Acta Univ. Sapientiae, European and Regional Studies, **22** (2022) 106–128

DOI: 10.2478/auseur-2022-0012

Exploitation of Narrow-Gauge Railways for Tourism in the South Transdanubian Region

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Abstract: Since the 1980s, almost all of the Hungarian narrow-gauge railway lines underwent a complete change of function. About 120-140 years ago, narrow-gauge railways were created mainly for economic purposes. Nowadays, with a few exceptions, freight operation is completely eliminated and replaced by tourism. In my study, I deal with two questions: on the one hand, I will examine the place of the existing narrow-gauge railways in the tourism system. In this context, I will present the tourism potential of narrow-gauge railways. These include, for example, the availability of narrow-gauge railways, their inclusion in the wider tourism system, the material conditions of the basic infrastructure of narrow-gauge railways, etc. On the other hand, by presenting four railway lines from South Transdanubia, I will examine how well the opportunities offered by tourism have been exploited at the local level, what the impact of narrow-gauge railways is on tourism, and what the tourism-related significance of these lines is at all. Based on my analysis, it can be concluded that the narrow-gauge railway sector is developing within the tourism system, and compared to the period before the COVID-19 pandemic (2020–2021), investments, technical developments, and attendance have also increased. It is also clear from the South Transdanubian cases that the narrow-gauge railway system is becoming more and more important especially where it can be connected to other tourist attractions (natural parks, forest schools, etc.), which is also evident in the attendance indicators.

Keywords: narrow-gauge railway, tourism, infrastructure, attraction, milieu, South Transdanubia

Introduction

Nowadays, Hungarian narrow-gauge railways are experiencing a renaissance. Never before have they received attention and such a level and kind of state development funding as in the last few years. The timing and allocation of funds was decided by a government resolution, which provides a budget of twenty billion

Hungarian forints in two phases for the development of narrow-gauge railways for tourism purposes. Phase I provides for tasks from 2018 to 2020 and phase II for tasks from 2020 to 2022. Today, we are living the third golden age of Hungarian narrow-gauge railways. At a professional conference held on 9 March 2022, Government Commissioner Máriusz Révész, responsible for the issue, predicted as target date the year 2025 for the complete reconstruction of the narrow-gauge railway lines for tourism purposes (Pavletits 2022).

The construction of the Hungarian railway network began in 1846. Before the First World War, the length of the railway network was 22,869 km, of which 21,258 km were ordinary (1,435 mm) and 1,611 km narrow-gauge (Kaposi 2007, Czére 1989). In addition to traditional railways, there was an increasing demand for narrow-gauge railways connected to the main lines. Most of our narrow-gauge railway lines were built for freight transport, and passenger traffic started to increase as demand increased, while some lines were created specifically to serve tourism and hikers (Jéger 2010). These can serve tourism purposes in several areas, but tourism cannot maintain the railway lines. For some railways, the number of passengers is more than 200,000 per year (Szilvásvárad, Lillafüred), but the ticket revenues do not cover the costs of operation, so the operator has to supplement it from its own resources. The deficit of narrow-gauge railways is compensated by the profits generated in other areas. The railway can only extract the cost of its own operation in areas where there is also freight transport.

Goals, Sources, and Methodology

Since the 1980s, the Hungarian narrow-gauge railway network has almost completely undergone a change of function. In the following decade, with a few exceptions, the former transport of goods ceased completely, and tourism took its place. Therefore, narrow-gauge railways must be placed in a new aspect. In order to be able to determine their tourism potential, we need to examine several factors. Such is accessibility, the role of narrow-gauge railways in the basic and dynamic infrastructure, and the attractiveness of narrow-gauge railways. The aim of the study is to analyse the touristic significance of the narrow-gauge railways operating in Southern Transdanubia, to present the narrow-gauge railways as tourist attractions, their location in the static and dynamic infrastructure, and their role in shaping the attractiveness, seasonality, and tourist milieu.

At the beginning of the research, the primary task was to collect and process the necessary literature. Using both primary and secondary sources, I gained knowledge not only about domestic narrow-gauge railways, but I was also able to gain an insight into the operation of railways in other parts of the world with the help of the literature I collected and my numerous trips to visit narrow-gauge

railways in other countries. The collection of material for writing this study began already during my university studies. As an introduction, I would like to mention my numerous publications published in Hungary's largest railway magazine, *Indóház*, which deals partly with the past and present of narrow-gauge railways both in Hungary and in other countries.

The Central Archives of MÁV Hungarian State Railway and the Transport Museum are indispensable sites of sources, where countless original documents are preserved, partly digitized and partly boxed, most of which have not yet been in the hands of either researchers or railway enthusiasts. The processing of archival sources is of primary importance for the research of the topic, so in my thesis I tried to get to know the available documents as widely as possible.

The Touristic Importance of Narrow-Gauge Railways

The attractions offered by ecotourism are based on natural conditions. The South Transdanubian region is rich in natural attractions. Although narrow-gauge railways are not among the classic structural elements of ecotourism, a significant part of them today operate in nature reserves or adjacent to them. Tourist traffic can be improved by the development of the narrow-gauge railways and its surroundings, in which not only the existence of attractive elements but also their value (Princz-Jakovics–Vasvári 2018) play an important role. In the region under review, narrow-gauge railways are of particular importance, as it is the home to nearly a quarter of the national narrow-gauge railway lines, and the unique open-carriage rides are used annually by about 125-150 thousand passengers, enjoying the small wonders of industrial history and nature. The operators of the narrow-gauge railways are trying to serve the needs of passengers and to maintain the equipment (Szász 2015).

The touristic role of the narrow-gauge railways was already significant between the two world wars – just think of the two Ganz trains of Lillafüred State Forest Railway, which were built in 1929 in the largest factory of Hungary in order to boost the tourism of the Bükk Mountains. This was at the time of the construction of the Lillafüred Palace Hotel. No wonder that the executive of the Forest Treasury and the Forest Railway at the time immediately sensed the change in the nature of the settlement and its tourism-related significance, so they began to push for the purchase of new vehicles, which were more suitable for passenger transport and the future splendour of Lillafüred. The Ministry of Agriculture also granted the request and ordered the trains from Ganz and Partner Danubius and Orenstein and Koppel. They declared that all the equipment of the railway is directly for the service of tourism and is one of the most important factors. From the construction and quality of the track through the station buildings and the condition of the

carriages to the train schedule and the tariff, everything had to serve the purposes of tourism (Partisan 1937).

After WWII, railway developments served the mining and agricultural industry, but pioneer railways were also built in several parts of the country. The pioneer railways were actually for tourism purposes, even if ideology was the official reason for building them. In the course of research, it became certain that a total of 22 pioneer railways were in operation in Hungary for a longer or shorter period of time (Balolgh 2021). These places could be designated on the basis of tourism. How lucky these places were shows that today, with the exception of Budapest, only Nagycenk is still operating (Tóbiás 1996). They began to attract attention again in the 1960s and 70s, but the change of function of the Hungarian narrow-gauge railways had to wait until the 1980s. Over the next decade, with a few exceptions, freight traffic was completely abolished and replaced by tourism. In the second half of the decade, tourism clearly dominated the operating forest railway lines. In 1995, apart from the narrow-gauge railway lines of MÁV Hungarian State Railways and privately managed narrow-gauge railways, the 14 forest railways carried 630,000 passengers, compared to 825,000 by 2000. By the turn of the millennium, freight transport would cease everywhere except for Csömödér and Gemenc, and tourism took its place (Jéger 2010).

Some lines are specifically designed for tourism and to transport hikers. They can serve tourism in several regions, but tourism cannot maintain these railway lines. In the case of some high-traffic narrow-gauge railways, the number of passengers is between 100,000 and 1,000,000 per year (ÁEV Szilvásvárad, Lillafüredi ÁEV, Mátravasút, MÁV Children's Railway), and the ticket revenues do not cover the costs of operation, so the deficit of narrow-gauge railways is compensated by profits from other operations. The railway can only extract the cost of its own operation in areas where there is also freight transport; for example, at the Csömödér Sate Forest Railway, a significant part of the profile is supply of wood of the forest, which is able to compensate for the loss of passenger transport.

Research Questions

There are several factors that need to be addressed if we are to determine the tourism potential of a given area. One of these is accessibility, which shows what extra effort a hiker needs to put into getting to the particular attraction (Jéger 2010). If we consider narrow-gauge railways as attractions in themselves, we need to look at how to reach them most conveniently and quickly from a given point. It greatly improves the number of visitors to attractions if they are accessible by direct or minimal transfer (Michalkó 2007). Lillafüred, which belongs to Miskolc, was accessible from Budapest by rail by a single transfer trip in the 1930s. It has hosted

several prestigious events because of its location and good accessibility. Today, it is necessary to transfer by rail at least twice, and travel conditions have deteriorated significantly compared to the beginning of the 20th century (Jéger 2010).

In general, the Hungarian railways operating today are remnants of the former lines, part of them having been shut down. In several cases, the closed sections connected the lines running largely in the depths of forests with the national railway network (Felsőtárkány, Pálháza). Thus, the number of narrow-gauge railways that are directly connected to the national network has decreased significantly. The number of those located along the highways is even lower. In many cases, this fact also hinders the popularity of the attraction since the lines are sometimes in hidden valleys, and they are accessible only by tertiary or lower-level roads. In this respect, it could be a solution to extend the narrow-gauge railways to the main roads or the national railway network, thereby providing better access (Jéger 2010). An excellent example of this is the Gödöllő Forest Railway, which is being built in the vicinity of the capital, on a territory with a successful tourist attraction – the Gödöllő Arboretum – and will have a railway connection according to the medium-term plans (Pavletits 2018).

The aim of the study is to analyse the touristic significance of the narrow-gauge railways operating in South Transdanubia, to present the railways as tourist attractions, their place in the static and the dynamic infrastructure, and their role in shaping attractiveness, seasonality, and tourism milieu.

Narrow-Gauge Railways as Tourist Attractions

One of the features of late-19th-century civil transformation is the appearance of tourism, whose transport connection was strengthened at the turn of the century. More and more people took the train to the coast, but the number of trips to Lake Balaton for tourism purposes also increased significantly (Majdán 2014).

It is not enough to consider accessibility alone, we also need to look at how narrow-gauge railways can integrate in the tourism system. In a tourism approach, we can look at the attractions in several ways. The basic infrastructure, attractiveness, and tourism infrastructure are all interdependent material conditions of tourism (Michalkó 2007). These factors can be clearly identified on the narrow-gauge railways, but we should mention something else as an attraction. Every narrow-gauge railway can be classified into an infrastructural category of tourism, some lines to even more, so they participate in tourism on several levels. I present this categorization with basic infrastructure ranging from attractiveness to dynamic infrastructure.

The Narrow-Gauge Railway as Part of the Basic Infrastructure

The primary goal of infrastructure development is, of course, to improve the quality of life of the local residents, but it is also a prerequisite for the development of rural tourism. The development of rural tourism began in Hungary as early as the 1930s, and after the forced break during socialism, it began to develop spontaneously again in the early 1990s (Kovács 2003). The basic infrastructure in tourism means the existence of the necessary conditions for viewing the attraction. The most important elements are transport (Buday-Sántha 2007), communication, and the existence of utilities (Michalkó 2007). This means that narrow-gauge railways should be examined as static and dynamic elements of basic transport infrastructure.

Static Basic Infrastructure

Several Hungarian narrow-gauge railways also play a role in the basic infrastructure. In many cases, the area they explore cannot be approached otherwise, except on foot. However, in many cases, hikers can only walk along the railway tracks. A good example among the Hungarian narrow-gauge railways is the Mahóca wing line of the Lillafüred State Forest Railway in East Bükk, which nowadays can only be used on a very short section, according to a special train schedule. The role of the Hortobágy narrow-gauge railway is also important, as it serves the local fish farm and handles the traffic between the lakes regarding fishing and feeding. This method is not unique, as there are several narrow-gauge railways in Hungary (Tömörkény, Lake Fehér). Hortobágy stands out from them because the management of Hortobágy National Park has created a new attraction without a new infrastructure investment, using the railway. For tourists, it offers the opportunity to get an insight into the everyday life of the fishponds and the bird life of the region.

However, the infrastructure of narrow-gauge railways includes not only the railway lines but also the buildings. The latter can be an integral part of tourism. The static elements of tourism include those that are stationary and thus serve the exploration and sale of attractiveness. These are mostly buildings (Michalkó 2007), but in the case of narrow-gauge railways, we can also include the build-ups of the lines. In many cases, the railway stations themselves, the station buildings have an attraction thanks to the fact that most of them were built in the first decades of the 20th century and can still be seen in their original condition. Such are, for example, the station of Lillafüred State Forest Railway at Lillafüred or the depot of the Almamellék State Forest Railway,

which is the heritage of the former Kaposvár–Szigetvár railway. Both buildings host an exhibition of the past and present of the railways. A similar attraction is the pavilion of the Millennium National Exhibition, which is currently under reconstruction and will be the adornment of the Pörböly Ecotourism Centre. Of course, not only former buildings can be part of the static infrastructure. Another sight in Pörböly is the forest school presenting the fauna of the floodplain power and the Budakeszi Wildlife Park in the immediate vicinity of the Budapest children's railway, which has also a stop on the line.

In the case of several Hungarian narrow-gauge railways, we can find forest schools, which are important elements of environmentally conscious education. There are special elements related to static infrastructure such as bridges and tunnels. The youngest bridges are located at the Kemence Forest Museum Railway. However, the most interesting and spectacular bridges can be found on the line of the Lillafüred State Forest Railway (LÁEV): they are not only noteworthy from a touristic point of view but also for bridge engineering. The Deep Valley Bridge stands out from the structures of the Hungarian railways with its size, while the Arc Bridge on the southern side of Lake Hámori is unusual and unique in its form. Also on the line of LÁEV are the two longest tunnels of our narrow-gauge railways, both in Lillafüred, before the station and immediately following it. This solution is a special experience, as when arriving at the station and leaving it, tourists are enriched with an experience that they do not get anywhere else. Hárshegy Tunnel of the Pioneer Railway in Budapest was built in 1950 with a similar purpose, which, in addition to overcoming the upward slope more efficiently, enriches the rail journey with new experiences.

Dynamic Infrastructure

However, the most important role of narrow-gauge railways is as part of the dynamic infrastructure: the vehicle transports passengers to attraction points or forms part of the local transport, and because of its nature it attracts tourists (Michalkó 2007). This stems from the fact that the narrow-gauge railways, which are still in use today, were built almost without exception for the exploration of forests. One of the most beautiful lines exploring the forests is the Lillafüred State Forest Railway, which winds through the forests of the Bükk Mountains, starting from Diósgyőr to the end of both lines, for a total length of more than 20 kilometres. Equally exciting is the line of the other Bükk narrow-gauge railway, the Szilvásvárad State Forest Railway, which runs through the famous Szalajka Valley. The valley can be walked or even travelled by car, the railway being only one alternative here. Thanks to this, it is not so much the narrow-gauge railway itself but rather the Szalajka Valley and its beauty that are attractive to tourists; so, in this approach, the railway fully meets the requirements of dynamic infrastructure.

We cannot forget about the narrow-gauge railways of Somogy: both Almamellék and Mesztegnyő railway lines were built for the exploration of forests, and their remaining lines still run today. They are also part of the dynamic infrastructure of tourism.

A further important part of the dynamic infrastructure is the special fleet of vehicles of each narrow-gauge railway. MÁV Zrt. Széchenyi-hegyi Children's Railway and the Csömödéri State Forest Railway have a forest knowledge lab wagon for kindergarten and primary school groups. Bicycles and stroller transport wagons also run on MÁV's two narrow-gauge lines, Balatonfenyves and the Budapest Children's railway. An earlier example is also known: the Lillafüred State Forest Railway acquired a saloon car in 1929, which transported illustrious guests to the Palace Hotel. Among other things, several members of the Bethlen government travelled regularly with this saloon car (Fodor 2003).

Appearance of Attractiveness and Seasonality

Attractiveness is difficult to define, accurately describe (Michalkó 2007) because there are a lot of subjective elements in it. In the multitude of narrow-gauge railways, the real attraction is that their peculiarity draws more attention from tourists and hikers than other similar railway lines. Here again, we can mention elements of static infrastructure that can attract tourists, or even areas explored by railways as natural values. In addition, it is more important that almost all narrow-gauge railways have some kind of attractiveness. Some have only local-level, some have regional attractions, but we also have some small ones that have a national attraction (Michalkó 2007). We can conclude that attraction is a common feature of all narrow-gauge railways. Even in countries such as Switzerland, where narrow-gauge railway is an integral part of the country's rail network, there are several lines that are also extremely popular with tourists (Pavletits 2019). There are narrow-gauge railways in Hungary with a great tourist attraction, but their attractiveness is not the same. There are railways that offer sights on their own. Such narrow-gauge railways are the museum railways, two in Hungary, the Nagycenki Széchenyi Museum Railway owned by the Museum of Transport and the Kemence Forest Museum Railway operated by the Circle of Friends of Narrow-Gauge Railways.

A special attraction is the steam locomotives and the nostalgia carriages they are hauling, which will slowly be found on all our narrow-gauge railway lines. In addition to the masterpieces of the Hungarian mechanical engineering industry, in many cases steam locomotives purchased and renovated from abroad, mainly from Transylvania, travel the kilometres on the various networks of the country. Among the steam locomotives, one should be highlighted due to its historical and technical uniqueness: the LILLA, which is the only steam locomotive with a service car operating in Hungary is owned by Lillafüred State Forest Railway. Due to lack

of resources for its renovation, the locomotive is currently put on display at the exhibition at Majláth station. It is the only steamer in Hungary that operates where it originally served. In this case, the LÁEV has an attraction of national importance.

In addition to steam locomotives, an important memory of the past of Hungarian narrow-gauge railways is the motorcar operating today in Budapest, at the Children's Railway and the related sidecars, which began their service in 1929 at the Szinvavölgy Forest Railway (SZEV), the predecessor of the Lillafüred State Forest Railway (Szécsey 1999). These vehicles are one of the biggest attractions of the Children's Railway in addition to the nostalgia trains towed by steam locomotives.

Diesel locomotives can also be of interest on the line of the previously mentioned Kemence Forest Railway, as these are not the C50, Mk48, or Mk45 locomotives commonly used in Hungary, but they use engine locomotives purchased from closed mines and various economic railways, of which there are sometimes only one or two working copies in the country. Among the diesel locomotives, one more curiosity should be mentioned: the B26 series locomotive operating in Lillafüred, which was salvaged by the railway management when the sugar factory in Szerencs was liquidated. This is the last remaining and still operating locomotive of this type in Hungary. So, if we look at the Hungarian narrow-gauge railway from the perspective of technical curiosities, we can say that the Nagycenki Széchenyi Museum Railway, the Kemence Forest Museum Railway, the Budapest Children's Railway, and the Lillafüred State Forest Railway are more attractive than the rest.

In addition to attractiveness, it is important to talk about seasonality. This is an important element of tourism. Not all attractions offer the same experience in summer as in winter; they do not have the same attractiveness for each season. This is especially true for outdoor attractions such as our narrow-gauge railways. Not only the railways themselves are seasonal but in many cases the sights they explore or that can be accessed with them. Whether it is Szalajka Valley or Gemenc, they offer a much greater experience in summer than in winter. Thus, it can be said that seasonality appears almost without exception with narrow-gauge railways. On most lines, this is present to such an extent that during the winter period traffic is completely suspended. During the winter, there are only a few lines with regular scheduled plans; however, most of the trains are operated on the lines ordered, which are primarily requested by railway enthusiasts from the operators. There are very few narrow-gauge railways in Hungary that are operated during the winter scheduling period. For example, Balatonfenyves Economic Railway, which performs the only public function, and Széchenyi Mountain Children's Railway, which is also managed by MÁV, the Hungarian State Railways. Children's Railway welcomes tourists all year round, with a Monday outage during the winter scheduling period. Based on its position, it can be accessed all year round, and the experience of train travel is unforgettable at all times of the year. Although there are no seasonal attractions along the line, the trip itself is a great experience. Even on a weekday afternoon, people living in the capital

and in the Budapest agglomeration can easily use the trains between Hűvösvölgy and Széchenyi Hill. A special advantage of the railway is a scheduled nostalgia train running all year round, both with steam traction and motorcars.

The privately owned Mecsek narrow-gauge railway, which runs between the Pécs amusement park and the zoo, also runs seasonally on weekdays, while on Sundays and public holidays we can board trains in all seasons.

All forest railways run seasonally. The highest traffic in the winter period is carried out by the narrow-gauge railway running between Kismaros and Királyrét, which runs five pairs of trains on free and public holidays in the late autumn and winter months (November–February). This is also due to the relatively high number of passengers: 110,000. Due to the proximity of Budapest and the good availability of Kismaros, the line has a fortunate position. Good basic infrastructure allows the multimillion metropolitan and agglomeration population to visit the narrow-gauge railway even on winter weekends. Gemenc Forest Railway also runs seasonally, but seasonality here does not mean winter and summer. The railway is also in operation in winter, and the traffic is continuous every day, if only with a few rigs. The operation of the railway plant is affected by the flood of the Danube. In the event of floods, part of the track is usually submerged, so during the spring and autumn floods there is a temporary outage on the line.

However, most narrow-gauge railways do not have any passenger transport during the winter months, and thus there is no traffic. Only a few special trains will wear out the track at this time. This has long been a common practice on many railways, but financial difficulties, a decrease in funding, the impact of the crisis, and the increasing shortage of tourists during the winter period also led to the shutdown of Lillafüred State Forest Railway in the winter of 2009/2010. In the case of the traffic of narrow-gauge railways, the most important factor is attractiveness, which directs the attention of hikers and tourists towards the railway. If more attractions are near the lines, and the attractiveness of the railway itself is bigger, a greater passenger traffic can be generated. Seasonality is also very marked in the traffic data. In many cases, the number of sights decreases in winter, thereby reducing the attractiveness of the railways, so trains carry far fewer passengers during the winter period than in summer.

Tourist Milieu

By tourist milieu, we mean the attractiveness of the destination, the totality of the experiences received there (Michalkó 2005). If we want to put the narrow-gauge railways into this context, we will examine the impressions that the tourist gains when travelling by the railway. For a tourist to visit a particular destination over and over again, we need to provide a more-than-average experience that they cannot get anywhere else. The tourist milieu can also manifest itself in psychological terms:

the uniqueness of the landscape, its beauty undoubtedly has a spiritual effect on the traveller. Narrow-gauge steam train nostalgia journeys certainly operate with these spiritual effects.

Narrow-gauge railway travel in itself offers unforgettable experiences. It is also important to stimulate the geographical characteristics of the destination. The upper terminus of Felsőtárkány Forest Railway offers an excellent hiking opportunity for Hungary's one and only geyser, the Red Stone Spring, which is undoubtedly a unique geographical phenomenon when melting in the spring. There are several railway lines that stand out from other lines with their technical characteristics, such as Kemence Museum Railway with its vehicle collection or Nagybörzsönyi Forest Railway with the peak inverter. The recently re-commissioned water crane of Széchenyi Mountain Children's Railway also enhances the experience of travel by the fact that the water supply of steam locomotives is carried out exclusively in the country using the original method.

But in the same way, a tourist who travels from a mountainous area to the Hortobágy narrow-gauge railway, for example, which winds among fishponds (Fodor 2006), or from the lowlands to the Slovenian Postojna Cave Railway or the Csorba Lake with the cog railway, may have a greater milieu than others (Pavletits 2015).

The tourist milieu is perhaps even more complex and objective than other attractions in terms of narrow-gauge railways. This is due to the fact that they operate in different regions of the country, in different geographical environments. Thus, the milieu of the Pálháza Forest Railway, of the Trans-Börzsöny forest, and of the the Csömödér State Forest Railway are all different from one another. These are not comparable with each other; however, in the number of passengers, it is somewhat traceable where the tourist attraction is present. The local infrastructure and transportation options that help exploring the sights are also important. The importance of this was recognized by the two-stage financial support (2017, 2020) of the Hungarian Government, which helped the development of domestic narrow-gauge railways with billions of forints.

Development of Narrow-Gauge Railways as Tourism Products

Among the narrow-gauge railways in Hungary, we can find some examples to be followed for improving their touristic utilization. An example of this is the extension of periodic operation with thematic messages. The Santa Claus trains in December are good examples of how to combine attraction and transport function. During the transformation of narrow-gauge railway lines into thematic routes, this route consists of several elements or sections, which can be visited or viewed by stopping at its various stations. All this can be created by adding additional stops, placing information

boards at the stops presenting attractions, and recommending activities by designating alternative pedestrian and bicycle paths between the stops, thus helping to acquire and store the experience, as well as to increase the length of stay. In connection with the above, pedestrian, bicycle, and ski routes can be created or marked out along the shorter lines, which give visitors the opportunity to combine the individual sections and walk around the area. It is necessary to make the railway carriages suitable for bicycle transport or to create bicycle rental services. An example of a circular route is Gemenc Forest Railway, where after taking the train in the Gemenc Forest, one can transfer to a Danube cruise ship at the Gemenc-Dunapart station and return to the place of departure.

Narrow-Gauge Railways Used for Tourism Purposes in the South Transdanubian Region

In our thesis, we present the past and contemporary use of Almamellék State Forest Railway, Gemenc State Forest Railway, Balatonfenyves Economic Railway, and Csömödéri State Forest Railway.

Source: edited by Ádám Jakóts

Figure 1. *Public narrow-gauge railway lines of Hungary in 2021*

Almamellék State Forest Railway

Almamellék is located in Zselic, 16 kilometres from Szigetvár and 4 kilometres from the Szentlászló branch of Route 67. One of the country's 600 mm forest railways starts from this settlement. The territory of South Transdanubia has never been one of the more developed areas of Hungary. In the 18th and 19th centuries, the region encompassing Baranya, Somogy, and Tolna counties and the southern part of Zala County was essentially agricultural, this industry dominating both its occupational structure and economic output (Kaposi 2019). For a long time, the area had been in the hands of large landowners – Festetics, Széchenyi, Batthyány, Esterházy, and Hunyady (Kaposi 2019/b).

In addition to the ancient aristocratic dynasties, let us not forget the Biedermann family, whose members, as Viennese bankers and wholesalers, were transferred within the estate with huge loans to the Batthyánys. Count Gusztáv Batthyány squandered the huge loans he had taken out for his costly life in England and could not repay them, so he was forced to sell his estates of Mozsgo and Üszög, some 63,000 acres, to the creditor Biedermanns (Kaposi 2019/b). The huge estate was divided into several branches later. The most successful member of the family was Baron Rezső Biedermann, who from the 1890s built a model farm with a Szentegát centre based on Western farming principles. In addition to the modernization of farming, he also developed the most economical method of transport of the time: in 1896, he convened the general meeting of the Szigetvár-Kaposvár Local Interest Railway Co with the most influential farmers in the area, where he became one of the vice-presidents of the board of directors (Kaposi 2019/a).

The Kaposvár-Szigetvár railway line was opened on 8 November 1900. This also affected the village of Almamellék, where the Biedermanns had a huge estate. In 1901, Biedermann established a 600 mm forest railway with a trail of 7.2 km between Almamellék and Németlukafa. Initially, the track was operated by horse towing, which met the requirements of the time for forest railways. The superstructure consisted of lightweight rails weighing 5-7 kg/m adapted to the load (Jéger 2009). In the same year, the 0.4 km Szentmártonpuszta branch was built. The wood, which was extracted from the forests of Lukafa and Sasrét, was carried by rail to the Almamellék railway station. The railway also supplied agricultural crops, as well as products of the Németlukafa potash burner charcoal pile and glass huts. The four-kilometre wing line of Terecsenypuszta was laid in 1915 and the two-kilometre Csikórét line in 1935. In 1925, the line was extended from the Lukafa junction to the hunting lodge in Sasrét.

In 1945, the 10.7 kilometre network of the forest railway became the property of the Hungarian State Forestry, and the branch of Szentmártonpuszta became the property of the Görösgal State Farm. Mechanical traction was not converted until 1955 (Jéger 2009). The hunting castle–sawmill section was opened in 1962.

Passenger transport on the main line was authorized on 12 April 1961 from Almamellék to the hunting castle, on 27 May 1962 to the sawmill, and on the one-kilometre Lukafa wing line on 1 October the same year. In 1959, a two-axle, plank-walled, closed passenger car was purchased from the Economic Railway of Iregszemcse. The two modern 'Dunakeszi cars' (manufacturer: MÁV Dunakeszi Vehicle Repair Company) were put into operation in 1966. One came from the Gemenc Forest Railway, the other directly from Dunakeszi. Four-axle passenger cars have a stove and electric lighting. The first of the three C50 diesel locomotives was acquired in 1962 and the other two in 1970.

In the spirit of the 1968 transport policy concept, the wing line of MÁV Kaposvár–Szigetvár was closed on 31 December 1976. Due to the termination of the main railway connection and the construction of forest exploration roads, the transport of timber has been steadily decreasing; since 1992, there has been only passenger traffic. The branch of Szentmártonpuszta was picked up in 1972, the wing line in Csikórét in 1983, and Terecsenypuszta in 1984.

Source: Péter Pavletits (28.06.2018)

Figure 2. *Freight train front of the former MÁV station of Almamellék*

In 1994, two locomotive depos were established in Almamellék, and in 1995 train stops were erected in Almamellék and Sasrét. In Almamellék, the former MÁV station building was rebuilt in 1999, and in 2000 an exhibition on forestry and railway history was organized on its ground floor. In 2001, the fleet of vehicles was expanded with two Maszolaj cars (manufacturer: Hungarian–Soviet Oil Co. Budapest Machine Factory), and the four-axle trucks were converted into homemade passenger cars. The renovated Almamellék Forest Railway was opened on 26 September 2017. The Hungarian state and Mecsek Foresrty Ltd., which

operates the railway, spent one hundred million forints on the static infrastructure development in Almamellék. Within the framework of the investment, the façade of the station building of Almamellék regained its original form. The former MÁV wooden warehouse was renovated. A three-track wooden locomotive and carriage depo was built. A complete track reconstruction was carried out on the territory of the station. In Szentmártonpuszta, the Tomega Vital Castle Hotel, which was once the summer residency of the daughter of Baron Rezső Biedermann and his family, invites tourists for a longer stay.

In addition to the static infrastructure, of course, the dynamic infrastructure was also developed: the three C50-type diesel locomotives, the two closed and the two open passenger cars were also renovated. The stops were equipped with a high platform, information board, and solar-powered space lighting. The trains run on the seven-kilometre main line along the Almamellék–Sasrét–Sawmills route, and since 2005 they have been running periodically to Lukafa, but only by special arrangement. The terminus of the narrow-gauge railway in Almamellék is an excellent example of a tourist milieu – it has a national attraction. In Sasrét, Kikerics Forest School and the former hunting castle, which operates as a guest house, await their visitors. The 1.5-km-long nature trail of Sasrét and the 2.5 kilometre Csodaszarvas (En: Miraculous Hind) nature trail of the 800 hectare wildlife garden show the flora and fauna of Zselic.

Gemenc Forest Railway

On the right bank of Danube River, on the western edge of the Great Plain, in Sárköz, there is one of the two narrow-gauge railways in Hungary, where freight transport continues to operate this day. The wood extracted in the forest is transported by the forestry on an iron track to Pörböly railway crossing station, which is connected to the Bátaszék–Baja–Kiskunhalas main railway line 154 of MÁV (Hungarian State Railway). The narrow-gauge railway is the only way since the river floods the forest after heavy rains in autumn, icy floods in winter, or melting in the spring. In addition to the summer months, only a relatively short, 8-kilometer section can be reached by train from Pörböly station to the fabulous Malomtelelő (approx. Mill Wintering) stop.

The archbishop's estate in Kalocsa used an equestrian railway already in the late 1800s, planned by forest master Károly Mattanovics. Since 1914, most of the horses were used in the First World War; therefore, a forest railway should be built in Gemenc to facilitate the rapid transportation of forced production. The current railway track of the Gemenc Forest Railway was built in several stages: the construction of the Gemenc–Keselyűs (Vulture) line began in 1955, followed by the Gemenc–Fás-Danube section in 1956 and the wing line leading from it to

Gemenc–Ásásduna, to the Somfova forest section in 1963. In 1965, the section between Pörböly and Nyári Legelő (Summer Pasture) was completed. By 1966, the track had reached from Keselyűs to Pörböly, and also the big railway loader (Tóth-Hajós 2002). The floods of the Danube play a major role in the maintenance of the line, which often wash away part of the track. After the floods, the sections to be rebuilt will receive a new embankment and, if necessary, a new superstructure (Jéger 2009). In 1968, Gemenc's isolation was dissolved due to its status of a government hunting ground, and state leaders urged the transport of passengers for tourism purposes on the forest railway (this is when the branch called the Szomfova Delta was built). As a result of booming tourism, the track was extended from Keselyűs to Bárányfok, creating a 30 km main line by 1982. In 2007, the Ecotourism Centre was built at the starting station of the forest railway in Pörböly, which awaits tourists with a wide range of services. There are scheduled trains every day from Pörböly to the forest. On weekends during the tourist season, a steam engine also tows the carriages. Gemenc State Forest Railway also runs on schedule during the winter period, with closed, heated carriages.

Source: Péter Pavletits (26.02.2014)

Figure 3. *Train at Malomtelelő railway station*

Parallel with its main profile, the narrow-gauge railway of Gemenc plays a role in the care of animals living in the nature reserve. The third function of the railway is, of course, to serve the tourism of the floodplain forest. The only public transport of the Gemenc Park Forest is the narrow-gauge railway, which also offers tourists the opportunity to visit the otherwise inaccessible area. The true value of Gemenc, the untouched floodplain forest and its wildlife can be discovered in addition to the narrow-gauge railway as well as in the framework of a walking or cycling tour

since the Szekszárd–Baja section of the Great Plain Blue Tour also leads through the floodplain forest. The forest railway at the Lassi railway station connects to the route of the Great Plain Blue Tour, which is a section of the National Blue Circle, in addition to the National Blue Tour and the Pál Rockenbauer South Transdanubian Blue Tour. The section can be completed by bicycle as well, so on the paths of the floodplain forest, besides wild animals, we can often meet tourists riding a bicycle.

Nature trails are the most successful members of the structural elements of ecotourism in Hungary. About 13% of the Hungarian nature trail, estimated at around 420, is located in the South Transdanubia, mainly in the management of the South Transdanubian National Park (DDNP), which is proportionally above the national territorial average (Szász 2015). The Molnárka interactive nature trail leads from Malomtelelő to Lassi. Walking along the nature trail, we can get acquainted with the fauna and flora of Gemenc Forest and the changes of the Danube bed. From the observation tower – 200 meters from the train station –, one can observe the protected water birds or the wild animals of the swamp meadow. The telling name of Lassi train station was once used in the 'slowing' sense by the former foresters, water millers, and fishermen, and in its inn the locals quenched their thirst with a drink or two and their hunger with the Baja-style fish soup. The narrow-gauge railway here is joined to the route of the Great Plain Blue Tour.

The Gemenc narrow-gauge railway is also important for the existent dynamic infrastructure. REZÉT, the nostalgia steam locomotive of the railway was built in 1954 in Reşiţa, Romania, as a clone of MÁV's 490 series narrow-gauge steam locomotive. It takes its name from one of the backwaters of the Danube, the Rezéti-Danube. The name Rezét, like so many other names here, has Slavic origin and probably comes from the term 'cutting through'. The locomotive arrived in Pörböly on 2 May 2000 and received a complete renovation in 2021 (Pavletits 2020).

Balatonfenyves Economic Railway

Balatonfenyves is located in Somogy County, 19 km from Keszthely, on the southern shore of Lake Balaton. The city, which is surrounded by the M7 motorway and the Southern Railway built in 1861, has been an independent settlement since the millennium, surrounded by the Buda-Nagykanizsa heritage MÁV 30 Budapest–Gyékényes main railway line. The last economic railway of the country, which even serves the local public traffic, departs from the city's MÁV train station to Nagyberek.

Until the 1850s, Nagyberek was the floodplain of Lake Balaton, which was gradually separated from the open water by the waves. In the fields behind the resulting sandspits, the formation of moorland wildlife began, large-scale reed beds were created, and tree species characteristic of these habitats, such as willow

or alder, appeared. Another major change was brought about by the draining operations that began in 1864. The main goal of these was to extract new, cultivable areas of production by blocking the waters coming from Lake Balaton and the inner Somogy parts. The work was much delayed, only one canal was completed in 1864, the drainage plan covering the larger areas was not completed until 1896, and the work began only ten years later, in 1908. Between the two world wars, the resulting lands were gradually cultivated, but the lack of lime caused by the wetland soil did not really favour the cultivation of crops. After the Second World War and the socialization of Balatonnagyberek State Farm founded in 1949, ambitious plans were formed for the utilization of Nagyberek (Molnár 2014).

On 13 October 1950, as per the proposal of the state farm, there began the laying of the track of the 760 mm economic railway. This was not the first narrow-gauge railway of Nagyberek, as between the two world wars Imre Grange was connected with Balatonfenyves by a horse railway with a gauge of 600 mm (Jéger 2009). The marshy area was meshed with tracks perpendicular to each other. From the granges of the area, it transported agricultural crops, peat, and lime mud to the Balatonfenyves MÁV railway station. In 1953, the steam locomotives were replaced by diesel locomotives. In 1954, the locomotive depot and the repair yard were built in Balatonfenyves. The scheduled passenger transport began on 10 June 1956 (Balogh 2010).

On 1 April 1960, it was attached to the Hungarian State Railways, just like all other narrow-gauge economic railways. Since the 1970s, the volume of freight transport has been steadily decreasing. In the 1980s, its touristic importance grew, as more and more people visited Csisztapuszta Thermal Bath. In 1985, steam-powered nostalgia trains for Csisztapuszta were put into operation. In 1987, the line was extended by about 1 km to allow passengers to get even closer to the thermal bath. In 1990, the other sections of the narrow-gauge railway track either were used only for freight transport or were out of service or were picked up. At the beginning of the 2000s, traffic on the Csiszta line was stopped due to the deteriorating track and substructure, so the thermal bath in Csisztapuszta could only be reached by road.

Until the 20th-century draining operations, the landscape was dominated by a marshland similar to Little Balaton. It was declared a nature reserve in 1977 and has become part of the Natura 2000 territory. Nagyberek has rich natural values, with many (highly) protected water birds, 60-70 types of herbs, and a significant wildlife population. The first stop of the narrow-gauge economic railway is Imre Grange. In high season, the train runs with open and bicycle carriages. At its centre is Hunyady Grange, with the Community House, Agrotourism Centre, and Furnace Garden operated by Balaton Nagyberek Foundation. Nature lovers can choose from the 'Berek Safari' (off-road, boot, cycling and kickbike) tours starting from the grange, with professional guided tours. The tours introduce visitors to

the natural values, the flora and fauna of Nagyberek, and the Fehér-víz primaeval bog, which can be visited individually or in groups.

In the last three years, the static infrastructure of the narrow-gauge railway network has been rebuilt in two stages in the service of tourism. In 2018–2019, the main line tracks were rebuilt for a total length of 2.3 km, mostly from government support and partly from own resources. In 2021, the wing line between Imre Grange and Csisztafürdő was rebuilt, where rail transport had been suspended since 2002. At Csisztafürdő, out of the HUF 650 million awarded from the Regional and Urban Development Operational Programme, a station serving cycling tourism was built, which has significantly increased the destination's attractiveness.

Source: Pavletits Péter (26.11.2022)

Figure 4. *Train arrives at Csisztafürdő*

Csömödér State Forest Railway

With its track length of 110 km, Csömödér State Forest Railway is the longest narrow-gauge railway in Hungary. Its special feature is that it is perhaps the only narrow-gauge railway in the country whose main source of turnover is still freight transport. Passenger trains run only between Lenti and Kistolmács (33 km) from late April to late September, carrying between 22,000 and 23,000 passengers each year.

Since Prince Esterházy's estate in Alsólendva did not have sawmills for a long time, the removal of wood from the forests on carts was extremely difficult on the poor-quality forest roads. The exploration of the forests was urged by the Italian battlefield near one of the World War I locations, which required a huge amount

of wood, but this could only be reasonably harvested with the involvement of adequate transport (Szilvásy–Kovách 2020).

The construction of the narrow-gauge railway was started in the summer of 1917 between Csömödér and Budnya by two treasury suppliers, Rezső Scheffer and Miksa Mayer. With this construction, a connection was established between the sawmill in Csömödér and the forest areas of Prince Esterházy's estate. Horse-drawn cars were soon replaced by mechanical power, as steam locomotives were added to the narrow-gauge railway. The railcar going by the moniker Muki, manufactured in Berlin in 1917, and the steam locomotive from the Mátra narrow-gauge railway, named Karcsi (Thorday 1989) and manufactured in the Wiener Lokomotive Factory in 1918, arrived here. In the first half of the 20th century, wing lines were constantly being built – in 1920, the Pördefölde–Hosszú-rét and in 1922 the Törösznek–Oltárc. In 1930, oil was found in the vicinity of Bazakeretty, thus expanding the range of goods to be transported. In 1945, together with the sawmill, the railway line fell into state hands.

Source: Peter Pavletits (10.07.2007)

Figure 5. *Steam train at Csömödér State Forest Railway*

The scheduled passenger transport began in 1954 on the 18 km section between Csömödér and Kistolmács. In 1962, the first diesel locomotive was acquired, which was one of the C50 types still in service today. In 1965, steam locomotives were permanently withdrawn from daily use. In the 1970s, maintenance did not get the necessary attention, so the consistency of the railway plant deteriorated, but they realized in time that it was still the cheapest means of transport in this region. In the 1980s, the renovation of the tracks began, and with it a development programme that continues even nowadays. Thanks to this, the narrow-gauge railway regularly

transports passengers over 32 km. In September 2000, the section between Lenti and Csömödér was inaugurated, thus extending the usable track length to 109 kilometres.

Zala Forest Ltd. operates the narrow-gauge forest railway. The company is continuously modernizing the railway plant and expanding its related tourist services. An exhibition of hunting, sawmill, forestry, and railway history has been established in Lenti. In Csömödér, the 'Zakatoló' Forest School was created with a special railway carriage. The railway line was extended in Kistolmács, and a new stop and reception building was built, so the attractiveness of the destination (tourist milieu) increased here as well. The railway line is connected to a number of cycling and walking trails, which touch the Göcsej pine region, Kerka Valley, and the Göcsej beech region. The Arboretum of Vétyem and the Budafa Arboretum with the Makk Adventure Playground can be reached by the narrow-gauge railway. Kistolmács, the end station of the forest railway is a great fishing spot. Some of the built heritage of the county can also be reached from the various stops of the narrow-gauge railway: the Mányoki Chapel, the Andrássy-Szapáry Castle, and the water mill are the primary sights (Szilvási–Kovách 2020).

When travelling on nostalgia trains transmitted by the ÁBEL tank engine, the specificity of the landscape also prevails here, which undoubtedly has a spiritual effect on travellers.

Conclusions

In my study, I examined the tourist milieu, attractiveness, and seasonality of the Hungarian narrow-gauge railway lines. The examination of the tourist milieu of the narrow-gauge railways has proven that it can only be developed if the narrow-gauge railway network is treated as part of a complex tourist package. The utilization of the railway lines is well established and shows close correlation with the time of access from Budapest. It can be concluded that the narrow-gauge railways and their surroundings are tourist attractions, which can be further enhanced by effective marketing activities. Each year, more and more people travel on narrow-gauge railway lines, often just looking for the ones that offer a more exciting experience. Thus, a kind of competition arises between the railway lines close to each other. The case of Gemenc and Almamellék exemplifies that in places where there are other attractions and the area is also known for other sights, narrow-gauge railways can carry a significant traffic. Despite the fact that tourism has taken the lead among the services of narrow-gauge railways today, it is important to expand the current offer in the long term. First of all, narrow-gauge railways need to be given space again in transport tasks. In many cases, it would be much more cost-effective and environmentally conscious to transport

timber and other goods on narrow-gauge railway lines instead of public roads. But in the same way, narrow-gauge railways should again become part of public transportation while also enhancing tourist traffic. The development of the lines and the re-establishment of former connections can further increase the importance of domestic networks. With the resources currently available, this is certainly possible.

References

BALOGH, Imre. 2010. *Emlékkönyv. 60 éves a balatonfenyvesi gazdasági vasút*. Balatonfenyves: Balaton–Boronka Kisvasút Nonprofit Közhasznú Kft.

BALOGH, Tamás Zoltán. 2021. Úttörővasutak zsebkönyve. Debrecen: Cívisporta Kiadó.

BUDAY-SÁNTHA, Attila. 2007. *Kistérség fejlesztési esettanulmányok*. Pécs: PTE Közgazdaságtudományi Kar.

CZÉRE, Béla. 1989. Közlekedés és hírközlés. *Magyar Tudomány* 10–11: 863–877.

FODOR, Illés. 2003. *A keskenynyomközű vasutak közlekedésföldrajzi jelentősége Magyarországon*. Budapest: ELTE TTK.

2006. A halgazdasági kisvasutak. *Indóház* August: 70–75.

JÉGER, Gábor. 2009. *Keskenynyomközű vasutak a Dél-Dunántúlon*. *Mediterrán Világ: kulturális folyóirat* 11: 189–209.

2010. *Keskenynyomközű vasutak földrajzi jelentősége Magyarországon*. Miskolc: Miskolci Egyetem Műszaki Földtudományi Kar Földrajz Intézet.

2013. Keskenynyomtávolságú vasutak a Pécsi Üzletvezetőség/Igazgatóság területén. In: Imre Lászlóné–Majdán, János (eds), *Mozaikok a pécsi vasútigazgatás 100 éves történetéből*. Pécs: MÁV. 22–24.

KAPOSI, Zoltán. 2007. *Die Entwicklung der Wirtschaft und Gesellschaft in Ungarn 1700–2000*. Passau: Schenk Verlag.

2019a. Bécstől Szentegátig. A Biedermann família uradalmai a Dél-Dunántúlon (1849–1914). *Közép-Európai Közlemények* XII(44): 101–122.

2019b. Uradalmak, földbirtokosok és birtokforgalom a Dél-Dunántúlon a 19. században. *Mezőgazdaságtörténeti Tanulmányok* 14. Budapest

KOVÁCS, Teréz. 2003. *Vidékfejlesztési politika*. Pécs: Dialóg Campus Kiadó.

MAJDÁN, János. 2014. *A közlekedés története Magyarországon (1700–2000)*. Pécs: Pécsi Tudománytár.

MICHALKÓ, Gábor. 2005. *Turizmusföldrajz és humánökológia*. Budapest–Székesfehérvár: Kodolányi János Főiskola – MTA Földrajztudományi Kutatóintézete.

2007. *Magyarország modern turizmusföldrajza*. Pécs: Dialóg Campus Kiadó.

MOLNÁR, András. 2014. *A Dél-Dunántúl keskeny nyomközű vasútvonalainak bemutatása térképeken*. Budapest: Eötvös Lóránd Tudományegyetem, Természettudományi Kar.

PAVLETITS, Péter. 2015. Fogasléccel a Magas-Tátrába. *Indóház: vasúti magazin* 11(1): 52–54.

2018. Erdei vasút az egykori koronabirtokon. *Indóház: vasúti magazin* 14(6): 58–59.

2019. A Parsenn iker siklóvasút, a Parsennbahn. *Indóház: vasúti magazin* 15(2): 52–54.

2020. A Fás-Duna göröndjétől a bárányfoki végállomásig. *Indóház: vasúti magazin* 20(5): 52–54.

2022. Már csak három év. *Indóház: vasúti magazin* 22(2): 60.

PÁRTOS, Szilárd. 1937. *Magyarország közlekedésügye*. Budapest: Pallas Rt.

PRINCZ-JAKOVICS, Tibor–VASVÁRI, Gábor. 2018. A hazai kisvasutak forgalmának turisztikai potenciál alapú vizsgálata. *Turizmuzs Bulletin* 18(3): 15–22.

SZÁSZ, Sándor. 2015. Ökoturisztikai kínálati elemek a Dél-Dunántúlon. In: *A fürdőélet és egészségturizmus a Dunántúlon az ókortól napjainkig* – konferenciakötet. Kaposvár.

SZILVÁSI, Éva–KOVÁCH László. 2020. *Kisvautakkal Magyarországon*. Budapest: Top Card.

SZÉCSEY, István. 1999. *Hetvenéves a Lillafüredi Állami Erdei Vasút (LÁEV) és a MÁV Rt. Széchenyi-hegyi Gyermekvasút Ganz-és Orenstein & Koppel-gyártmányú motorszerelvénye*. Budapest.

THORDAY, Zoltán. 1989. *Kisvasutak Magyarországon*. Budapest: MÁV Vezérigazgatóság.

TÓBIÁS, László. 1996. *A magyarországi kisvasutak idegenforgalmi földrajzi adottságai*. Budapest.

TÓTH Ernő–HAJÓS, Bence. 2002. *Hidak Tolna megyében*. Szekszárd.