International Journal of Innovative Technologies in Social Science

e-ISSN: 2544-9435

Scholarly Publisher
RS Global Sp. z O.O.
ISNI: 0000 0004 8495 2390

Dolna 17, Warsaw,
Poland 00-773
+48 226 0 227 03
editorial_office@rsglobal.pl

ARTICLE TITLE	ENHANCING THE 'SOCIO-ECONOMIC' TERRITORY OF WESTERN ALGERIA THROUGH TOURISTIC VALORIZATION OF THE RAILWAY HERITAGE: THE CASE OF "SIDI-BEL-ABBÈS / AKKID-ABBES" LINE
ARTICLE INFO	Chahineze Slimani, Boussad Aiche. (2024) Enhancing The 'Socio-Economic' Territory of Western Algeria Through Touristic Valorization of The Railway Heritage: The Case of "Sidi-Bel-Abbès / Akkid-Abbes" Line. *International Journal of Innovative Technologies in Social Science*. 4(44). doi: 10.31435/ijitss.4(44).2024.3056
DOI	https://doi.org/10.31435/ijitss.4(44).2024.3056
RECEIVED	18 November 2024
ACCEPTED	19 December 2024
PUBLISHED	30 December 2024
LICENSE	The article is licensed under a **Creative Commons Attribution 4.0 International License.**

ENHANCING THE 'SOCIO-ECONOMIC' TERRITORY OF WESTERN ALGERIA THROUGH TOURISTIC VALORIZATION OF THE RAILWAY HERITAGE: THE CASE OF "SIDI-BEL-ABBÈS / AKKID-ABBES" LINE

Chahineze Slimani *(Corresponding author)*
University Saad Dahlab Blida1, Institute of Architecture and Urban Planning (IAU), Laboratory of Environment and Technology for Architecture and Heritage, Blida, Algeria
E-mail: slimani_chahineze@univ-blida.dz
ORCID ID: 0009-0001-1346-0474

Boussad Aiche
University of Mouloud Mammerie, Département of architecture, Tizi-Ouzou, Algeria
E-mail: b_aiche@yahoo.fr
ORCID ID:0000-0002-1238-588X

ABSTRACT

The drive to modernize the Algerian railway system raises the question of the future of the cultural assets connected to the old route. The aim of this article is to explore this issue by looking at the potential effects on the growth of a tourist and economic revitalization project that could result from the establishment of a cultural itinerary along the study line. Utilizing unpublished archival sources and cross-referencing them with field research constitutes the foundation of this study. The identification of railway components consists of a reading grid based on the concept (objective and subjective) of the railway landscape. Universal values and the UNESCO World Heritage selection criteria serve as the basis for its evaluation. The QGIS geographic information system complements the inventory approach. The results of this study reveal a monumental landscape, technical and architectural set of the West Algeria railway line, which elevates it into the category of cultural route which could also offer a new opportunity for economic development for the region through cultural tourism. The Q-gis database contributes to the creation of an awareness-raising tool for better asset management.

KEYWORDS

Cultural Routes, Railway Heritage, Railway Stations, Engineering Structures, Digital Inventory, Cultural Tourism

CITATION

Chahineze Slimani, Boussad Aiche. (2024) Enhancing The 'Socio-Economic' Territory of Western Algeria Through Touristic Valorization of The Railway Heritage: The Case of "Sidi-Bel-Abbès / Akkid-Abbes" Line. *International Journal of Innovative Technologies in Social Science*. 4(44). doi: 10.31435/ijitss.4(44).2024.3056

Introduction.

Roads and communication routes have played an important role in the history of civilizations and have taken various forms of socio-economic activities over the centuries through commercial exchange, communication and pilgrimage, historical and natural or artistic routes. These routes reveal a multiple and diverse nature of religious, cultural, social, political, economic and geographical levels, very often becoming popular tourist destinations. Cultural routes have recently gained importance, although their origin dates back to the 18th century, when two young aristocrats and bourgeois undertook long journeys across Europe, notably to Italy. This trip not only enriched the travelers' knowledge, but also created a synergy between the places crossed during the trip. These routes are, nowadays, not only famous for their nature, they are much more

attractive by their complex natural elements which offer new places to visit, new landscapes, buildings and memorable sites to observe, and new cultures to encounter through interaction with people (Severo, 2019).

Therefore, this article, contributes to the study of cultural routes with the perspective of developing a tourism and economic renewal project that focuses on the concept of the cultural landscape. Based on a digital inventory, this study aims to identify railway stations and engineering structures in order to highlight the real impact and potential which favor the creation of a future cultural route in the territory of Western Algeria. Within the scope of the railway modernization project, this study aims to answer the following questions: What is the future of railway architecture inherited from the French colonial era in Algeria? What railway heritage elements can we identify along the route studied? Do the specific attributes of railway architecture, in connection with its natural environment, justify the designation of a cultural route?

Theoretical framework

Some old historical works contributed to defining the corpus of railway stations; the most referenced one is Meeks (1975), who considered the railway station as a typical building which he used to define an architectural style. The terminology and layout of railway stations was confirmed by Perdonnet (1865) and Reynaud (1863). Moreover, Bowie (1987) studied the history of Parisian stations and their urban development, thus addressing the question of architectural styles. A typological study of railway stations in France along the Imperial line was shown by François Poupardin (2008). Some other authors published significant works on cultural routes. For example, Gaillard (2015) examined strategies for promoting, communicating and disseminating European heritage within the framework of the Council of Europe's cultural routes programme. Furthermore, Severo (2019) proposed an interdisciplinary and multi-stakeholder approach to study and manage cultural routes. In addition, Etienne (2005) defined the concept of the railway landscape by analyzing the objective and subjective railway components.

While on a global scale, awareness of the railroad’s heritage value has grown rapidly, Algeria shows indifference towards this heritage. This issue, particularly the railway architecture of the Sidi-Bel-Abbès / Akkid-Abbes line, remains an unexplored area. Some works have nevertheless been carried out like Safir (2011) who examined the railway heritage of the 19th and 20th centuries, focusing on the case of Thnia in Tizi Ouzou, and Benaissa (2023) who initiated a process to protect a railway station. These studies explored the architecture of railway buildings; however, research that studies railway heritage as a cultural route remains unexploited in Algeria.

Cultural routes as a new heritage tool

In 1987, the Council of Europe launched the cultural routes initiative, starting with the protection of the Pilgrim's Way to Santiago de Compostela. In 1998, the International Scientific Committee for Cultural Routes [CIIC] of the International Council on Monuments and Sites [ICOMOS] was set up in response to the inclusion of the Camino de Santiago on the world heritage list. In 2008, the CIIC drew up the ICOMOS Charter of Cultural Routes; a document that aimed at developing knowledge, protection and management of cultural routes while promoting their use for sustainable development and respecting their authenticity. Although ICOMOS and the Council of Europe have specific ways of looking at cultural routes, their definitions are similar, considering these routes to be a new type of heritage resulting from population movements and the sharing of values across time and space, making it possible to discover a rich and diverse heritage.

Cultural routes as cultural landscapes

In 1994, following a meeting of experts, the UNESCO defined the cultural route as a set of tangible elements reflecting multicultural exchanges across countries or regions, thus illustrating an interactive movement in space and time. This definition has been integrated into the guidelines of the convention. (United Nations Educational, Scientific and Cultural Organization, 1994). Thus, many cultural routes such as the Mountain Railways in India, the Rhaetian Railway in Italy and Switzerland, are now part of the World Heritage List, highlighting their importance in the world cultural heritage.

Method and case study

The methodological approach adapted to carry out this research is based on the reasonable exploitation of first-hand, primary, sources. It refers mainly to unpublished archival sources from Archive National of Railway Transport Society, in Algiers, and their cross-referencing with field investigations. The analysis of the archives concerns plans, reports, descriptions, site minutes and correspondence between railway companies during the French colonial period in Algeria. The research relies on a reading grid (Figure N.1), based on the

concept of the types of railway landscape defined by Etienne Auphan in two categories; the subjectively created landscape perceived from the railway, i.e. as seen from the train window (natural and humanized space) and the landscape objectively created by the railway, made up of a set or all of the railway elements (Auphan, 2005).These subjective and objective cultural landscapes will be evaluated according to universal values and world heritage selection criteria (UNESCO, 2005) in order to assess the quality of the "West Algerian" route, with the perspective of elevating it to the rank of a cultural route, or even as a national or world heritage.

The creation of a database using the open-source Q-GIS software has enabled us to manage our corpus of documents in such a way as to facilitate territorial interpretation and guide the process of interpreting the objects of study. This database, as a preliminary step and as the basis of a heritage policy in favor of the creation of cultural routes, is organized under a spatial system presenting the railway line through a geo-referencing process linked to simplified inventory sheets, inspired by the Support Program for the protection and enhancement of Algerian cultural (Algerian Ministry of Culture, 2019) as part of the cooperation between Algeria and the European Union (Sheets based on three inventory levels : Level 1: Census, Level 2: Pre-inventory, Level 3: Inventory).

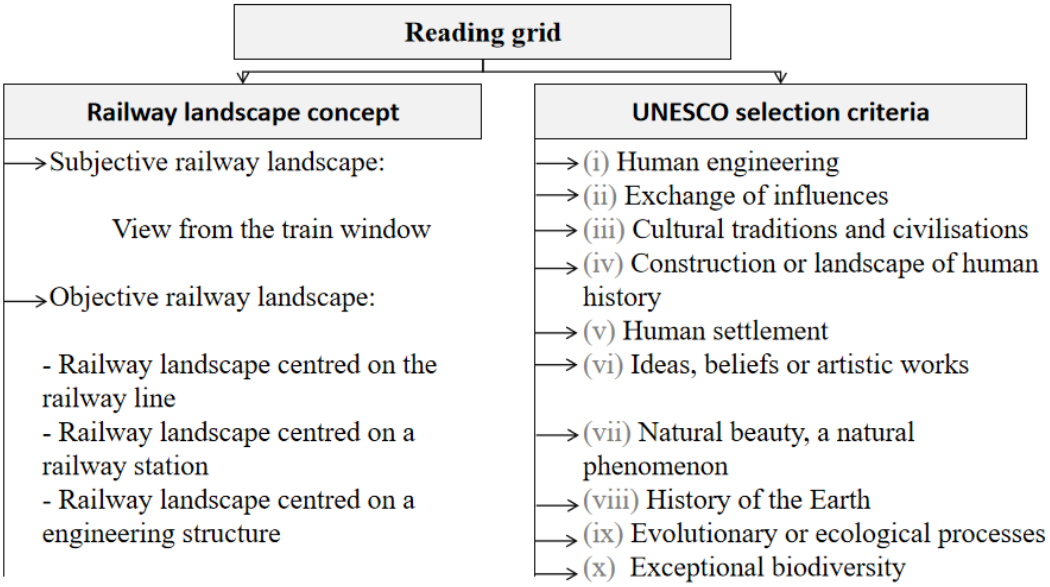

Fig. 1. An overview of the railway route in western Algeria. (Authors, 2024)

The first part of this study initially explores a presentation of the railway line that forms the case at hand, its history and the context in which it was created. The examination of historical conditions attempts not only to shed light on the methods of implementing successive projects, but also on the socio-economic environment, which outlines the multiple facets of the context. Secondly, the study will identify the stations and engineering structures, in order to build an initial inventory for a future cultural route.

The Case study

The case study of our research focuses on the "Sidi-Bel-Abbès / Akkid-Abbes" railway line, which represents the end of Algeria's railway backbone. Situated in Western Algeria, the 156 km line runs parallel to the sea through 2 wilayas: Sidi-Bel-Abbès and Tlemcen, passing through a number of typical towns and villages.

History of the "Sidi-Bel-Abbès/Akkid-Abbes (Morocco border)" railway line

The colonial period

Introduced in Algeria in 1857 (Vaillant, 1857) during the French colonization, the railway gave rise to the construction of numerous railway lines as well as stations and engineering structures that are now part of the rich railway network. Although this heritage is struggling today to be preserved and recognized as such, it is nonetheless a testimony to the history of architecture, engineers and technical progress.

Part of the Imperial Line of North Africa, the "Sidi-Bel-Abbès/Akkid-Abbes" railway line (Figure 2), was built between 1883 and 1910 in two sections. The first section from Sidi-Bel-Abbès to Tlemcen was built

during the second railway program of 1879, then the second section as an extension of the track from Tlemcen to the Moroccan borders at the Akkid Abbes station, was carried out in the 3rd railway program of 1907 (Hartilleux, 1946).

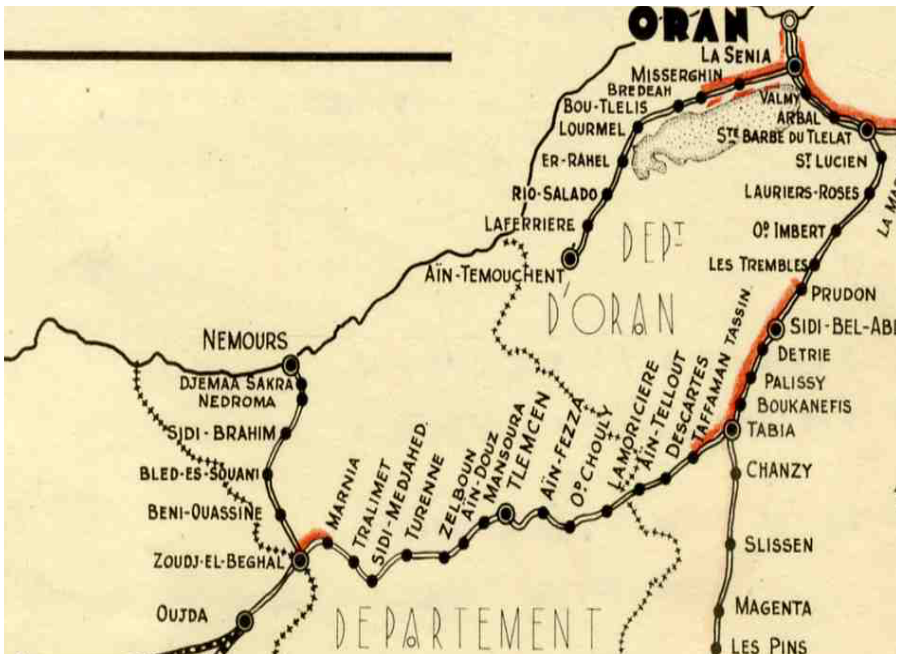

Fig. 2. Extract from the network map, location of rail stations on the study line (Archive Railway Transport)

The construction of the sections of the railway lines included the construction of various railway installations, consisting of terminus stations, train stations, bridges and viaducts. This line had an economic impact by enabling the exploitation of the West-Algerian region natural resources (mainly agricultural) and Morocco (phosphate center and manganese ore) and transport to the ports of Oran and Arzew in order to ship those natural resources to the metropolis.

The 2000s modernization program

Actually, the railway line in question continues to meet the passenger needs. However, this first line is limited to a low speed and sometimes shows advanced deterioration. For this reason, a large budget was allotted to the railway sector as part of the Horizon 2014 economic recovery program (National Agency for Railway Investment Studies and Monitoring, 2021). The latter plans to realize a new modern railway network from "Oued Tlélat to Akkid Abbes" which does not follow the old route (Figure 3); passing through a proposed new station at Sidi-Bel-Abbès, far from the old one, following the route to the old station at Tlemcen proposed for renovation, and gets to the old station at Maghnia. This new route includes new engineering structures. The old bridges and viaducts belonging to the old route will thus be abandoned. This involves the construction of a new double-track electrified line Oued Tlélat / Akkid Abbes (196 km), awarded to the delegated project manager, ANESRIF, the national agency of the study and monitoring of railway investments. Its construction is divided into two section, namely: Oued Tlélat / Tlemcen, 130 km in length, estimated to be 81% complete by August 2024, and Tlemcen / Akkid Abbes, 66 km in length, estimated at 08 % progress (National Agency for Railway, 2021)

The two sections are part of a high-speed HSL line, proposed at 220 km/h. This principle will make it possible to link major towns and cities while reducing travel time, without having to service small localities. Faced with these new projects, the question arises as to the protection of all the cultural assets of the old railway line (natural landscape, infrastructure, stations and engineering structures) and its future. The modernization project could lead to abandoning the old railway line and its stations and engineering structures

If the assumption of creative solutions for reusing these spaces in an innovative way is behind the creation of a cultural route, it would be appropriate not only to question this notion, but also to foresee a way of highlighting the historical and cultural wealth of the region. Actually, the idea of creating a cultural route along the Sidi-Bel-Abbès / Akkid Abbes railway line, by creating reception facilities for visitors wishing to

discover this heritage, could create a real dynamic in terms of cultural tourism. To do so, we will assess the quality of this proposal, in order to guarantee a high-quality cultural itinerary for visitors.

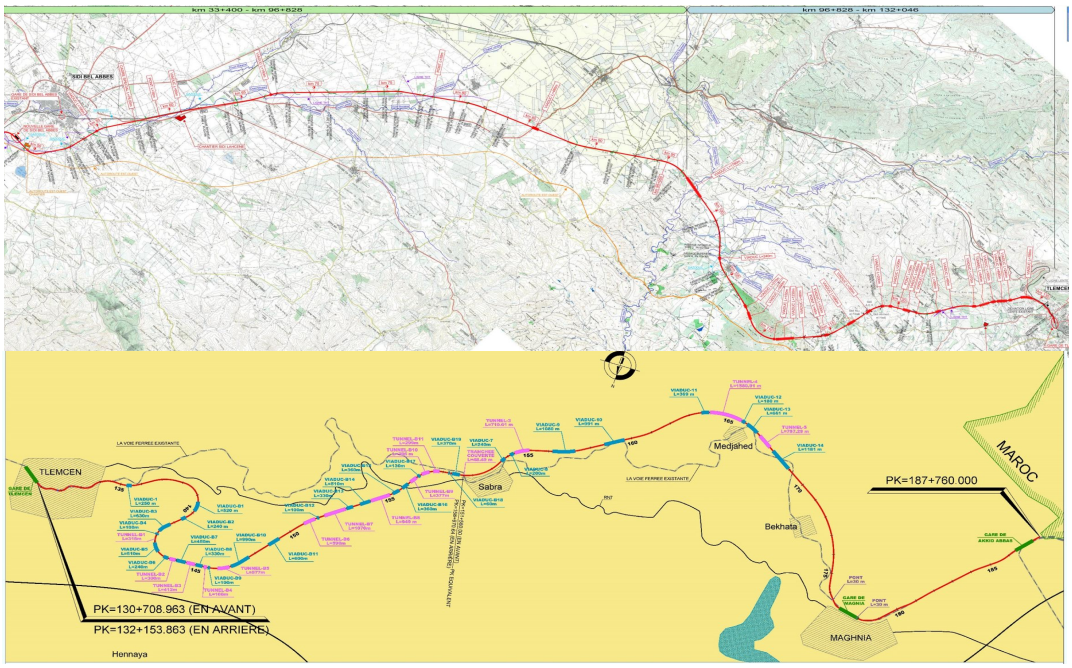

Fig. 3. Overview of the new line Oued Tlélat-Tlemcen 1. Sidi-Bel-Abbès-Tlemcen 2. Tlemcen-Akkid Abbes (National Agency for Railway Investment, 2021)

Identification of stations and engineering structures, proposal for an initial inventory and a future cultural itinerary:

The 'Sidi-Bel-Abbes / Akid-Abbes' railway line, which will probably be abandoned when the modernization project scheduled for 2025 comes into service, features large stations with monumental architecture, such as the stations at Sidi-Bel-Abbes, Tlemcen and Maghnia, as well as modest stations built in small towns. This line is also notable for the importance of its engineering structures: The El-Ourit bridge, the Viaduct over the Oued Ain Tellout, the Oued Ksab viaduct and the Viaduct over the Oued Tralimet. It comprises 2 railway sections that cross the western Algeria plains and mountains. The first section from Sidi-Bel-Abbès to Tlemcen is 87 km long, with 2 terminal stations, 10 intermediates stations, 5 tunnels, 5 viaducts and 3 bridges. The second, from Tlemcen to Akid Abbes just after Maghnia, is 69 km long (positions calculated from the 0 station at Tlélat). It comprises 2 terminus station, 6 intermediates stations, 9 tunnels, 7 viaducts and 1 bridge, and embodies architectural and civil engineering achievements, all along the way, in harmony with the landscapes.

Cartographic geo-referencing and the question of digital inventory:

Within the perspective of creating a West Algerian cultural route, cartographic geo-referencing was necessary as a preliminary step towards the creation of future cultural routes. This idea made it possible to structure all the documentary data and create actions that guide the transition between spatial and geographical data with the inventory sheets. It has resulted in a digital platform using the free software QGIS; This involves firstly drawing up inventory sheets for each study specimen (station, engineering structure), then using the software to digitize the old railway line and the new line based on the topographic maps of western Algeria of INCT (National Institute of Cartography and Remote Sensing, 2021), then geo-locating the railway landscapes studied below, with all the elements of the topographic map. The result of this operation is illustrated in Figure 4.

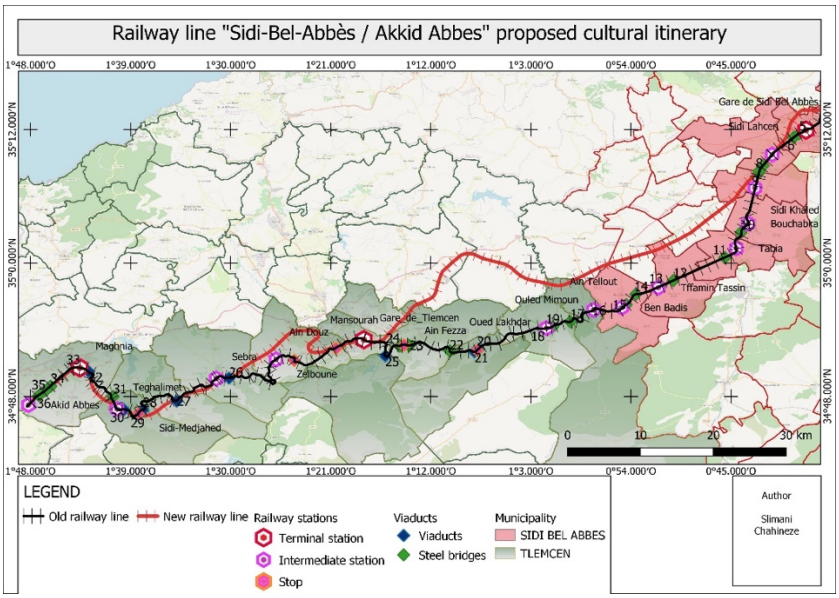

Fig.4. Superimposition of old and new Sidi-Bel-Abbès Akkid Abbes railway lines. Extract from the georeferenced database in Q-GIS. (Authors, 2024)

The results

The study line illustrates an exceptional route in the region of western Algeria, forming a landscape, technical and architectural whole. The analysis grid was used to identify the potential of the route, which features a variety of railway landscapes.

Railway landscapes on the Sidi-Bel-Abbès / Akkid-Abbes line

All the subjective and objective landscapes identified and marked on the Q-gis map below (Figure 5) confirm the potential of the route as a cultural itinerary. This landscape quality is illustrated by the photos below (Figure 6,7) and located on the map of railway landscapes by alphabetic order. After analyzing these types of landscape, we will describe the most fascinating subjective railway landscape. For the objective landscape, we choose the most significant examples of stations and engineering structures along the line studied from an architectural and historical point of view.

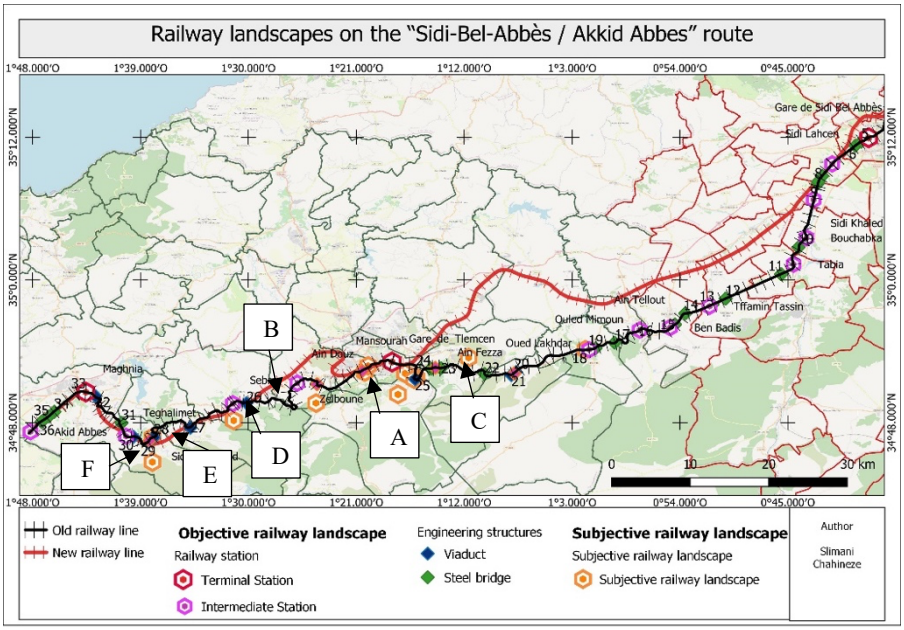

Fig. 5. Map of railway landscapes from Sidi-Bel-Abbes to Akid Abbess. Extract from the georeferenced database in Q-GIS. (Authors, 2024)

To illustrate our point, the stations and engineering structures selected are the major railway stations on the line under study, at Tlemcen and Sidi-Bel-Abbès, which are terminus stations and of different architectural style to provide a greater value. We will limit the illustration to the Bouchabka Turenne and Sidi-Medjahed stations, because of their similarities. As for the engineering structures, we have chosen the most representative viaducts, each with a different shape and type of construction. In order to distinguish between the construction techniques of that time, the choice was made between the metal arch viaduct over the Oued Saf-Saf and the Oued Ksab viaduct built of ashlar.

Fig. 6. From left to right: railroad through the historic site of Mansourah, the Tlemcen massif at Turenne, the Tlemcen coastline (Authors, 2024, Dahmani. M, 2014)

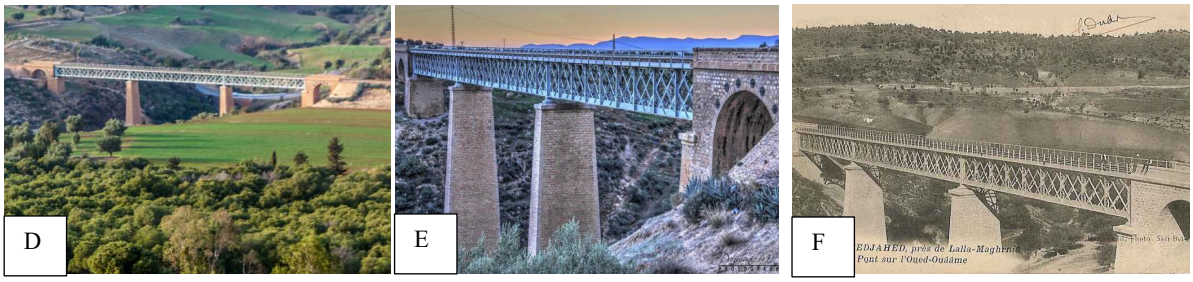

Fig. 7. Railway landscape centred on an engineering structure, from left to right: Viaduct over the Oued Affair, Viaduct over the Oued Tafna, Viaduct over the Oued Ouâame (Dahmani. M, 2014)

Subjective railway landscapes: these include all the landscapes perceived from the railway, i.e. the panoramas observed by the passenger from the train window.

The study route, which stretches between the Mediterranean Sea and the steppes line, offers a diversity of subjective landscapes to passengers contemplating the scroll of outside views through the train window. This line starts from the fertile plain of Sidi-Bel-Abbès, serves the town of that name, and follows the Mekerra valley until it reaches Tabia. From Tabia, the line heads west along the northern edge of the Tlemcen massif, passing through very rugged pine-covered terrain, corresponding to spectacular mountain ranges that are home to important natural resources, crossing the Oued Isser after stopping at Lamoriciere, the Oued Chabet El Kbir and the Oued Chouly, reaching its highest point at around 880 m in Ain Fezza, then descending to Tlemcen through the Oued Mefrouche waterfalls (cascade d'El Ourit), characterized by 7 tiered waterfalls, which are part of the Tlemcen National Park created in 1993. After Mansourah, the route crosses the ruins of the historic site of Mansourah, which dates back to the Merinid era. It then crosses the Oued Afair, the El Hafir forest after the Turenne station. It then crosses the Oued Ksab, Oued Tafna, Oued Ouâame, Oued Abbess and Oued Aounia via 120 to 180 meter-large structures. The line passes through 8 undergrounds from Tlemcen to Maghnia, arriving at Akkid Abbes station where it joins the Moroccan line. (Archive National of Railway Transport Society, 1959).

Objective railway landscapes: These are created by the railway, made up of a set of railway elements that represent the landscape, sometimes marked by the infrastructure laid harmoniously in a spectacular natural setting, sometimes by its architecture distinguished by railway installations, stations and engineering structures. This landscape includes 04 terminal stations, 16 stations, 04 bridges, 14 tunnels and 12 viaducts on the study line.

Objective railway landscape centered on a railway station:

The route allows visitors to discover the railway stations, in other words the passenger buildings, located along the railway line in the case study, which is made up of 2 types: the large stations belonging to the major cities, used as terminus stations, and the train stations used as intermediate stops. As justified above, the stations of Sidi-Bel-Abbès and Tlemcen were chosen, as were the stations of Bouchabka, Turenne and sidi-Medjahed.

Sidi-Bel-Abbès station

Built in 1932 on the site of the old station by the PLM company and the Boussiron firm, the new station's simple architectural forms are distinguished by its Art Deco vocabulary. The volume is uncluttered, with very little ornamentation (Figure 8).

Its axial composition is emphasized by the central body, which marks the entrance to the building and opens onto the *salle des pas perdus*, and the two 5-bay side wings, housing the arrivals and departures areas. The plan of the station (Figure 9), drawn up by Mr WYBO and Mr André LAGRANGE, follows the perfectly symmetrical layout of the railway facilities.

Fig. 8. Old and new Sidi-Bel-Abbès railway station (Archive of Railway Transport)

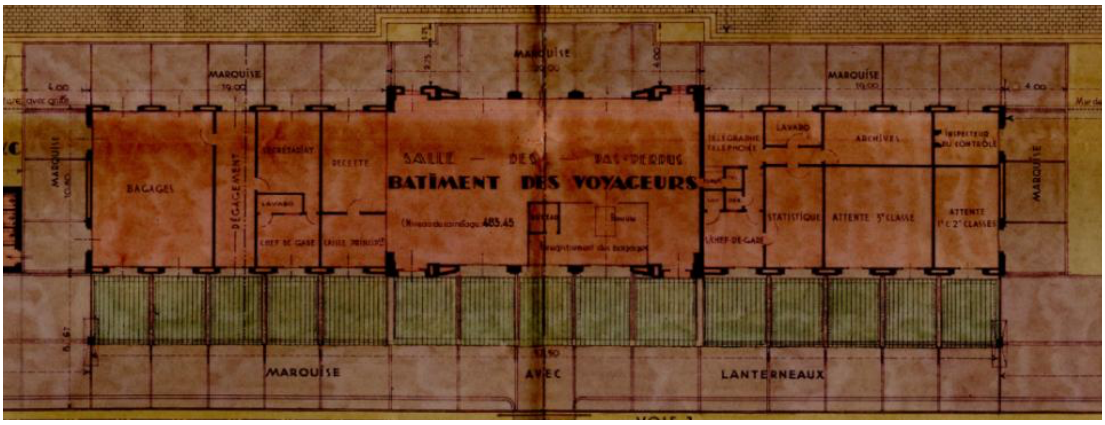

Fig. 9. Plan of the new Sidi-Bel-Abbès passenger building, 1932. (Archive of Railway Transport)

Tlemcen station

This neo-Moorish building illustrates the development of railway architecture in Algeria during the French colonial period. Built for the first time in 1890 by the Ouest Algérien company in a classical architectural style, the station underwent several transformations and extensions to meet the needs of that period. The latest modernization work, carried out in 1957 by the CFA Algerian railway company, gave the station its current appearance. Its neo-Moorish style is characterized by a covered gallery with a series of fluted arches with Ionic capitals and a bell tower, reminiscent of the minarets of Muslim architecture. It is still in use today and keeps its authentic appearance (Figure 10).

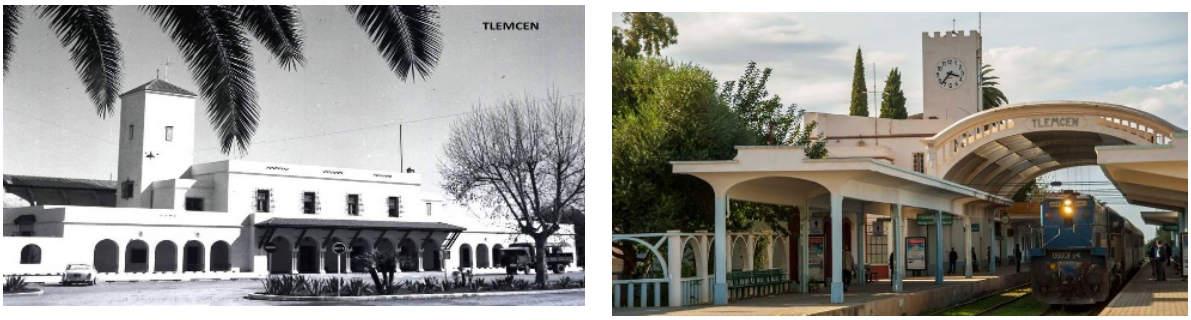

Fig. 10. Tlemcen's old and new railway stations (Archive of Railway Transport)

The line is also distinguished by its stations consisting of small buildings that have a standardized model architecture, and whose standard plans are predefined by the company. These are repeated identically or with adapted variations to the specific needs of each locality, such as the stations at Bouchabka in the wilaya of Sidi-Bel-Abbès, and Turenne and Sidi-Medjahed in the wilaya of Tlemcen (Figure 11). These models vary according to the number of people served, and have a classic, more modest architectural typology, characterized by a central body, generally with a ground floor, a single floor, and a side wing, all under gables

Fig. 11. From left to right: Boukanefis (Sidi Bel Abbes), Turenne (Tlemcen), Sidi-Medjahed (Tlemcen). (Archive Railway Transport)

Railway landscape with a focus on an engineering structure:

The scope of the study provides an opportunity to discover some spectacular engineering structures whose scale varies according to the nature of the obstacles to be crossed. The most remarkable structures were built in the Tlemcen region, where the very uneven terrain required special architectural and technical solutions. Hence, this article focuses on two major engineering structures: The El Ourit bridge over the Oued Saf-saf, and the viaduct over the Oued Ksab.

El Ourit bridge over the Oued Saf-Saf in an arch 68 m long

Built by the Ouest Algeria company and Fives-Lille company (Archive National of Railway, 1890), the El Ourit bridge offers a lush and spectacular panorama to train passengers coming from Sidi-Bel-Abbès. Its location, above an impressive canyon, surrounded by very high peaks, offers a view of seven waterfalls set against the pink and red escarpments of the Oued Meffarouche located upstream. The overall view is an exceptional railway landscape enhanced by this unusual structure (Figure 12).

It was built in 1890 as a truss forming a three-jointed metal arch, with a span of 68.00 metres and a metal deck with uprights. The massive abutments are made of masonry while the cross-beams are spaced 3.20 meters apart. At an altitude of 1208 meters, the bridge is a true technical masterpiece that testifies to the ability of the engineers of the time to take most complex challenges (Figure 13). Today, the El Ourit bridge is a symbol of the city of Tlemcen and an essential crossing point for the region's inhabitants and visitors. It is also a noticeable example of nineteenth-century engineering in North Africa.

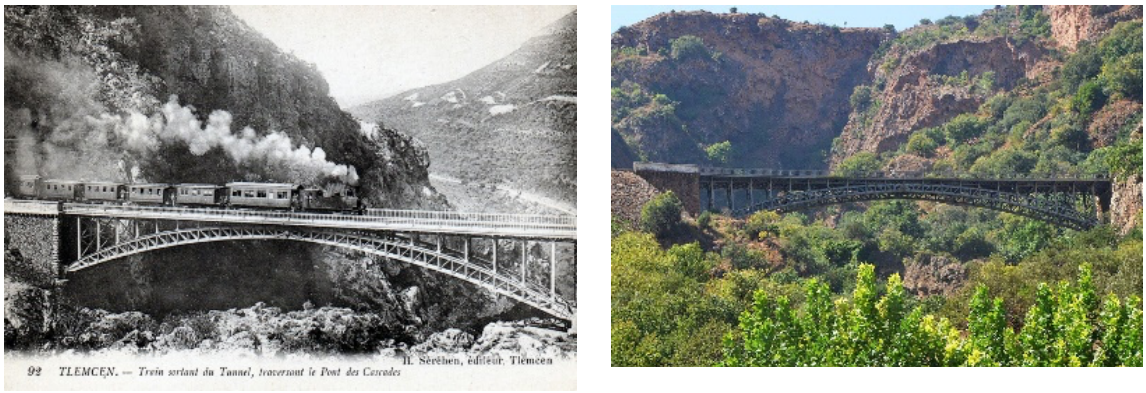

Fig. 12: El Ourit (waterfalls) bridge, wilaya of Tlemcen (Archive of Railway Transport)

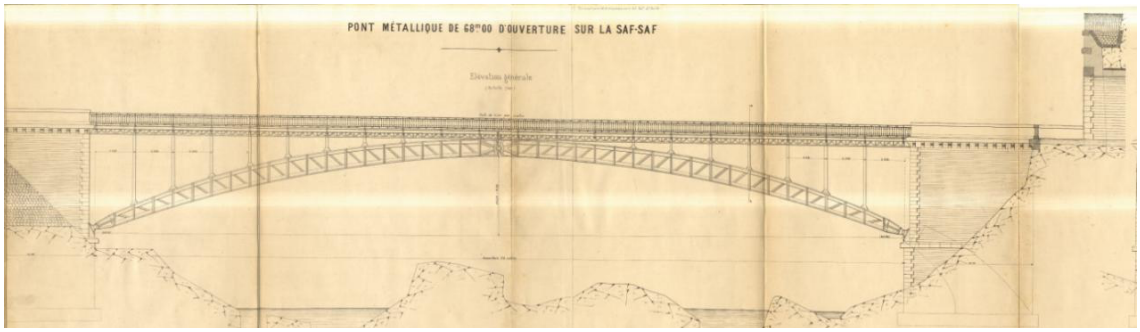

Fig. 13. General elevation of the 68.00 m wide metal arch bridge over the Safsaf river. (Archive Railway of Transport)

Viaduct over the Oued Ksab in masonry 116m.876 long

Another noticeable engineering structure crosses the railway line and offers an outstanding tourist attraction. The Oued Ksab viaduct, also known as the Bouhlou viaduct, was built in 1908 by the Compagnie de l'Ouest Algérien and the Boussiron company from masonry with six arches, each 15 meters wide. An engineering structure from the colonial era, it is 116m.876 long and has a 500-meter curve radius, with a depth above the bottom of the thalweg of 33m (Figure 14 and 15). The structure blends in with its surroundings, offering an exceptional railway panorama where engineering art and nature seem to be in perfect symbiosis

Fig. 14. masonry viaduct with six 15 m arches over the Oued Ksab (Dahmani. M, 2023). (Archive [SNTF])

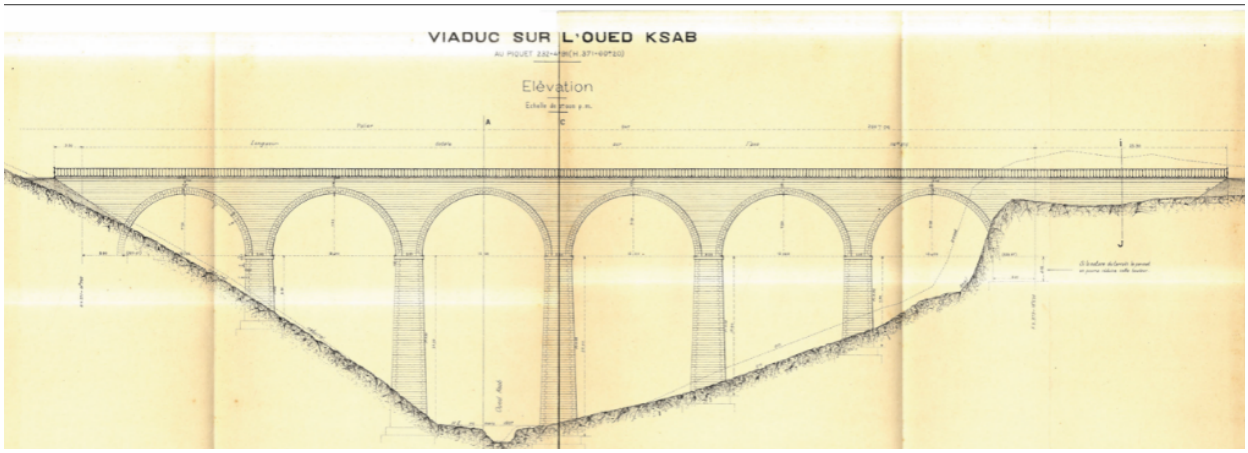

Fig. 15. General elevation Six-arched masonry viaduct 15 m wide over the Oued Ksab (Archive of Railway Transport). (Archive [SNTF])

The types of railway landscape mentioned above show that the study route passes through panoramic landscapes that inspire travel and discover. The next step in the analysis using the reading grid will enable us to assess the quality of this route. For a site to be listed as a UNESCO World Heritage Site, it must possess outstanding universal value and meet at least one of the ten evaluation criteria (UNESO, 2005).

Sidi-Bel-Abbès / Akkid-Abbes: A rail route that meets UNESCO selection criteria

Of the 10 criteria, the Sidi-Bel-Abbès / Akkid-Abbes study route meets Criterion (ii) and Criterion (iv) as follows:

Criterion (ii)*:* The railway provides evidence of the deployed ingenuity to establish the rail network during the French colonial period in Algeria. It reveals an important exchange of influences between the French railway companies, which provided ingenious solutions to the physical challenges of railway construction and anticipated the development of the architecture of railway stations and engineering structures, enabling the creation of an exceptional railway landscape.

Criterion (iv)*:* The railways development in Algeria had a significant impact on the social and economic development of the regions they serve. The example of the railway line running from Sidi-Bel-Abbès to the Moroccan border is a noticeable illustration of the railway's development in mountainous areas, providing access to beautiful natural regions and thus advancing a new type of landscape. This railway line represents an exceptional architectural and comprehensive technological achievement.

Integrity*:* The railway line, including its stations and engineering structures, is now very close to its original state and its functional integrity has been maintained. However, the main threat to the line is neglect, which could lead to the deterioration of the various railway installations.

Authenticity: The railway line and its stations and engineering structures have kept their original design and noticeable evidence of authenticity.

Discussion:

The results of this study shed light on two key points: First, the landscape quality of the railway road confirms its potential value as a cultural route. Second, the database created on QGIS allows efficient management and exploitation of the collected data. We can accordingly argue that the proposal for a 'West Algerian' cultural route focuses on a specific tourist activity that exploits a historically rich travel route. The idea is to set up tourist tours by train, with stops at various stations, enabling visitors to discover the cultural identity of each town they pass through along the way.

The sinuous route of the line follows the topographical constraints of the terrain and reflects the technological genius of that time when the first railway roads were built in Algeria. The discovery of objective and subjective railway landscapes, with cultural and natural heritage, highlights the engineering structures and presents the train commuters buildings as future tourist facilities, revealing their unique architecture, from the most monumental terminal station to the most modest intermediate one. These passenger buildings offer a unique experience, reflecting authentic features of the region's lifestyles and cultures. They have the specific

character of being ‘an extraordinary kaleidoscope in which countless emotionally-charged spectacles unfold’ (François Poupardin, 2008).

The database created by Q-GIS is a geographical representation of the case study, providing tools for efficient asset management. This open source geographic information system enables the creation of maps showing the precise location of the line and its railway installations. Hence, the database provides heritage researchers and decision-makers with visualized data through simple manipulations, giving them an overall view of the line under study, with all the historical, technical and architectural information about the railway line, stations and engineering structures. This approach not only improves the apprehension and management of the route and saves time in collecting information, but it also enables comparisons to be made with current data and monitoring the state of conservation of the railway network as well. It can also be used to create thematic maps to raise public awareness and help preserve and enhance our railway heritage. This database, created for the Sidi-Bel-Abbes to Akkid Abbes line, can be used for the entire Algerian railway network. Nevertheless, it is limited to mapping, geolocation and data collection, and opens up research perspectives into the planning of possible restoration work, as well as proposing the study of spatial analyses based on this database.

Conclusions

The railway project was considered to be the economic lung of Algeria during the period of French colonization. In this study, our proposal consists of reinterpreting this strategy through the requalification of the Sidi-Bel-Abbès / Akkid-Abbes railway line. The modernization project involves abandoning the Sidi-Bel-Abbès / Akkid-Abbes railway line, with the risk of damaging the railway infrastructure, stations and engineering structures. This situation has prompted us to think of creative solutions for reusing these spaces in innovative ways, hence our proposal to create a cultural route.

The objective of this study is to create a cultural itinerary along the study line with a view to developing a tourism and economic renewal project. The examination of the cultural route is based on the criteria of the cultural landscape in order to highlight its important heritage and accentuate its touristic aspect. Based on the results of the assessment grid, the evaluation of the railway line confirms its suitability as a cultural route in western Algeria. The aim of this sustainable territorial renewal strategy is to protect these cultural sites so that they can be passed on to future generations, and to give Algeria a new dimension in tourism, moving from traditional development to diversified and sustainable tourism development.

The aim of highlighting the cultural itinerary of Western Algeria is to raise awareness among decision-makers of the need to preserve this historical and cultural heritage. In addition to preservation, this project represents a lever for economic development for local communities thanks to cultural tourism through the creation of reception facilities such as museums, galleries, restaurants and others. This enhances the value of heritage resources and generates job-creating activities with financial revenues that benefit the local population. This cultural and scientific initiative could also reconcile citizens with their history and raise their awareness of the sustainability and preservation of heritage assets. Furthermore, it encourages cultural exchanges and strengthens social ties between the region's different communities.

Acknowledgements

This research was carried out within the framework of the DGRSDT and the ETAP laboratory, Institute of Architecture and Urban Planning, University of Blida 1, Algeria. We would like to thank: the SNTF Archives Centre in Hussein Dey, Algiers, and the national agency of the study and monitoring of railway investments ANESRIF for their important documentary support.

REFERENCES

1. Agence National d’Etude et de Suivi de la Réalisation des Investissements Ferroviaires. (2022). *État d’avancement travaux*, direction voie, ouvrages d’art et bâtiment, département voie ferrée « DVOB » (Rouïba, Alger, Algérie).
2. Auphan, E. (2005). Qu’est-ce que le paysage ferroviaire ? Défrichement d’un concept. *Revue d’histoire des chemins de fer*, 32-33, 19-41. https://doi.org/10.4000/rhcf.1156
3. Benaissa, C. (2023). *L’architecture des gares ferroviaires en Algérie : Enjeux et fragilités d’un patrimoine colonial*. [Thèse de doctorat, Université Panthéon-Sorbonne - Paris I]. https://theses.hal.science/tel-04448133
4. Boulkroune, H., & Bouslama, A. (2015). *Le Patrimoine Ferroviaire Algérien*. Académiques.
5. Bowie, K. (1987). *Les grandes gares parisiennes* au XIXème siècle. Paris : Action artistique de la Ville de Paris.
6. Centre d’archives SNTF. (1959). *Ce que sont les chemins de fer français exploités en Algérie* [manuscrit non publié]. Hussein Dey, Alger, Algérie.

7. Centre d'archives SNTF. (1934). L'état actuel du réseau des chemins de fer du Maroc. *Le génie civil,* 23, 537-538.
8. Conseil de l'Europe. (2024). *Programme des Itinéraires Culturels du Conseil de l'Europe*. https://www.coe.int/fr/web/cultural-routes
9. Conseil international des monuments et des sites. (2011). *Objectif des comités scientifiques internationaux*. https://www.icomos.org
10. Guillard, M. (2015). *De la construction à la diffusion du patrimoine européen dans les réseaux transnationaux : processus d'appropriation, de médiation et de transmission dans les itinéraires culturels du Conseil de l'Europe* [Thèse de doctorat, Université Charles-de-Gaulle Lille 3]. https://theses.hal.science/tel-01259552v1/document
11. Hartilleux, H. (1946). *Géographie des chemins de fer français, Afrique du Nord*. Chaix.
12. Institut National de Cartographie et de Télédétection. (2021). *Cartes topographiques des régions Ouest Algérien*. Alger, Algérie.
13. Reynaud, L. (1863). *Traité d'architecture* (2ème partie). Dunod.
14. Vaillant, M. (1857). *Rapport à l'Empereur au sujet des voies ferrées en Algérie* [Manuscrit non publié]. Centre d'archives SNTF, Hussein Dey, Alger, Algérie.
15. Meeks, C. (1975). *La gare ferroviaire : une histoire architecturale* (3e éd.). New Haven, CT : Yale University Press.
16. Morton, P. (2000). Le développement des chemins de fer en Algérie. *Revue du Cercle Généalogique Algérie-Maroc-Tunisie*, 4-5. http://www.blidanostalgie.fr/train/Dev+carte.pdf
17. Organisation des Nations Unies pour l'Éducation, la Science et la Culture. (1994). *Convention pour la protection du patrimoine mondial, culturel et naturel, dix-huitième session Phuket, Thaïlande, 12-17 décembre 1994, Rapport sur la réunion d'experts sur les itinéraires* (Madrid, Espagne, novembre 1994). https://whc.unesco.org/archive/1994/whc-94-conf003-inf13f.pdf
18. Organisation des Nations Unies pour l'Éducation, la Science et la Culture. (2005). *Convention concernant la protection du patrimoine mondial culturel et naturel : Critères de sélection*. UNESCO. https://whc.unesco.org/fr/criteres
19. Organisation des Nations Unies pour l'Éducation, la Science et la Culture. (1972). Article 1, *Convention concernant la protection du patrimoine mondial, culturel et naturel*. UNESCO. https://whc.unesco.org/fr/conventiontexte/
20. Pastor, R. (2001). Les chemins de fer algériens de l'état, *revue bimestrielle de la F.A.C.S, UNECTO : "Chemins de fer régionaux et urbains, 286(4)*, Texte issu, avec autorisation, de la revue n° 64, juillet 2010, "A.F.N. Collections", http://afn.collections.free.fr/pages/bulletin.html
21. Perdonnet, A. (1865). *Traité élémentaire des chemins de fer* (3e éd., Vol. 2). Paris : Garnier Frères.
22. Poupardin, F. (2008). Les bâtiments voyageurs édifiés le long de la ligne impériale. *Revue d'histoire du chemin de fer*, 38, 59-71. https://doi.org/10.4000/rhcf.404
23. Safir, M. (2011). *Le patrimoine ferroviaire du XIXe et XXe siècle en Algérie : Identification et valorisation* [Thèse de magistère non publiée]. Université Mouloud Mammeri, Faculté de génie de la construction, Département d'architecture, Tizi Ouzou, Algérie.
24. Severo, M. (2019). Une approche multi-acteurs pour étudier les Itinéraires culturels européens*, Culture & Musées*, 33, 111-113. https://doi.org/10.4000/culturemusees.3017