

Industrial heritage along railway corridor: a gear towards tourism development, a case study of Lampang Province, Thailand

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Abstract. This study investigated industrial heritage elements and associated landscapes along the railway corridor of Lampang Province, Thailand, and potential (re)uses for tourism development by approaches in relation to the industrial heritage concept. The study employed the qualitative approach utilizing field surveys and focus group discussion with key informants, and an additional questionnaire- based survey. The findings highlight significant potential of mining and railway heritage that can be developed for tourism in the future. The study proposed alternative approaches for future interpretation, with a remark addressing that more research is required, as academic studies in this field still lack, in order to advance the academic and practical areas of the industrial heritage in Thailand.

1 Introduction

Lampang Province at the northern part of Thailand in the national history associated with industrial production, for instance teak trade, sugar production, tobacco production and mining. Lampang has been represented by the natural assets used in the industrial productions such as Lignite, Kaolin clay and wood. It had also been the trading hub of the north during its railway time when the railway arrived the town. The precincts near the town's main river and the railway station areas, for example, were developed as the areas for stocking and transiting goods before distributing to the market areas southwards, emphasizing its role as the trade transition zone. The town's slogan indicates the most outstanding attractions and resources: lignite coal, horse carriage, ceramics, Wat Phra That Lampang Luang Temple, and elephants, which create the town's long-standing image. The main annual events of the town include the ceramic fair to promote its main industrial product, and the Lampang Railway and Horse Carriage Festival held as the strategies to promote tourism and to commemorate the railway and horse carriage histories. There is a connection between the development of railway transport and the town's industrial production development and trading. There is a term 'industrial heritage', which refers to the remains of industrial culture which are historical, technological, social, architectural or scientific value [1]. It is especially the industrial culture developed around the railway zone

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that is considered one of the oldest transportation modes after the industrial revolution. Industrial heritage can be seen in other countries, especially in the European world, being reused for tourism. This is one way this type of heritage can be conserved, whereas tourism can be diversified by utilizing this type of heritage. It will be interesting to find out ways to integrate the tourism of Lampang with its railway corridor, which can benefit promotion of industrial heritage tourism image and improvement of railway landscape to be more attractive and aesthetic. Some areas adjacent to the railway line are abandoned giving the perception of neglect and emptiness. In fact, the landscape along the Lampang railway line can be seen to have cultural and natural qualities, including the continuing and the associative landscape [2], both through the lens of heritage conservation and opportunity to develop tourists' appreciation of different landscapes along the railway journey.

The study area of this research is the approximate 90- kilometers railway line passing Lampang Province through 4 districts including Mae Moh, Mae Tha, Muang (Nakorn Lampang) and Hang Chat, and another 1,352.10 meters passing through Khun Tan Tunnel before arriving Khun Tan Station which marks the border between Lampang and Lamphun. The landscape along this railway corridor embraces mixed natural and cultural fabrics or built environment in the rural and urbanized contexts. It includes railway station buildings, passenger platforms, rail yards, locomotive shed, freight depot and old warehouses, groups of houses of the railway officers, bridges, viaducts and tunnel, streams, reservoirs, mountain ranges, mines, extinct volcanic crater and volcanic rocks, and communities and household factories. These assets are categorized as the industrial heritage. The study addressed what could be potential industrial heritage elements along the railway line and what alternative approaches in relation to the industrial heritage concept could be for future tourism development of the town.

2 Literature review

2.1 The industrial heritage

The Nizhny Tagil Charter for the Industrial Heritage defines industrial heritage as that consisting of the remains of industrial culture which are historical, technological, social, architectural or scientific value [1]. Industrial heritage reflects the profound connection between the cultural and natural environment that can be seen in industrial processes both in ancient and modern times, and evidences of industrial processes can be seen in raw materials (natural resources), energy and transportation networks to produce and distribute products to broader markets [3]. The seminar on the industrial heritage contributed to the assessment report in which the industrial heritage for tourism was classified into (1) industrial and technological monuments for instance sites, moveable heritage and artefacts in museums, as well as fortifications; (2) living industry of all types and agriculture and food production; and (3) intangible heritage for instance cultural activities inspired by industrial development [4]. Remains of the industrial heritage range from buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to industry. The earlier age of the industrial heritage includes (1) railways which focus on history and physical monuments such as stations, tunnels and viaducts; (2) iron works; (3) mining and (4) salt works. A study proposed the industrial heritage assets arranged into themes to offer to tourists' experience such as industrial machinery, textile industry, furniture industry, food production, and electricity generator as well as development into forms of industrial history museum, conference venues, cultural activities and leisure venues, steam train and

eco museum [5]. The case of an industrial site in Novi Sad, Serbia, developed with a sense of tourist attraction categorized the industrial heritage objects into clusters, in which the cluster of old industrial localities within a city presented the zone near the railway station as very significant [6]. The rest included the industrial street and the industrial zone. These zones are the motives in tourism and show the potential in tourism development. The paper emphasizes the significance of the value of old local industries as they intensify local identity.

2.2 Railway as the industrial heritage and railway tourism

In tourism, as transport moves tourists, which creates ‘traveling’ or ‘movement’, transport thereafter represents motion. With higher degree of emotional aesthetic of post-modern tourists, this motion may be viewed as a charming and meaningful journey, as the journey takes them through transition of sceneries. In many cases, the journey to an attraction may be a pleasurable experience on its own right and may be a reason to visit a particular attraction, for example, the Darjeeling Himalayan Railway, one of the Mountain Railways of India located in the foothills of the Himalayas in West Bengal, with its significance of the design that shows the ingenious engineering solutions to the problem of establishing an effective rail link across a mountainous terrain, and the immense beauty of the mountain [7], or the Tran-Siberian Railway (TSR), the network of railways connecting Moscow with the Russian Far East, and considered the longest railway line in the world [8].

Today, there are attempts to develop tourist offers based on transport components, such as train which are beautifully decorated with fully equipped facilities, on which tourists can enjoy foods and drinks, and entertainment and even socializing, while appreciating sceneries along the rail journey. Railway transport is recognized in the field of industrial heritage as it played a notable role during the industrial revolution in mining industries. Railway development showed the world technological development in transportation and had led to dramatic changes in economic, social and even political aspects. Railways initiated the development of destinations marked by monuments and architecture in the form of stations and grand hotels [9]. It makes places to develop destination for visitors and landmarks. The marketing approach uses slowness in promoting tourism as in a so called ‘slow tourism’.

Railways have become another transport choice for travellers, with the public perceiving its ‘slower’ image with more environmentally-friendly and sustainable form of transport and tourism. As well slowness connects with nostalgia or past memory. Going with this perception, heritage preservation has become one of the determinant factors for popularity and recognition or attention of public in railway heritage tourism. Previous studies in regards to railway tourism development showcase different perspectives of how a railway viewed as the heritage can be utilized for tourism, leisure and recreation as well as under the main purpose of preservation and inclusion of rural communities along railway routes.

Railway tourism in other countries, especially in the European world has been developed mostly by utilizing their artefacts of railway heritage and related assets as tourist attractions for instance use of steam locomotives as a tourist ride, tourist railway thematic route that takes visitors to visit industrial heritage sites, railway museum, or rail-to-trail tourism model. In the United States, for example, Amtrak worked with the National Park Service (NPS) in developing the Trail and Rails program to provide rail passengers with educational opportunities, which promote natural and cultural heritage of its regions [10]. A study from Brazil of railway tourism presented the cultural tourism railway market in Brazil and discussed the experiences provided by this tourism, in response to the growing

demand of railway tourism. The study investigated an interface between trains, culture and tourism through the market lens and public policies that structured this segment.

The finding revealed a collection of tourist trains, their operators and brief description of their attractions including the physical appeal of steam locomotive trains, trolleys and steel cars as the majority, as well as intangible cultural fabrics and natural scenery [11]. Railway tourism in Mexico has been developed with the main purpose of diversifying its tourism industry. The country integrated its existing natural, cultural and historical resources with its rail routes. An example is El Cheperoute offering passengers views of dozens of bridges and tunnels, and natural landscape, with stops along the route. The Tequila Express route, with its refurbished train carriages and music and beverage related with the Mexican cultural identities on board, was developed in order to promote the country's identities through the blue Agave plantations which have been used since the 16th century to produce tequila spirit [12].

3 Research methodology

This study mainly utilized the qualitative approach. Documentary research was carried out first to obtain information related to history and pictorial data of research subjects in the study areas, which is along the railway line of Lampang Province, local industrial productions and other related documents, including the review of existing literature about industrial heritage in other countries, its application approaches and international charters. The methodology for process of industrial heritage analysis includes the steps of identification, recording and research. Focus group discussions were also conducted with key informants in order to obtain their points of view towards tourism development based on the industrial heritage approach, and obstacles or limitations. Additionally, a questionnaire- based survey on opinions or interest towards railway components as heritage and towards Thai railway development for tourism was carried out with 222 Thai tourists.

4 Findings

4.1 The mining heritage

Based on the field surveys and focus group discussion, the main attractions with the industrial heritage sense within Mae Moh Mine lie on the physical landscape of the mine as a scenic view, the park that is laid out and decorated with old huge machinery and vehicles used in mining for almost 30-35 years, and the museum that narrates the geological aspects of coal and how to produce electricity from it. Unused machinery is valuable representing the heritage of industrialization. In mining industry, old aged machines no longer used are full of significance indicating length of their use and technology of the past.

The finding raised an issue of conservation for these unused machines, including structures at the power plant. Many structures may possibly be removed (with consideration) as most of the land belongs to the Royal Forest Department. It is the requirement stated in the Mining Act about uses of national land property for mining industry, that after the closure of mining operation, the land must be rehabilitated; the structures and machines must be removed from the site. Some buildings may be remained such as offices and workshop buildings. To apply the international practices in the case of mining reused in tourism, it is necessary to look into laws and regulations that concern land uses and conservation. However, potential of transformation lies on enhancement of the mining landscape attached to their original form such as a lake site, and landscaping other areas to facilitate recreational and sport (such as cycling) events hosting, like in the case of

Ruhr Area in Germany, which is one of the largest industrial regions in Germany as an important home for coal mine production and steelworks in the late 18th century [13].

The Ruhr is a good example of using the space for organizing different events and exhibitions showcasing different content based on individual industrial sites such as the story of energy at the Gasometer, or the Duisburg Landschaftspark that became home to refugee birds and plants as well as a diving basin and stages for music and drama. In the case of Mae Moh Mine, it may move forwards to more ecologically- friendly energy production as well as developing an eco-energy production museum. Operational practices that may follow would thereafter be complied with the ecomuseum concept. As the mine shows layers that tell its long journey of exploration, excavation and operation, the mine itself already gives impressive scenic viewpoint. To augment this impressive landscape as well as leveraging appreciation of visitors in mining production, with more human- nature interaction, modern interpretation may be considered. With large landscape, there is a potential of reuse (and perhaps transformation) of old mining machines currently displayed outdoor.

4.2 Railway heritage

A survey on opinions towards importance and interest of railway components as heritage and towards railway tourism development in general of Thailand were carried out with 222 Thai tourists. The demographic profile of Thai tourists reported that male and female tourists shared the similar proportion, where 49.10% of them were male tourists and 50.10% were female.

Table 1. Thai tourists' opinions and interest towards importance of railway component as heritage

Railway Components	\bar{X}
	Thai
Railway stations	4.38
Railway service functions	4.37
Railway wagon	4.21
Railway travel routes	4.16
Locomotive	4.14
History of railway and of railway routes	4.11
Railway travel culture	4.09
Railway tracks	4.07
Railway tunnels	4.04
Railway bridges	4.02
Average Score	4.16

Most of them were between 21-30 years old, with the bachelor degree as the highest education level. The railway travel behavior was represented by a travel in a group of 2-3 persons, most with friends. Moreover, the activities mostly done during the journey included viewing scenery along the route, taking photographs and reading. Regarding what were preferred about traveling by train, the finding revealed that the passengers mentioned about safety, scenery, convenience, atmosphere and economy, whereas what were disliked included dirty toilet, long journey, uncleanliness on train, crowd, and unpleasant smell. The reason why the tourists used train as their travel mean involved economy reason, opportunity to see views of nature and people along the route, safety and avoidance of road traffic. As shown in Table 1, the highlighted components Thai tourists were interested in

included railway station as the highest followed by railway service functions, train wagon, railway travel route, locomotive and history of railway and of railway routes of Thailand.

Table 2 reported opinions on railway development for tourism based on Thai tourists' point of view. Even though all items received high significance, the first five development items with the highest score were development of railway accommodation, railway guide (person or application) on train to give knowledge, stories and information about railway travel routes, increasing train frequency on each route, increasing railway tracks, and developing trips generated from railway stations to inner areas of destinations. Contrarily, the aspects of development of local railway routes for tourism, development of railway related souvenirs, and railway museum were less notable, yet these also contributed high significance. The tourists also gave some recommendation on improvements for the following detail: toilets and seats on train, safety issue, explanation of rules for train service use, cleanliness, facilitation, punctuality, and information of train uses.

Table 2. Thai tourists' opinions on railway development for tourism

Railway Development for Tourism	\bar{X}
Developing railway accommodation	4.35
Providing tour guide service/ railway guide (person or application) on train to give knowledge, stories and information about railway travel routes	4.34
Increasing train frequency on each route	4.30
Increasing railway tracks / increasing double-track railway lines	4.30
Developing trips generated from railway stations to inner areas of destinations	4.28
Developing railway tourism in adventure theme route	4.27
Developing railway tourism in eco-tourism theme route	4.26
Improving the conditions of existing trains	4.26
Developing railway tourism in historical and cultural theme route	4.25
Increasing train cars	4.25
Improving services on train	4.24
Integrating railway tourism development with the tourism of destinations or communities where the trains pass	4.23
Developing tourism using local railway routes	4.15
Creating railway- related souvenirs	4.07
Initiating railway museums (i.e. at train stations)	4.05
Average Score	4.24

5 Discussion and recommendations

This section proposes implications and suggestions on potential approaches of (re)uses for the industrial heritage of Lampang highlighting on potential of mining heritage, railway tourism and new use of railway station properties.

5.1 Eco-museum, recreational park, and industrial landscape park approach

This approach is suggested for the case of Mae Moh Mine. Park that showcases the mine landscape is recommended as it has a large mine zone and many unused mining machines and vehicles that cannot be collected in an indoor museum form. The case of Duisburg North Landscape Park in Germany also uses this approach regarding less on the preservation of industrial objects but rather shows the beauty of the landscape and the ruins [14]. Image of the industrial heritage normally connects with something abandoned, decay and rustic. Personifying old abandoned industrial sites create an image of lonely heritage. It can be noted that in many cases the industrial heritage might not have to be reused or reconstructed if this costs too high. This idea could be applied to old mining machinery of Mae Moh Mine.

Sometimes, aesthetics and beauty of those old industrial ruins may lie upon their intact state with decay and rustic condition; something new (regenerated) in dying state. The landscape of Mae Moh Mine is characterized by different levels of terrains and with huge machines found around the area, therefore it is good to use the area as the recreational park where active activities can be arranged such as cycling and marathon, as well as being a host venue of cultural events.

Discussing with the Bike Club for Health of EGAT Mae Moh, example cycling routes are produced linking the Mine, Mae Moh Railway Station and other attractions and communities nearby, with an adequate extent of exploration and trials to evaluate level of difficulty. In case that the mine stops its operation, or turns into site of alternative energy production (i.e. alternative energy and geo-park), transformation approach for machines used in mining and electricity production can be considered. International cases of old mine and old machines transformations showcase those assets transformed into recreational playground, which may be potentially applied to Mae Moh Mine, such as turning the mine into a lake and transforming transport conveyor into sledge playground. To increase potential for authenticity, former miners or those work used to work in the mines can be hired as a tour guide, so they can describe to visitors based on recounting their work experiences as well as telling stories of old machinery and mining technological heritage [15].

5.2 Railway heritage tourism development

The survey result emphasized that there was higher recognition of railway properties as the valuable heritage of the country. The Association of Siamese Architects developed the database and website that disseminate the information of historic building heritage conservation and rewards [16]. For the case of Lampang stations, Hang Chat Railway Station, Mae Tha Railway Station, Mae Jang Railway Station and Pang Puay Railway Station in Lampang constructed during 1914- 1916 under the Proprietor State Railway of Thailand, received the Conservation Awarded in 2011. These railway stations have a unique design because they were designed to conform to the hot and humid climate. The architectural beauty of these stations can be perceived from a combination of the western and local Lanna art styles, which is unique. The station buildings portray a rectangular form with one and a half storey made of wood supported by concrete columns. There is an office with the signal porch in the front designed by an architect named Nich Hirunchiranun in 1952, except Pang Puay Railway Station that does not have this signal porch. At the back of the office, there are stairs leading to the upstairs where the bedroom of the station chief is. The back of the bedroom has a wooden balcony. The waiting spaces for the passenger are at the side of the office and in front of the bedroom. The roof is covered with curved tiles.

Above the doors, windows and space for selling tickets are decorated beautifully with wood carving [17].

The finding revealed that passengers were interested in history of trains and railway routes, which coincided with their opinion on development of information service and narratives about history of railway architectural properties and railway routes. Future interpretation is significant in this regards. Forms of interpretation techniques can be designed for both education and entertainment purposes, by utilizing aspects of railway, and related components of railway operation such as unused equipment, old sleepers and locomotive. Information and stories about (historic) trains, train stations, or railway routes, can be disseminated on train by radio broadcasting or showing on TV screen, at museums (or exhibition corner) to be established at train stations, as suggested in the section after this, and on official website and social media. Annual events, festivals or activities of the town may be programmed with railway tours, for instance. Still, there are some differences between rail transport and tourism development in other countries explored in the previous studies and that of Thailand: (1) the Thai railway is still operated generally for passenger commutes; and (2) tourism- related activities offered to railway users along the routes are still limited due to the fact that the existing routes are not sufficiently diverse. This development thereafter takes time. With more routes, potential for upgrading railway travel and railway tourism will be more concrete, such as by integrating both tangible and intangible resources along the railway routes together with railway schedules to produce railway tourism theme routes, as well as linking railway tourism with existing tours of the town.

Bridge and tunnel can also be part of enhancing railway journey experience for travellers to appreciate the value of the industrial heritage like the railway bridge, even though these components are less significant according to Thais' opinion. A reason is that travellers normally cannot interact with bridges and tunnels in situ due to physical difficulty and safety issue along the railway track. It is not like the heritage railway that has no longer been operated. One way that can be developed is on-train interpretation. Narratives on the industrial and technological values could add to interest and excitement towards the railway (heritage) tourism. Bridge is symbolically a phenomenon originated in the post- modern man's nostalgia associated with the historic iron bridge development in the industrial revolution. From that point, iron, concrete and wooden bridges (railway and roadway bridges) are interpreted historically and culturally in the 'heritage time'. They have become alternative node of attraction in tourism, such as the Tha Chomphu Bridge between Hang Chat of Lampang Province and Mae Tha of Lamphun Province, through which every train to Chiang Mai Province trespasses, or the Rassadaphisek Bridge built during the World War I, in Lampang downtown also becoming a focal node of interest and center for public fairs. The black iron railway bridge of Lampang that was built later during the World War II should also be recognized for its value in the industrial qualities through railway tourism interpretation. This phenomenon has partly been a connection with urbanism value of the post- modern century. It is a nostalgic expression felt and made to a virtual form of the historic industrialization.

5.3 New use of existing structures, in particular the railway station properties

Old warehouses, abandoned spaces and goods terminals in the compound of railway stations such as the area of Nakorn Lampang Railway Station have potential to be reused as a museum, gallery or space for exhibitions and installations, and even public space for neighbourhood activities such as market and fairs. Railway station as transportation hub may perform a multifunctional space for the society, apart from its usual function. This creates a diversity to respond heterogeneity of views and expectations of people. The

historic story of the railway and the railway industrial culture can be displayed to let people recognize the value of the railway industrial heritage. Also, other themes related to the local situations status quo can be exhibited. With this regards, further studies of legal framework and related possibilities are required. With this to happen, the cultural landscape of the railway stations will be enriched and there will be other public movements around the area and the areas that connect. With this reuse approach, the railway landscape can become ‘a space’ that ignites other social and cultural activities and is flexible to social happenings. Also, the narratives of the annual fair ‘Lampang Railway and Horse Carriage Fair’ will be augmented and people will learn to appreciate the town’s industrial heritage and this appreciation will gradually be developed as a collective memory.

6 Limitations and recommendation for further research

This study establishes that the topic of industrial heritage is still new in Thailand and its use in tourism is still not concrete, in particular to the case of mining and railway heritage. Academic studies still lack. Therefore, more research studies are required, in order to advance the academic and practical areas of the industrial heritage. Moreover, the study area of this research is considerably large, along the approximately 90-kilometers railway line passing Lampang. Along the line, there are sites as the case studies; this can be noted that the sites showcased in this study are examples. Explorations of other industrial heritage assets of the town can be carried out in the future. Adoption of the industrial heritage for the town’s future re-interpretation could give impetus to further attention and consideration on more elaborative town policy and planning in the realm of cultural planning that integrates relevant and potential entities for future consideration. Importantly, industrial heritage is at risk and underrepresented. Specific laws and charters must be initiated as a sustainable path to ensure the industrial heritage protection.

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