

How to Discover the Value of a Heritage Railway as the Core of an Industrial Landscape?
A Case Study of Alishan Forest Railway, Taiwan
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Introduction

The Alishan Forest Railway, located in Chiayi, Taiwan, was built for transporting timber in the early XXth century during the Japanese colonial period (1895-1945). This railway, linking Chiayi, the main city in the area, and Alishan, the first large-scale logging area in Taiwan, elevated more than 2,000 meters in 72 kilometers. To climb up through the rugged mountains, most engineering solutions for mountain railway, including spiral loops, zigzag, and specially-designed locomotives, etc., were adopted in Alishan, which made it a renowned attraction immediately after its completion.

The 1920s and 1930s were the golden age of commercial forestry in Alishan, as well as the commencement of mass tourism. The lumber mill in Chiayi City, which processed cut logs from Alishan, was also the most advanced one in the Empire of Japan. The railway drove the prosperity of settlements along the railway as well. All the above created an industrial zone of forestry which has gradually been transformed into the core of a cultural landscape after the end of commercial forestry due to environmental concerns in 1963.

The second golden age of the railway was to transport a large number of tourists to Alishan in the 1960s and 1970s. However, it failed to compete with road transportation after the completion of the highway in 1982. Afterward, following some major accidents, voices of the abolition of the railway appeared. At the same time, preserving the railway as cultural heritage became an initiative, which finally urged the government to take actions in maintaining the railway and realizing its full operation.

At the beginning stage, the focus of the railway's heritage value was the engineering solutions, which corresponds to the Semmering Railway (Austria) and the Darjeeling Himalayan Railway (India), the two earliest railway heritage sites inscribed as World Heritage. After decades of struggling and discovery by the local community, the railway finally figured out its position as a heritage railway which preserves not only the rail tracks and techniques, but also surrounding settlements and environments.

Following the worldwide development of the concept of "cultural landscape," Alishan Forest Railway and a limited part of its surrounding forestry area was declared as the first national-level "significant cultural landscape" in 2019; however, the concept of cultural landscape has been quite unfamiliar in Taiwan. It is obvious that "the spirit of the place" does exist in the people who safeguard this railway, but,

simultaneously, it is difficult to demonstrate this characteristic, as previous discourses on preserving this railway focus on engineering and forestry history. Therefore, discovering the community's contribution and what they have the potential to do becomes important to safeguard and inherit the heritage value of the railway as the core of an industrial landscape¹ at present and in the future.

An Analogy of Heritage Railway and Industrial Railway in the Recent Scene

Since the inscription of the Semmering Railway in 1998, 4 railways have already been inscribed as World Heritage, with more ones included in more integrated sites such as the Millennium Underground Railway in Budapest (Hungary) and the Ombilin Railway in Sawahlunto (Indonesia). In addition, 8 more railways across from Cameron to Uruguay are submitted to the tentative list. The inscription of the Trans-Iranian Railway and the slate landscape of Northwest Wales, which also includes some industrial railways, in 2021 has shown the continuous interest in preserving railways in the cultural heritage field.

From the aforementioned cases, it is important to notice the two different but equally significant aspects of the heritage value of railways: engineering and industry. Along with the gradual preservation of the Alishan Forest Railway, the discourses of its heritage value have also been differing into these two aspects. Therefore, an analogy of heritage railways and industrial railways included in large sites on the World Heritage List should be conducted to demonstrate the potential of the railway in regard to different aspects, which is shown in Table 1 (next page).

Accordingly, we can observe that the value of individual heritage railways focuses more on the engineering aspect and the pioneering significance throughout the history of railways. Comparing the Alishan Forest Railway with these railways, although it also adopts some similar engineering solutions, it is not that revolutionary to some extent. On the other hand, put forestry development and colonial modernization in context, the value of the Alishan Forest Railway and the surrounding area can thus be more prominent and illuminating (See Figure 1 and 2).

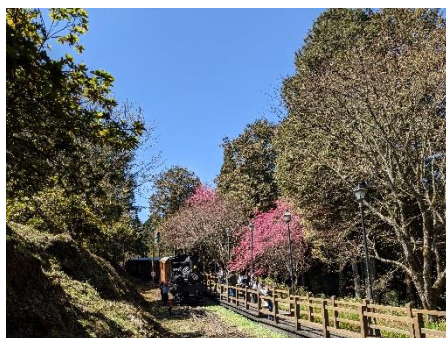


Figure 1 (left): The restored steam locomotive on the Alishan Forest Railway in 2021.

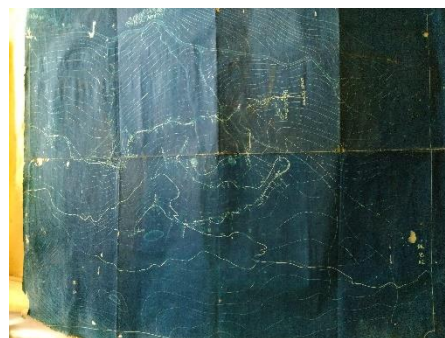


Figure 2 (right): The old map indicating the original route of the railway.

Table 1: An analogy of heritage railways on the World Heritage list

| Item (country, year of inscription) | Year of comple -tion | Testimony | Components |
|-------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Individual Heritage Railway | | | |
| Semmering Railway (Austria, 1998) | 1854 | Civil engineering from this pioneering phase of railway building. | Tunnels, viaducts, and other works. |
| Mountain Railways of Indiaⁱ (1999; 2005; 2008) | 1881; 1903; 1908 | Engineering solutions to establish an effective rail link across mountainous terrain. | Zigzag and loops; rack and pinion; multi-arc gallery bridges. |
| Rhaetian Railwayⁱⁱ (Italy and Switzerland, 2008) | 1904; 1910 | Technical, architectural, and environmental ensemble in harmony with the landscapes. | Tunnels, covered galleries, viaducts, and bridges. |
| Trans-Iranian Railway (Iran, 2021) | 1938 | Engineering works it required to overcome steep routes and other difficulties with its scale. | Bridges and tunnels (including spiral tunnels). |
| Industrial railway included in larger site | | | |
| Ombilin Coal Mining Heritage of Sawahlunto (Indonesia, 2019) | 1892 | Efficient deep-bore extraction, processing, transport, and shipment of coal; exchange and fusion between local knowledge and practices and European technology. | Mining sites, company towns, coal storage facilities, and the railway network. |
| The Slate Landscape of Northwest Wales (UK, 2021) | 1836; 1866 | Large-scale industrial processes which reshaped the agricultural landscape into an industrial center for slate production. | Quarries and mines, archaeological sites, historical settlements, ports, and railway and road systems. |

i. The Darjeeling Himalayan Railway, the Nilgiri Mountain Railway, and the Kalka Shimla Railway, respectively.

ii. The Albula Line, and the Bernina Pass line, respectively.

Source: UNESCO World Heritage Centre.

The positions of the Railway's Guardians

Different from the cases of volunteer railways in the United Kingdom, the Alishan Forest Railway has been continuously, but so far partially, operated by the Forestry Bureau, the official agency managing all the forest affairs in Taiwan. This background already tells how closely the railway is connected to forestry. Around the end of the XXth century, although it was the bureau itself that started to evaluate the abolition of the railway, it finally established a more professional affiliated agency to manage and operate this railway and surrounding forestry heritage sites in 2018 after years of advocacy.² Therefore, in this case, the attitude and strength of the government are quite important and decisive.

The advocacy of the preservation of the Alishan Forest Railway was first initiated by groups of railway enthusiasts including some retired staff of the railway. At that time, the inscription of the Semmering Railway and the Darjeeling Himalayan Railway on the World Heritage list was the best example to persuade the importance of the Alishan Forest Railway because it is comparable and evident that these three railways possess common engineering characteristics.³ Gradually, recognizing it as a heritage property to be preserved has been successfully become a nationwide consensus, making it to be selected on Taiwan's "Potential World Heritage List"⁴ in 2003.

In the coming years, following the deepening and extension of understanding of cultural heritage in Taiwan, younger heritage professionals started to promote the significance of the context of forestry development in Alishan, and the railway should be a component of the whole industrial landscape. Recently, this idea has been dominating the strategies of Alishan's heritage preservation. Some kinds of debate have even occurred between the two positions.⁵ As a result, when the railway was declared as a national-level heritage site, it is entitled "Alishan Forestry and Railway Cultural Landscape." This can be seen as a compromise between two values and became the government's directives in conducting preservation works.

Overviewing similar cases worldwide, very few industrial landscape centers in forestry, which means Alishan needs to find its own way to interpret how a heritage railway functions as the core of an industrial landscape. In addition, the core value of cultural landscape lies in the sustainability of landscape, which requires "people" to sustain its function. Consequently, the transition from conventional preservation aiming at the restoration of the built environment to the community approach aiming at discovering local identity concerning life and environment should be taken, which is also suggested to other industrial landscapes in Taiwan.⁶

Engagement and Actions in the Preservation of the Alishan Forest Railway

The actions taken for the preservation of the Alishan Forest Railway can be

divided into two parts: heritage survey and community engagement. Most official actions are conducted by the cultural departments of the area, while after the establishment of the Forestry Bureau's new agency, it started to put effort into related work. Until 2021, the compilation of the "Principles Governing the Preservation and Conservation" of the integrated cultural landscape is in progress. However, limited to current regulations in Taiwan, the zoning of the heritage site is so strict that only the railway and the government-owned forest recreation area are included in the inscribed cultural landscape. Many significant forestry settlements and facilities are not included, which fundamentally hinders the integrity of the area as an integrated forestry industrial landscape.⁷

As Commercial forestry was ceased in the area as early as the 1960s, it is difficult to survey and restore the environment and techniques of timber production nowadays. The oral history project and the document archiving project have also been initiated by the new agency.⁸ Fortunately, the project succeeded to interview a senior retired staff who shared the process of timber production of the 1940s he was engaged in. Many valuable documents, such as the engineering drawings of tunnels and bridges and the route map of branch lines in the further forest, have also been revealed. Through these approaches, it is obvious that the value of the railway should not be split from the whole picture of the forestry industrial landscape, and projects' continuation would be critical to identify Alishan's heritage value.

Not surprisingly, the engagement of the local community began much earlier than official agencies, which can be divided into three groups. The first group are residents of the settlements along the railway, mainly Alishan and Fenqihu. These villages have successfully transformed into tourist attractions immediately after the cease of commercial forestry, and their interest in cultural heritage has quickly emerged as followed. The second group are amateur tourist guides and heritage volunteers in the surrounding urban area. Participating in heritage preservation and education projects is a way to manifest their local identity and build their social life. The third group is an NGO consisting of alumni graduating from a nearby high school. Their engagement is more connected to spurring younger generations, empowering villages' vitality, and cooperating with outside professional groups.

Connecting the Community to the Industrial Landscape

Recently, academia has been keener to discuss the tourism of heritage railway or the revitalization of industrial facilities.⁹ However, when the scale is enlarged to a larger area, the situation becomes more complicated. The aim of this paper is to emphasize the possibility of a heritage railway becoming the core of a cultural landscape and explain how actors' contributions can be brought into play. Actually,

many individual forestry facilities in the area have already been registered as cultural heritage, restored completely and tactfully, and revitalized for various purposes, but it is also necessary to pay attention to places, people, and actions along the railway.

Comparing to other industrial landscapes worldwide which face severe decline problem, it is noticeable that although commercial forestry has ceased for more than 50 years, Alishan is still prosperous and populated because of the development of tourism. How heritage discourses can enter the field and accommodate different stages of history and significance to demonstrate its spirit of place as a cultural landscape is recently the most critical awareness in Alishan. An individual heritage railway can be valuable because of its scarcity in engineering, but an industrial landscape is valuable because of the community's engagement in sustaining and inheriting the whole landscape.

¹ Stuart, Iain, 2013, "Identifying industrial landscapes," in James Douet (ed.), *Industrial Heritage Re-tooled*, New York, Routledge.

² The affiliated agency's full title is "Alishan Forest Railway and Cultural Heritage Office."

³ Su, Chao-Hsu, 2016, "A Brief History of Alishan Forest Railway Through the Century," Chiayi City, Chiayi Forest District Office of Forestry Bureau, Council of Agriculture, Executive Yuan.

⁴ Because Taiwan is not a member of UNESCO due to political reality, the related government agency has established this list to show the potential world heritage sites, which more or less functions as the tentative list.

⁵ RAIL NEWS, 2015, "Special Collection: Reread Alishan," *RAIL NEWS* (Taiwan), no. 228, p. 56-81.

⁶ Wang, Chun-Hsi, 2020, "The Necessity of Taking a Community Approach in a Historical Cultural Landscape Conservation: A Case of the Jianan Irrigation System in Taiwan," *GeoJournal* 85, no. 1, p. 107-126.

⁷ Similar situation can be found in Taiwan's sugar industrial landscape. See Wang, Chun-Hsi and Chao-Ching Fu, 2011, "The Conservation of Disappearing Sugar Industry Cultural Landscapes in Taiwan," *Journal of Asian Architecture and Building Engineering* 10, no. 1, p. 1-6.

⁸ Alishan Forest Railway and Cultural Heritage Office, 2020, "The Preservation and Revitalization project of Alishan Forest Railway," unpublished government report.

⁹ Chaplin, Ian, 2014, "Revitalizing Community Values through Railway Regeneration in the Asia Pacific Region: A Tourism Research and Education Approach," in Michael V. Conlin and Geoffrey R. Bird (ed.), *Railway Heritage and Tourism: Global Perspectives*, Bristol, Channel View Publications, p. 115-133; Jones, Calvin and Max Munday, 2001, "Blaenavon and United Nations World Heritage Site Status: Is Conservation of Industrial Heritage a Road to Local Economic Development?" *Regional Studies* 35, no. 6, p. 585-590.