interesting results can be found in the question, what type /surface of roads cyclists prefer (Tab. 2). Almost a third of respondents prefer labeled unpaved trails. This is influenced by the fact that in the Czech Republic mountain bike is the most commonly used type of bike. This fact is in the opposition with the building of asphalt paths and trails which are mostly funded. In many cases - especially on trails outside of the city – it is easy to finish a number of existing. In cities, where cyclists use bikes primarily as an alternative means of transport, cyclists use more often paved asphalt trails and use road or trekking bikes.

Tab. 2: The most commonly used type of road

The most commonly used type of road	Type of bike				Sum	
	mountain	others	road	terrain/ cross	Abs.	Rel.(%)
others (singtrek, downhillé)	4	2	0	2	**8**	**1,4**
unmarked field or forest paths	59	5	3	19	**86**	**14,5**
roads	57	10	46	19	**132**	**22,3**
marked asphalt cycle paths	78	2	52	43	**175**	**29,6**
marked unpaved cycle paths (gravel, forest, field paths)	149	0	3	39	**191**	**32,3**

Source: own processing

ñCzech Ridesò survey clearly confirms our results. Cyclists frequently (42.5 %) use trips on paved roads, but paved road is not closer specified. It can be both asphalt and gravel path. When specifying the question "If you could choose, which way would you vote?" The active cyclists (48 %) would choose unpaved road and 44% prefer a road with low traffic.

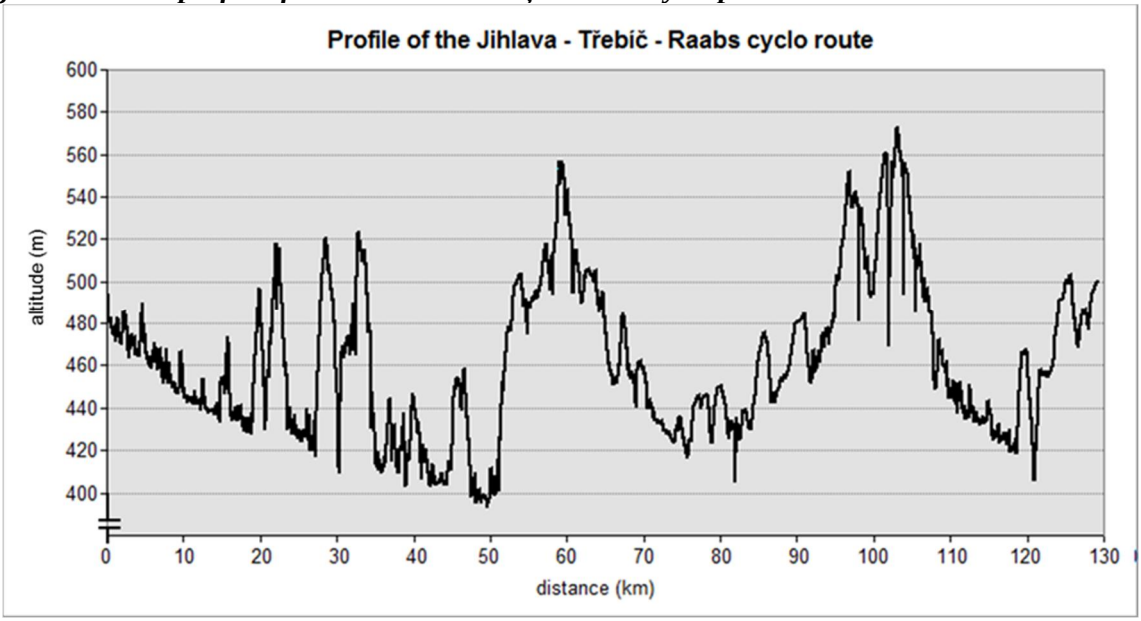
Tab. 3: Cost from Regional operation programme Southeast

name of recipient	name of the project	year of allocation	Allocated amount in CZK
Jihlava-Třebíč-Raabs cycle path	Jihlava-Třebíč-Raabs cycle path	2008	70 703 194
Jihlava-Třebíč-Raabs cycle path	Jihlava-Třebíč-Raabs cycle path II	2010	77 441 805
Jihlava-Třebíč-Raabs cycle path	Marketing for Jihlava-Třebíč-Raabs cycle path	2010	629 860
Jihlava-Třebíč-Raabs cycle path	Marking* Jihlava-Třebíč-Raabs cycle path	2011	2 204 254
Sum			150 979 113

Source: List of funding recipients, 2012

From a geographic perspective the cycle path goes in the Czech Republic through 28 municipalities, which are organized into 7 microregions. Elevation profile of cycle path (Fig. 2) shows only the part, which is located in the Czech Republic.

Fig. 2: Elevation profile of the Jihlava – Třebíč – Raabs cycle path



Source: own processing

Its total length is about 130 km. 75 % of cycle path tends to the slope of 10 %. Another 14.6 % reports the slope between 10 % - 20 %, other ranges are less important. The analysis over a digital elevation model identified ranges following intervals of up to 80 %, but they represent only 3.9 % (in total around 5 km). Sections of high gradients can be evaluated as a possible consequence of inaccuracies digital terrain model. The greatest values were found between elevation of Jaroměřice and Třebíč and Moravské Budějovice and Jemnice.

Discussion

If necessary, the questions for discussion can be included. Construction of cycle path itself faced a number of problems, caused by ensuring appropriate land, lack of signs or supporting infrastructure. Therefore, an investor should ask before the path construction following questions:

- Where does the path lead? Are there any attractive objects nearby? The cycle path should lead or connect popular tourist places or such important objects should be in the immediate vicinity of the path. If the attractiveness is missing, cyclists will not stop and the cycle path will not bring any positive impact.
- Does the cycle path lead through suitable terrain? Who will use it? Is that construction wanted intention? Most cyclists prefer an easy terrain, that is why Jihlava - Třebíč - Raabs cycle path is used by in-line skaters or cars accessing to their land. Active cyclists vote faster routes along existing adjacent roads. Cyclists riding mountain bikes rather choose other than asphalt surfaces.
- What economic impacts bring the construction of cycle path (not only the cost of construction, but also for maintenance; who will perform maintenance)? The maintenance is not often solved, both financially and organizationally.

Unfortunately, local politicians, road builders and management of protected areas proudly represent millions in investment in new cycle paths, which are not in accordance with the requirements and expectations of cyclists. Moreover, it is a very expensive unsustainable development in a time when other more important things are without funding. Therefore, there can be a variety of alternative (and cheaper) solutions for the development of cycling, such as maintenance and marking of existing forest and field roads. In the case of cities it would be sufficient to mark lanes on the sidewalks that could cyclists share with pedestrians as well as in several neighbouring states.

Conclusion

The cycle path brings many positive and some negative environmental aspects. Positive aspects are decreasing car transport and thus the aspects named in the previous chapter. Jihlava - Třebíč - Raabs cycle path has one big advantage from the environmental point of view - train transport from the Jihlava to Třebíč and thus the tourists can come to visit the cycle path by train and save the environment from the road transport emissions. Compared to road transport, the environmental impacts of cycle path are very small, hence the cycle path is beneficial to the environment. According to Danklefsen (2009) there were defined direct environmental impacts related to cycling. First point - soil loss - in the main parts the cycle path is just improved existing path, which was in the bad condition and wasn't maintained. There are only a few passages, where was built completely new path. Vegetation damage is connected with the previous point. Assuming that the cyclists will ride only on marked roads, there shouldn't be more vegetation damage. Another impact is fauna disturbance - some passages go through forests and there is big probability, that the cyclists will disturb for example game. Actual problem of the Jihlava - Třebíč - Raabs cycle path is crowding and thus impact on recreational quality. Some parts of the cycle path go along the area with cottages and weekend houses and the inhabitants are not satisfied with the disturbance.

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