A Brief History of Alishan Forest Railway Through the Century

Su, Chao-Hsu

Foreword
by Lee, Tao-Sheng, the Director General of Forestry Bureau

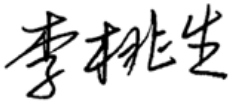
Alishan Forest Railway
A Treasure and a Potential World Heritage Site

Built in 1912, Alishan Forest Railway was originally used to facilitate the logging and transportation of forest resources. As time goes by, it is no longer used to transport woods, but to explore the beauty of Alishan forests. In the meantime, people of the nation have gradually recognized the precious cultural value of Alishan Forest Railway. It is the reason why that we must dynamically preserve it to witness the history of Taiwan and well-manage it to let our future generations experience the profound forest culture.

Many thanks to Professor Su, Chao-Hsu's years of research and appeals that made more and more people know about the features of Alishan Forest Railway. According to his research and analyses, Alishan Forest Railway has numerous Distinctive features comparing with the railways around the world: (1) a steam locomotive with barrel gear and cylinder vertical engine; (2) Dulishan spiral mountain route; (3) switch back (zig zag) mountain rail; (4) a landscape of tropical, subtropical and temperate forests; (5) narrow-gauge mountain rail. Comparing with railways around the world, Alishan Forest Railway is no less than breathtaking.

The renowned New Zealand world heritage expert Mr. Paul Mahoney was invited by Bureau of Cultural Heritage, Ministry of Culture, to visit Alishan Forest Railway in 2013 and 2014. Later, he released a report comparing Alishan Forest Railway with forest railways around the world and made a great compliment on Alishan Forest Railway. In Mr. Paul Mahoney's comparative research, he has assessed the world's forest railways based on their "outstanding value", "authenticity", "completeness", and "protection and management". Alishan Forest Railway was honored to be positioned in the first place. Forestry Bureau therefore started to launch application relevant works for Alishan Forest Railway to become a world cultural heritage.

Alishan Forest Railway has been confronted with all kinds of difficulties since its early construction and, only because of predecessors' unyielding efforts, it is managed to have today's look and be operated for a hundred years. As for the future, Professor Su, Chao-Hsu, through simple and comprehensive narratives, has brought out the essentials of the beauty of forest railway and shown its endless charm and elegance. This book is surely an important source for those who wish to learn more in the category of forest railways.



Lee, Tao-Sheng

Foreword
by Liao, I-Kuang, Director of Chiayi Forest District Office, Forestry Bureau

The Past, Present and Future of Alishan Forest Railway

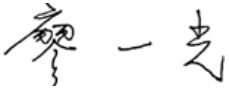
Alishan Forest Railway has been confronted with numerous challenges since the launch of its construction work in 1906. This construction project was originally conducted by Fujita Group from Japan and was then suspended as the construction cost was higher than the forest product revenue. In 1910, Office of the Governor-General of Taiwan took over the construction project; on the 25th of December 1912, the traffic from Chiayi to Erwanping was officially opened; on the 14th of March 1914, the opened route was extended to Zhaoping Station.

During the investigation and construction period, not only many people such as Koike Sankuro and Kawai Shitarō had done a great contribution to this railway, but also some unsung heroes sacrificed their lives for this project. For example, there were "Monument to the Sacrificed Jushichi'I (Junior Seventh Rank) Shindō Kumanosuke (Historic Site)" and "Monument of Technician Ninomiya Hideo" erected in Erwanping. Besides, "Monument of the Sacrificed" was also established in front of Alishan Temple (Ci Yun Temple) to memorize many unknown field workers.

Many thanks to the author, Professor Su, Chao-Hsu, who makes this book easier for readers to understand Alishan's past and present. It also helps us to establish a comprehensive understanding towards Alishan Forest Railway, so that we will not forget predecessors' contributions and efforts.

Although the operation of Alishan Forest Railway has been entrusted to Taiwan Railways Administration (TRA) due to its specialty in railways, our Office still needs to make more efforts to provide TRA continuous financial and administrative supports in order to make the Alishan Forest Railway safer and to provide passengers a better service.

Besides, the Office also continues to fortify our contacts with worldwide countries. After becoming a sister railway of Japan's Ōigawa Railway in 1986, Alishan Forest Railway signed another sister railway agreement with Kurobe Gorge Railway in Japan on the 20th of April 2013. With a close contact, both parties have formed a good relationship due to Professor Su, Chao-Hsu's great effort. In the future, we will further expand our vision and horizon, trying to build friendships with worldwide renowned railways to enhance Alishan's global reputation. We will emulate the world remarkable Alishan Forest Railway and try our best to build up its sustainable operation for a great aim of becoming one of the world heritages. As we also need more recognition, supports and encouragements, it is expected that, by publishing this book, more people will learn about Alishan Forest Railway and love it, protect it and make efforts for its future.



Liao, I-Kuang

Preface
by Su, Chao-Hsu, the author

Developing a Global Perspective for Alishan Forest Railway

Alishan Forest Railway was completed in 1912. Its main line is only about 72km that climbs up from the level ground to 2,274m and passes through tropical, subtropical and temperate forests. With amazingly beautiful landscape and a great reputation in the world, Alishan Forest Railway is an epitome history of the development of Taiwan's industrial railways and an important historic site that represented human's achievement in the industrial railway technology of the 19th century. A rapid decline of this kind of mountain railways occurred in the middle of the 20th century due to industrial transformation. Alishan Forest Railway has been operated for over a century and is worth preserving as it is a sketch history reflecting the mountain railway technology.

The most intense period of constructing mountain railways was between 1869 and 1912, following the huge demand of required raw materials at the end of industrial revolution. The world's first rack railway (cog rail) –Mount Washington Railway in the U.S. – was constructed in 1869 and then Switzerland's Rigibahnen was opened in 1871. As for U.K. (Darjeeling Railway in India), Germany and Austria, they have all completed their mountain railways during this period. Nevertheless, people have a better choice to overcome terrain obstacles after the invention of aircrafts in 1903. During the World War I (WWI) period from 1914 to 1918, aircrafts were used as combat weapons and helped to enhance the development of civil aviation industry. Besides, not only had the technology for tanks and diesel engines improved, but also automobiles were well-developed. Afterwards, the development of world's mountain railways started to decline.

At that time, Taiwan was under the colonization of Empire Japan. On the 25th of December 1912, Alishan Railway was open to traffic for the forestry development. Apart from the racks, the Railway gathered almost all the mature techniques and technology – not mentioning its altitude was higher than India's Darjeeling afterwards. It created Empire Japan's railway apogee in 1915 (Tashan Station 2,346m) and Asia's railway apogee in 1934 (Dongpu Station 2,584m). Today, Zhushan Station at 2,451m is Taiwan's railway apogee. Jungfrau Railway opened on the 1st of August 1912 is also featured with the same ingenuity that, instead of adopting steam car, it adopted the innovative wooden cogwheel train powered by three-phase alternating current. Besides, Jungfrau Station also changed the mountain railway history in the later stage. All of these made the centennial period from 1912 to 2012 extraordinary.

In recent years, I have appealed the government to pay attention to Taiwan's Alishan Railway in public speeches. In the three books of the "100 Years Anniversary of Alishan Forest Railway" series, I listed the world's top 100 mountain railways with statistics and Alishan Forest Railway was among the bests with a number of exceptional engineering data.

▼Zhongxing (Limited) Express passing through the bamboo forest (Drawn by Su, Chao-Hsu)

As Alishan Railway's apogee and elevation drop are surpass than other recorded by United Nations Educational, Scientific and Cultural Organization (UNESCO), world heritage railways, its universal value must not be ignored. After the suffering of Typhoon Morakot, Alishan Railway is scheduled to have all of its routes re-opened in 2015, which makes the present time an extremely important moment for propagations.

In the past, people of the nation often connect Alishan Railway with the "high green mountains and deep blue water" ballad and "Five Wonders" – cloud sea, sunrise, sunset glow, forests and railway. The vision of Alishan Railway was therefore not broadened. Instead, people often get lost in a mistaken myth that only focus on its value as a transportation tool and tourism economic values. To change such local view and upgrade it into a universal value, Forestry Bureau has specially published this book as a promotional material for more people to get to know Taiwan's Alishan Railway.

It is my great honor to write and summarize all the important facts of Alishan Railway in this book. It is my expectation that this pocket book will help people in the nation to have a better understanding of Alishan Railway and to broaden their international vision. In other words, either this book is used as a promotional material in the nation or abroad, it is a preparation for Alishan Railway to be registered as world heritage and become an internationally known mountain railway.

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Su, Chao-Hsu

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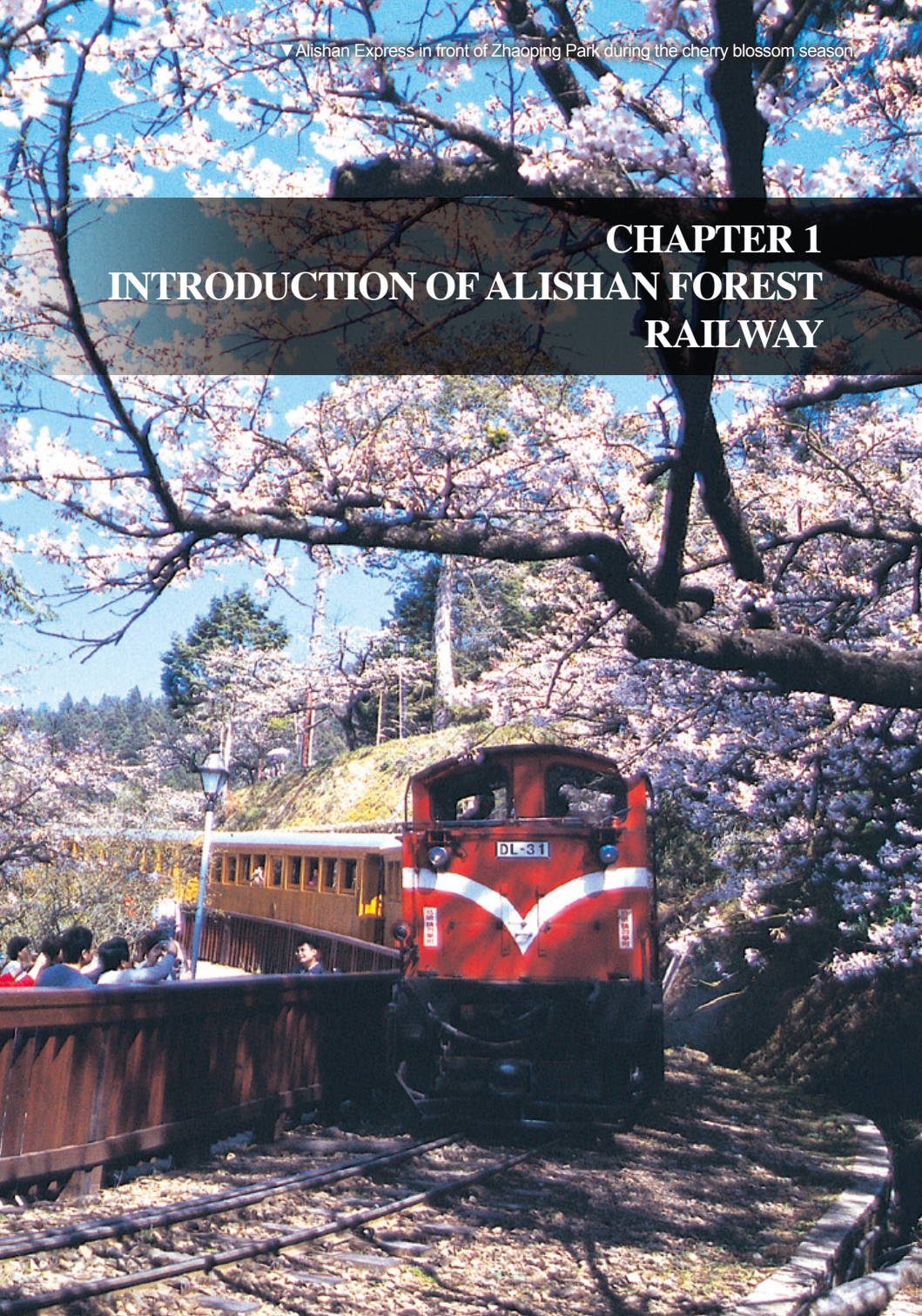


▼Alishan Express in front of Zhaoping Park during the cherry blossom season.

CHAPTER 1
INTRODUCTION OF ALISHAN FOREST RAILWAY

The World Renowned Alishan Forest Railway

Alishan has been one of the best sightseeing attractions in Taiwan and is a worldwide-famous scenic spot all along. Alishan's forests, sunrise, sunset glow, sea cloud and railway are reputed as Alishan's "Five Wonders". Among them, the forest railway has the highest reputation and can be considered as a national treasure or cultural asset. When the railway was firstly opened in 1912, it was originally used as a lumbering railway that transported Alishan's abundant forest sources down to the mountains. Due to the needs of residents along the railway, more trains on this rail were launched to transport both the freights and passengers after 1920. Nevertheless, after the retrocession of Taiwan in 1945, it was difficult to carry on the lumbering industry as the primary forests had been excessively deforested. The self-operated lumbering business was therefore terminated in 1963, and all the forest compartments were sold through auctions. The Alishan forest railway also headed to the direction of tourism. Today, this railway is now already 100 years old, which is at the same age as Republic of China.

Alishan Forest Railway is definitely an epitome development history of Taiwan's industrial railway and an important historic site that represented human's achievement in the industrial railway technology of the 19th century. The historic sites of this kind of forestry railways declined quickly in the middle of 20th century due to industrial transformation and only few were preserved around the world. Alishan Forest Railway, which has been operated for a century till today, possesses a universal value as it equals to the short development history of Asia's industrial railways in the 20th century. Furthermore, it has adopted four out of five technological solutions of hill-climbing railway, where Dulishan's spiral route and the switch back route before reaching Tashan are the most appealing part to the masses. Moreover, after the world's five railways – including Austria's Semmeringbahn, India's Darjeeling Himalayan Railway and Switzerland' Bernina and Albula Bahn – registered as world heritage in 1998, 1999 and 2008, the spiral and switch back routes that seem to be quite averaged proved that Alishan Railway is a great railway engineering project.

In 2003, Alishan Forest Railway was evaluated as Type A of Taiwan's potential world heritage site by Council for Cultural Affairs, making Alishan logically the tourism and cultural representative of Taiwan. Although a serious accident occurred between the New Station and Shenmu on the 1st of March of the same year and caused 17 deaths, the accident does not shatter its position in history or impair its importance as a cultural asset. Indeed, Alishan Railway is not listed as one of the world's top three mountain railways and I also explained it in two books of "The Scenic Wonderland of the Great Mountain Railway". Nevertheless, for most people, Alishan is merely a time-honored scenic spot and Alishan forest train is a romantic but out-of-date transportation tool with no necessity to take it. Therefore, notwithstanding this Taiwanese industrial railway completed in the first year of Republic of China once flourished due to

transporting lumbers and enjoyed a great reputation around the world for its unique landscape and mountain railway, it is now defeated by the competitions of highway and impacts of natural disaster, and is challenged by operation and existence crises. Looking back the past and confronting the future, Alishan Forest Railway may, if succeed in transformation, be positioned as a cultural asset instead of a primitive transportation tool and even be registered as a world heritage. The, under the name of world heritage, Alishan Forest Railway will not only have its position upgraded and operation crisis solved, but also lead Taiwan's tourism industry to the world stage.

A comparison table of the construction methods adopted by Alishan Railway and world heritage railways.

Railway Name	Horseshoe curve and U-Turn	Loop Line and Spiral Routes	Rack Railway (Cog Rail)	Switch Back (Zig Zag)	Special Engined Mountain Rail	Track Gauge
Alishan Forest Railway, Taiwan	★	★		★	★	762
Semmeringbahn, Austria (Registered as the world heritage in 1998)	★					1435
Bernina Bahn, Rhaetian Railway in the Albula, Switzerland (Registered as the world heritage in 2008)	★	★				1000
Darjeeling Himalayan Railway, India (Registered as the world heritage in 1999)	★	★		★	★	610
Kalka Shimla Railway, India (Registered as the world heritage in 2008)	★					762
Nilgiri Mountain Railway, India (Registered as the world heritage in 2005)	★		★		★	1000

A comparison table of Alishan Railway and world heritage railways' background information.

Railway Name	Opening Year	Length of Main Route	Apogee	Perigee	Maximum Gradient	Railway Track Gauge
Alishan Forest Railway, Taiwan	1912	71.9 km	2451m Zhushan Station	30m Chiayi Station	6.25%	762 mm
Semmeringbahn, Austria (Registered as the world heritage in 1998)	1854	41.8 km	898m Semmering Tunnel	495m Gloggnitz	2.5%	1435 mm
Albula Bahn, Switzerland (Registered as the world heritage in 2008)	1903	67 km	1820m Albula Tunnel	604m Reichnau-Tamins	3.5%	1000 mm
Bernina Bahn from Switzerland to Italy (Registered as the world heritage in 2008)	1910	60.7 km	2253m Bernina Ospizio	429m Tirano	7.0%	1000 mm
Darjeeling Himalayan Railway, India (Registered as the world heritage in 1999)	1881	86.0 km	2257.6m Ghum	113.8m New Jalpaiguri	5.55%	610 mm
Kalka Shimla Railway, India (Registered as the world heritage in 2008)	1903	96.54 km	2076m Shimla	656m Kalka	3.0%	762 mm
Nilgiri Mountain Railway, India (Registered as the world heritage in 2005)	1908	46.0 km	2345.1m Lavedale	325.8m Mettupala-yam	8.33%	1000 mm

Features and Values of Alishan Forest Railway

When Alishan Forest Railway was initially opened in 1912, it was only used to transport lumbers. In 1918, freight cars were remodeled to transport passengers and the era of transporting passengers began. Later in 1920, the number of passenger and freight mixed trains was increased and the railway built for the lumbering industry was shouldered with the new traffic function between flat areas and mountains. The operation of Alishan Forest Railway also put on the right track.

In the 10th year of Showa, Taiwan Alishan's most superior lumber were transported to Yasukuni Shrine as building materials. Also because of its beautiful landscape, a large number of Japanese tourists visited Alishan Railway during Showa period and turned it the primary railway attraction of Taiwan during the Japanese colonization. Around 1920, Alishan Railway decided to attach locomotive behind the carriages in a reverse way to push up the train up to the mountains in order to maintain the railway safety. At that time, Alishan Railway not only synchronized its mountain railway technology with the world, but also adopted the advanced ET6 air brake. Its technology was therefore above all the railway systems in Taiwan that time.

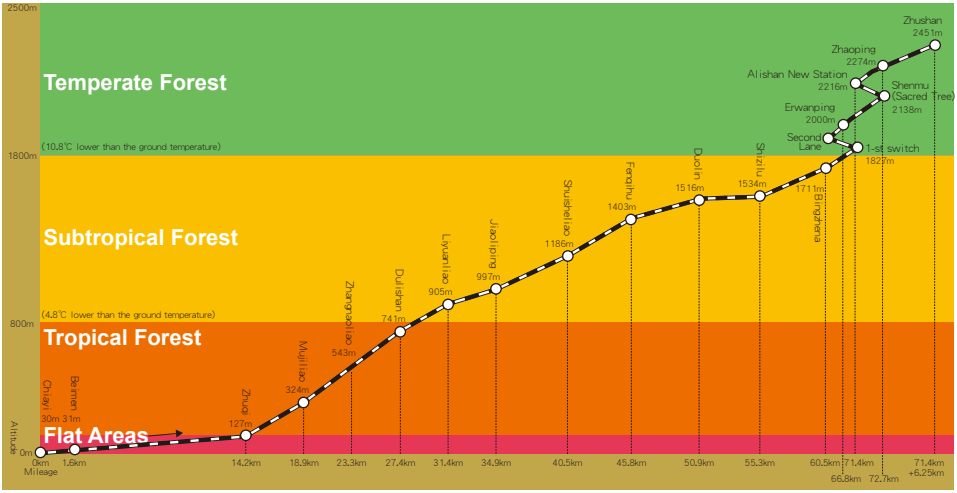
As the matter of fact, during Alishan Railway's construction and traffic opening period, the development of world's mountain railway actually reached the top. In 1908, the Swiss-French TMR (Train Mont-Blanc Express) mountain railway was open to traffic; in 1909, China's Beijing Zhangjiakou Railway that also adopted switch back route was open to traffic; in 1910, the Chinese-French Yunnan–Vietnam Railway and Switzerland's Bernina Express (Bernina Bahn) was open to traffic; in 1911, Switzerland's BLS thank linked Alps' Lötschberg Tunnel was open to traffic. On the 1st of August 1912, Switzerland's Jungfrau Mountain Railway opened its traffic to the peak of Jungfrau. This not only created the new apogee of European railways at 3,454m, but also wrote a new page for the "Top of Europe". In the same year on the 25th of December, Alishan Railway opened its traffic to Erwanping at altitude of 2,000m, created the "Top of Japan" and "Top of Taiwan". At that moment, Taiwan was not absent from the international stage of mountain railway.

Under the construction of Japanese Empire, Alishan Railway was apparently designed as a world-class mountain railway in terms of its scale. The Japanese government therefore released the information that the highest mountain railway of the Far East was completed. This was the origin of the world's top three mountain railway in early years. Although the Alishan Railway during the Japanese colonization possessed the world-class scientific technology, it was not foreseen that this historic railway that positioned in the same place as other world-class mountain railways would be arbitrarily dismantled and damaged due to the short vision of people living in on this island. This is the reason that this highest narrow-gauge mountain railway in the Far East did not receive its deserved position and attention regrettably.

To adapt the unique forest railway and mountain railway environments, Alishan Railway is basically featured with: (1) a steam locomotive with bevel gear and cylinder vertical engine (2) Dulishan spiral mountain route; (3) switch back (zig zag) mountain rail (so-called “Alishan Express running up against the wall”); (4) a landscape of tropical, subtropical and temperate forests and then to areas above cloud seas due to the big altitude gap; (5) the highest narrow-gauge mountain rail, which is higher than India Darjeeling’s DHR, and the longest 762mm narrow-gauge mountain railway. All of these features have created a rich tourism resource for Alishan Railway and facilitated its transformation from the forestry to tourism industry. In comparison, due to differentiated development technology, the Luodong Taipingshan Baxianshan forest railways adopted the Hotta cable way since 1924 were unfortunate that they eventually went into the history due to disasters caused by typhoon.

▼A close-up of Alishan’s Shay SL cylinder vertical engine .

A comparison diagram of routes and altitude of Alishan Forest Railway



From today's technological and economic perspectives, developing primary forests to build forest railway is a 19th century construction method of the U.S. instead of being an economical and efficient method. As the cost of developing forest railway routes and facilities remained relatively high, intensive bridges and tunnels also increased the difficulty of development. In early years of Showa, Hotta Somita from Japan invented "Hotta cable way". That is, to transport lumber carriers through double cable way and then connect the sectioned railways. The invention not only solved issues caused by steep slope, but also reduced the total railway length, lowered the cost and increased production efficiency. This technique, which was firstly applied in Taipingshan Forest Area in 1924 and then in Dongpu forest depot, largely increased the forestry production volume. If Alishan Forest Area had been developed later and adopted the cable-way technique as Taipingshan Forest Area did, the 72km long Alishan Forest Railway would not be existed and surely there would not be a world-known mountain railway that represents Taiwan.

Besides, Alishan Forest Railway is not listed as one of the world's top three railways because it cannot be competed with other European and U.S. mountain railways in terms of the gradient, height and length. Nevertheless, its value is on its abundant diversity. That is, "forest railway", "mountain railway" and "high elevation mountain railway" all rolled into one. It was an industrial railway

▼2-nd switch. The train needs to move backward in order to move forward into the mountain.

▼Landscape of flat areas

▼Landscape of tropical forest

▼Landscape of Subtropical forest

▼Landscape of temperate forest

originally built to develop the forest resources, which conforms to the definition of forest railway; its maximum gradient reaches 62.5 out of 1,000, which conforms to the definition of mountain railway; its altitude is over 2,000m that covers high altitude mountainous areas from Zhaoping at 2,274m to Zhushan at 2,451m, which makes it a genuine high elevation mountain railway.

It is not easy for Alishan Railway to perfectly conform to the definition of three railways. Although other countries may have high-altitude mountain railways or railways with a great gradient, they may not have a railway featured with such rich diversity. It is especially so that, in the field of forest railways, there are not many railways have 72km long main route. (For detailed information, please refer to “The Scenic Wonderland of the Great Mountain Railway” written by Su, Chao-Hsu)

Route and milestone of Alishan Forest Railway (2009)

Route	Type	Station	Mileage between two stations (m)	Accumulated mileage (m)	Altitude (m)	Remarks
Main (Mountain) Line	Flat Areas	Chiayi△	0.0	0.0	30	※Abandoned commuting station △Existing fixed intermediate station. One passenger car (Alishan Express) is scheduled to go up and come down the mountain every day.
		Rongting※	0.9	0.9	--	
		Beimen△(Peimen)	0.7	1.6	31	
		Lucuo※	1.3	2.9	--	
		Qixia※	2.4	5.3	--	
		Wanqiao※	2.1	7.4	56	
		Pozipu※	1.5	8.9	--	
		Lumachan※(Luman)	1.9	10.8	82	
		Xinzhuqi※	2.6	13.4	--	
		Zhuqi△(Jhuci)	0.8	14.2	127	
	Tropical Forest	Mululiao (Mujiliao)	4.7	18.9	324	
		Zhangnaoliao(Jhangnaoliao)	4.4	23.3	543	
		Dulishan	4.1	27.4	743	
	Subtropical Forest	Liyuanliao	4.0	31.4	905	
		Jiaoliping△	3.5	34.9	997	
		Shuisheliao(Shueisheliao)	5.6	40.5	1186	
		Fenqihu△(Fenchihu)	5.3	45.8	1403	
		Duolin (Duoluoluo)	5.1	50.9	1516	
		Shitzulu	4.4	55.3	1534	
		Pingzhena (Bingzhena) (Pingjhena)	5.2	60.5	1711	
	Temperate Forest	1-st switch	2.5	62.7	1827	
		Erwanping	4.1	66.8	2000	
		Shenmu (Sacred Tree)	2.8	69.6	2138	
		Alishan Station△	1.8	71.4	2216	
		Alishan (Zhaoping) (Chaoping)	1.3	72.7	2274	
Old Forest Farm Lines	Dongpu Line	Alishan (Zhaoping) (Chaoping)	0.0	0.0	2274	Bifurcation to Shuishan Line Bifurcation to Xishan Line and Shishuishan Line
		Dongshan	5.0	5.0	--	
		Eryu (Zizhong)	3.0	3.0	2305	
		Xingaokou (Japanese: "Niitaka", refers to "new highest")	2.7	2.7	2332	
		Dongpu	20.0	20.0	2584	
	Tashan Line	Alishan (Zhaoping) (Chaoping)	0.0	0.0	2274	Bifurcation to Tashanli Line and Duigaoyue Line Bifurcation to Dalongxi
		Tashan	4.2	4.2	2344	
		Mianyue	2.5	6.7	2303	
		Cableway	7.6	14.3	--	
Today's Tourist Branch Line	Shuishan Line	Alishan (Zhaoping) (Chaoping)	0.0	0.0	2274	Currently not available.
		Shuishan	1.6	1.6	2320	
	Mianyue Line	Alishan Station	0.0	0.0	2216	Currently not available.
		Shizifendao (Cross-Turn Lane)	2.9	2.9	2332	
		Shihou	6.36	9.26	2318	
	Zhushan Line	Alishan Station	0.0	0.0	2216	Two passenger cars are scheduled to go up and come down the mountain every day, plus extra run on the weekend.
		Shizifendao (Cross-Turn Lane)	2.9	2.9	2332	
		Duigaoyue	2.0	4.9	2405	
		Zhushan (Chushan)	1.35	6.25	2451	

◎Mianyue Line was disconnected on the 21st of September 1999 due to earthquake. The Line was reopened in 2009, but only to Tashan
◎The Main Linewas originally 71.9kmand is now 72.7km. The length of the Main Line varies according to the reconstructed parts after a natural disaster.
◎From Alishan Station to Shenmu is Shenmu Line and to Zhaoping is Zhaoping Line. These lines are used as branch lines for tourism.

The Past and Present of Alishan Forest Railway

After Office of the Governor-General of Taiwan took over the construction project of Alishan Railway in 1910, Alishan Railway was officially opened on the 25th of December 1912 from Chiayi to Erwanping. After the end of railway was extended to today's Zhaoping Station on the 14th of March 1914, the following sections of Alishan mountain railway's main route was then settled. The 71.9km Main (Mountain) Line of Alishan Forest Railway was completed.

When Alishan Forest Railway was firstly opened, the distance between Chiayi and Alishan Zhaoping Station was 71.9km. After the retrocession of Taiwan, Forestry Bureau then gradually improved the route conditions. Today's Alishan Forest Railway starts from Chiayi Station and there are 18 stations along the way, including Beimen, Lumachan, Zhuqi, Mululiao, Zhangnaoliao , Dulishan, Liyuanliao, Jiaoliping, Shuisheliao, Fenqihu, Duolin, Shizilu, Bingzhena, 1-st switch, Erwanping, Shenmu and Alishan Station. As the Alishan New Station located on the Fourth Lane was seriously damaged after the September 21 Earthquake, the station was dismantled and the terminal returned to the old Zhaoping

▼Zhaoping Station in the past (Drawn by Su, Chao-Hsu)

▼The classic view of having Alishan Zhongxing (Limited) Express parked in front of the Shenmu Station is now a memory.

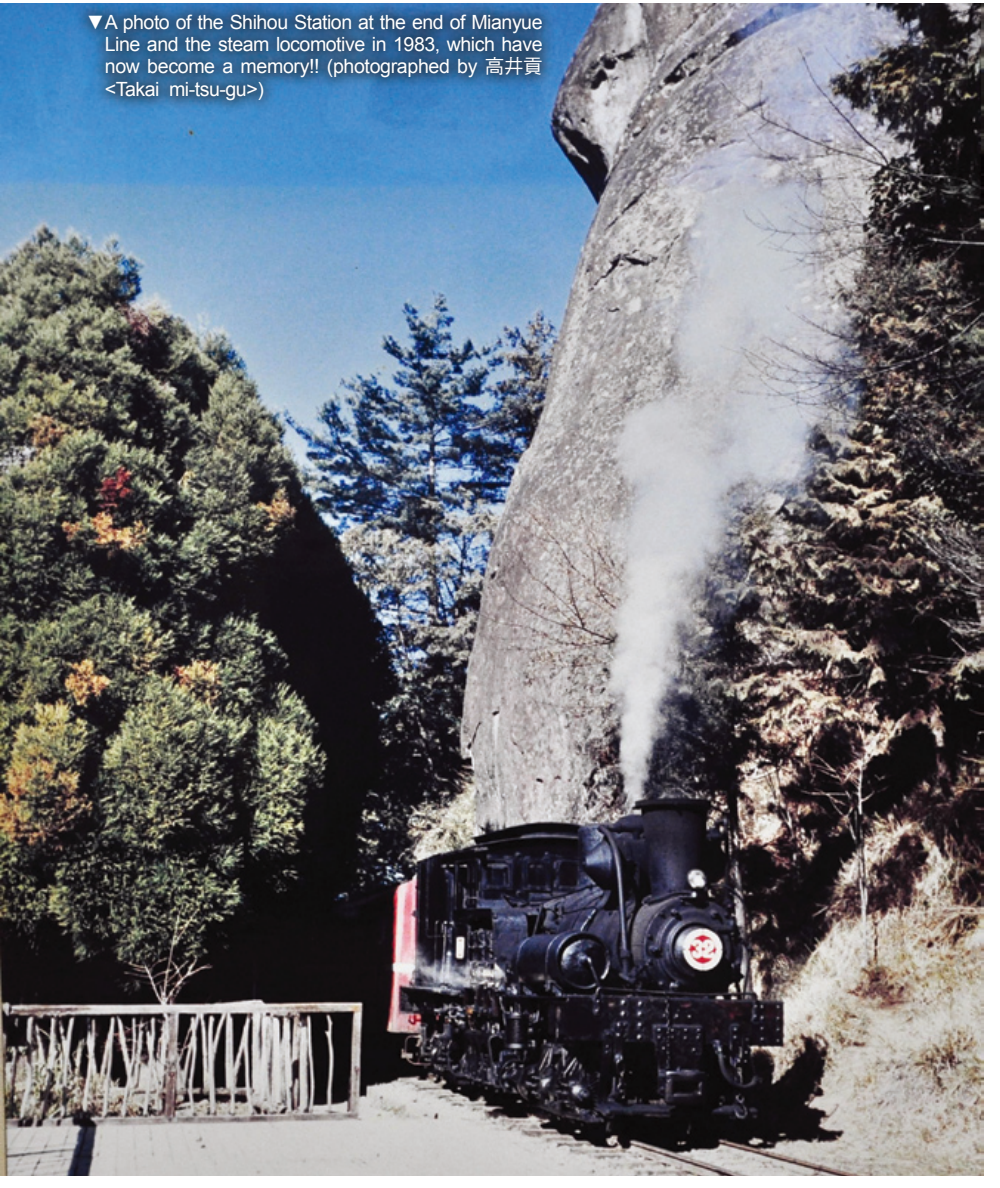
Station used before 1981. In September of 2007, the wooden Alishan New Station was reopened and named the Alishan Station. At the end of 2008, the reconstruction project of Zhaoping Station was contracted out. On the 22nd of April 2013, the reconstruction project of Zhaoping Station was completed and the station was opened.

Alishan Railway was confronted by an unprecedented challenge in the 1990's. On the 1st of September 1997, Shenmu (Sacred Tree) was partially collapsed and this landmark of Alishan Forest Railway was placed in jeopardy; when another half of Shenmu was put down on the 26th of June 1998, the landmark of Alishan Railway's Shenmu officially walked into the history. Later, when Forestry Bureau planned to set "Shihou" as Alishan's new landmark, the September 21 Earthquake occurred. The head of Shihou fell off and shattered into pieces, so-called "double trouble".

Alishan Forest Railway was seriously damaged during the September 21 Earthquake in 1999 that Mianyue Line and Alishan New Station had to be rebuilt. The end of the mountain railway was temporarily replaced by the new station until the completion of Alishan New Station. Nevertheless, Alishan Railway was never spared from natural disasters: In 2009, Typhoon Morakot seriously damaged Alishan Railway again. All the routes were paralyzed and suspended. Although this big flood was indeed a misfortune, it somehow aroused people's attention to Alishan Railway.

Today, the prosperity of Main Line as a tourism railway no longer exists after the launch of Alishan Highway on the 1st of October 1982. Although Alishan Express with the air conditioning system was launched in 1984, after the closure of Guangfu Passenger Car in 1983, it still cannot compete with the highway in terms of fare and traveling time. The launch of Alishan Highway also changed the pattern of mountain freight transport, where freights are now transported through highway instead of the railway. Alishan Railway's freight transport therefore exists only with the name. In 1988, Alishan Railway officially abolished the 60 year old mixed passenger car, so-called the ordinary train in tradition. Small stations along the route were also downgraded to staffless stations. In 1990, Zhongxing Diesel Passenger Car, which had been driven for about 30 years, was closed and only Alishan Express was preserved. Today, there is only one train going up and coming down the mountain every day, showing the lowest point of railway depression

In the future, the main route of Alishan Railway will stick with Alishan Express. In ordinary days, there will be one train going up and coming down the mountain every day regularly. During summer vacation and holidays, the number of traveling trains will be increased to two and, in blossom season, three in total. Nevertheless, it is undeniable that the number of people visiting Alishan through the highway is much more than those through the railway. In the past, passengers of forest railway's branch lines – Zhushan Line and Mianyue Line – are much more than passengers of the Main Line. Thanks to the crowd for the sunrise, Zhushan Line has actually become a profitable mountain railway.



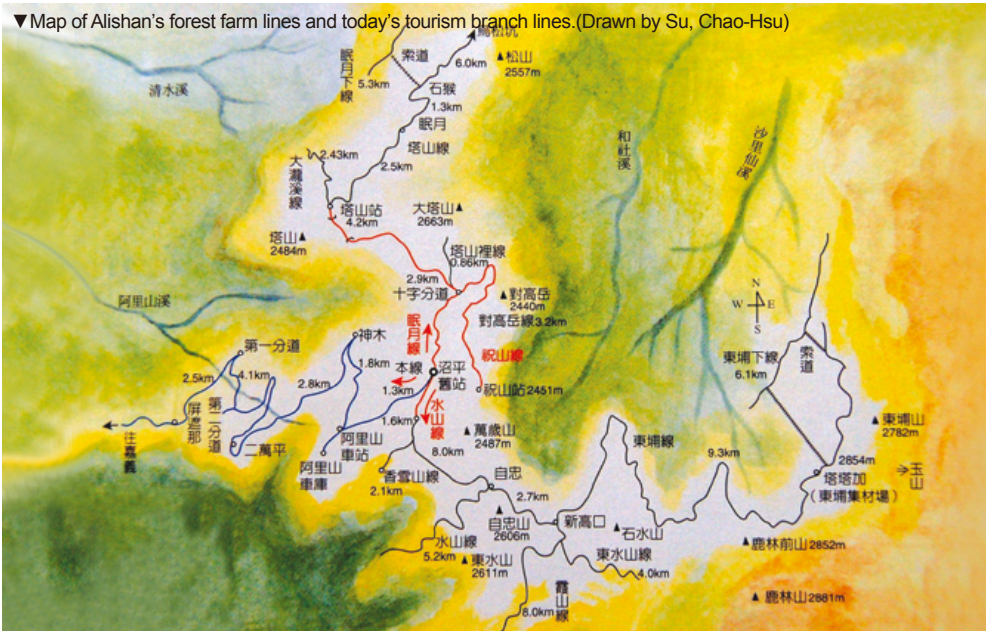
▼A photo of the Shihou Station at the end of Mianyue Line and the steam locomotive in 1983, which have now become a memory!! (photographed by 高井貢 <Takai mi-tsu-gu>)

Railway Branch Lines with a Greater Reputation than the Main (Mountain) Line

During the Japanese colonization, the construction project of forest farm line was launched in 1912 to further and efficiently develop Alishan's forest resources. On the 25th of May 1912, the first forest farm line was launched from Zhaoping to Wansuishan and Xiangxueshan Saddle in the south, so-called the Xiangxueshan Line. In 1934, this earliest forest farm line was extended to TatajiaSaddle 20km away and formed the Dongpu Line. The end of Dongpu Line is at altitude of 2,584m, which is the highest mountain railway in Taiwan. This railway was closed in 1978 and Dongpu Line became the roadbed of New Central Cross-Island Highway opened in 1991. Dongpu Line, the highest mountain railway in Taiwan, then disappeared from people's memory.

On the 3rd of December 1912, a northward forest farm line was built from Zhaoping to Tashan, so-called Tashan Line. Tashan Line was then extended to Wusongkeng with a total length of 14.3km. The 9.26km long section from Alishan to Mianyueis the Mianyue Line that leads to the scenic spot "Shihou" (Stone Monkey), which was severely damaged during the September 21 Earthquake in

▼Map of Alishan's forest farm lines and today's tourism branch lines.(Drawn by Su, Chao-Hsu)



▼Taiwan's highest train station "Zhushan Station", which is at altitude of 2,451m.

1999 and the reconstruction project is still to be completed. The reconstruction of Mianyue Line was delayed for a very long time and eventually was completed before the end of 2007. Unfortunately the reconstruction results still need to be survey and the Line is therefore not opened to the public.

Regarding the forest farm branch lines, Dongpu Line and Tashan Line were closed in later 1970. In 1982, the front section of Tashan Line, so-called Mianyue Line, was reconstructed to facilitate the development of tourism and to build tourist branch lines. Ended at Shihou, Mianyue Line runs tourist trains periodically. In 1986, Shizifendao (Cross-Turn Lane), a station 3km away from the Mianyue Line, and some roadbeds of Tashanli Line were used to build Zhushan Line, a bifurcation to Sunrise House in Zhushan, to provide tourists the service of watching sunrise. Ended at Zhushan Station at altitude of 2,451m, this is the first high elevation mountain railway built by the people of the nation after the Retrocession of Taiwan. Since then, this station is the apogee of Taiwan's railways, Top of Taiwan, and the highest train station.

Besides, the long abandoned Dongpu Line had its front section repaired, that section was 1.6km long of the Shuishan Line, and can be connected to the head of the New Central Cross-Island Highway tunnel. Plus the revival of Alishan's Shay steam locomotive No. 26, 31 and 25 in recent years, these locomotives can be operated with cypress carriages as local trains to build an atmosphere of forest railway travel. It is planned to use No. 31 in Shuishan Line, which will have its operation resumed soon; and No. 25 will be used in flat areas from Chiayi to Zhuqi and low altitude mountain routes. Having itself gradually positioned as a cultural asset, Alishan Forest Railway is reborn with a new life.

Although the Main Line was suspended in 2009 after Typhoon Morakot, the branch lines were not seriously affected. Alishan Railway has four branch lines of high elevation mountain railways including Zhushan Line, Mianyue Line, Shuishan Line, and Shenmu Line, the rear section of the Main Line. Having all of them operated with cypress carriages and steam locomotives, Alishan Forest Railway will become the nation's exemplar of preserving historic railway sites.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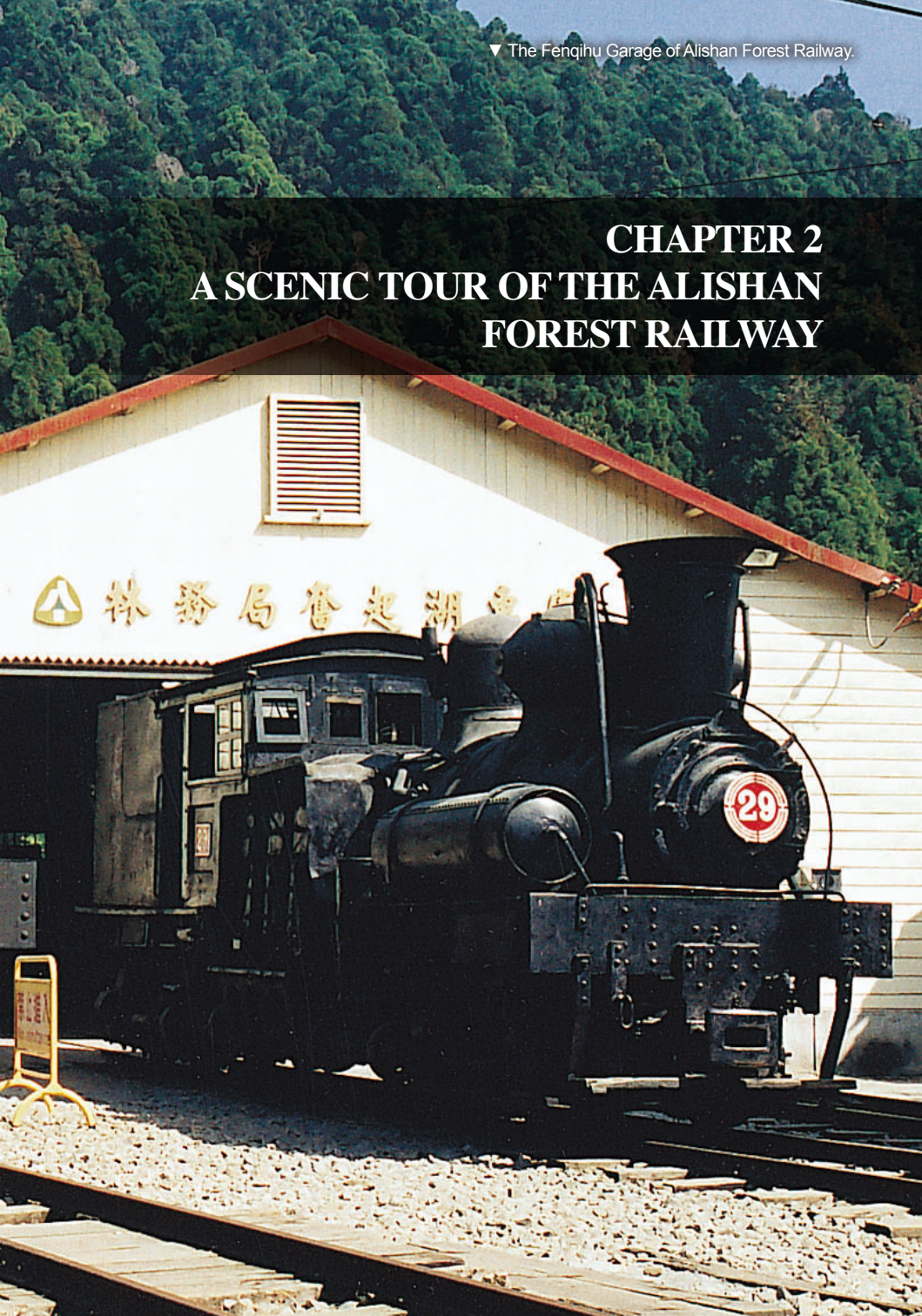


▼ The Fenqihu Garage of Alishan Forest Railway.

CHAPTER 2
A SCENIC TOUR OF THE ALISHAN FOREST RAILWAY

Railway Journey to the Flat Areas: Altitude between 30m and 127m

Chiayi Station

In 1902, the Kaohsiung-Chiayi section of north-south railway line in the west was completed, and Chiayi Station started to operate on the 20th of April. Completed in 1933, Chiayi Train Station is Taiwan's only consolidated train station that gathers TRA (Taiwan Railway Administration), sugar and forest railways. The first one was designed with 1067mm narrow gauge and the later two were designed with 762mm light rail. At altitude of 30m, Chiayi Station was once Taiwan's only union station of TRA, sugar and forest railways. Despite of the fact that sugar railway already disappeared today, Chiayi Station still maintains its operations of TRA and forest railways. From the angle of Platform 1, people can still see TRA's 1067mm track gauge lined up with Alishan's 762mm track gauge. A competition and pulling in activity of TRA and Alishan's steam locomotives was therefore taken place here before.

Peimen (Beimen) Maintenance Plant

Known as "Beimen Maintenance Workshop" during the Japanese colonization, Beimen Maintenance Factory was originally established in Beimen train depot in October of 1910, when sections in flat areas were open to traffic. However, it was officially launched only two years later in 1912 after a series of expansions of Alishan Railway. Beimen Maintenance Factory has a long history and is still the biggest maintenance base of Alishan Forest Railway. Today, a range of out of service trains can still be seen inside. For example, the locomotive maintenance depot on Linsen Road for diesel locomotives, the Emperor railcar of the Crown Prince Hirohito and accompanying service car, passenger car of Luodong Forest Railway, and Shay steam locomotive. Only the few very precious railcars are preserved in the garage.

Peimen (Beimen) Station

Beimen Station is 1.6km away from Chiayi Station and is located at altitude of 31m. As the gradient from Chiayi Station to here is only 16 out of 1,000, this section has the most gradual slope of Alishan Railway and people hardly notice that it is a part of mountain railway. Beimen Station is the inception point for the section from Beimen to Zhuqi when Alishan Express firstly operated in flat areas

▼Beimen Station

in 1910. Beimen wooden station, a Japanese style train station built with Alishan's Chamaecyparis, is located on the right side of Alishan Railway on the direction to the mountain. TRA's Baoan Station, which was completed in 1914, is also a Japanese style-train station made of Alishan's Chamaecyparis.

Lumachan Old Station

Lumachan is 10.8km away from Chiayi at altitude of 82m and has two lines. Lumachan and Wanqiao were once the two biggest train stations in flat area between Beimen and Zhuqi, and the station building of Lumachan has been magically preserved. Lumachan, Zhuqi and Beimen old stations, which looked very shabby in the past, are the last three wooden train stations of Alishan Railway in flat areas. In December of 2004, the reconstruction work of the wooden Lumachan Station was completed and then the living quarter of station master in April of 2006, making the cypress station vintage, appealing, reminiscent and alluring.

▼Lumachan Old Station

Railway Journey to the Tropical Forest: Altitude between 127m and 800m

Zhuqi (Jhuci) Station


▼Zhuqi Station

Originally built in 1910, Zhuqi Station was renovated in 1952 to have today's look.In the age of steam locomotive, all the trains had to stop at Zhuqi for a period of time to change locomotive's position from the front to the back in order to push the train up to the mountain. Besides, the 18 ton steam locomotives had to be replaced by the 28 ton steam locomotive before went up to mountains. This is the reason why that Zhuqi Station is well-known among all Alishan Railway stations. Another feature of Zhuqi Station is "wye" (triangular junction), which was originally designed to turn around the locomotive. Nevertheless, as Alishan Express has fixed the train nose at the end of the train to hold the carriages after 1920, wye is no longer used as the train nose is now maintained on the direction to Chiayi.

Entrance of the Mountain: Niuchouxi Bridge

When it was firstly established in 1907, Niuchouxi Bridge was an ordinary wooden bridge. After the destruction of a number of typhoons and floods, it was rebuilt with Alishan's cypress and created something like Xiluo Bridge's Truss Bridgeto reduce the number of piers and to increase the bridge span. In the 1964, Alishan Railway built a new cement bridge to increase the bridge's driving safety, but the rear bridge piers were collapsed due to typhoon and flood. The authority therefore placed newly purchased steel beams on piers and created another look of the Niuchouxi Bridge. In 2008, Forestry Bureau took a reference of the wooden Truss Bridge built during the Japanese colonization and rebuilt the bridge with steel beams. This bridge then became only operating truss steel bridge for forest railway in Taiwan.

The Two Marvelous Horseshoe Curve and U-Turns

From Zhuqi to Mululiao, there are two big horseshoe curve and U-turns that the train track is almost bent into a circle and then turned back. One of the U-turns is 16km away from Chiayi, right in front of the path to Hudi Guanglu Temple; another one is 17km away from Chiayi, right next to County Highway 115 on the direction to Jiarenshan. This U-turn design is also known as "Ω type turn"

and, among the world's five technological solutions of hill-clibing railway, it is the most often seen method that decreases the gradient by lengthening the route. If passengers look at the right side window when the train passes the U-turn, they will see the railway that they have just passed through on the bottom right. After a 180 degree turn, the altitude of the railway will be increased unwittingly and passengers will be able to enjoy a wide vision again.

Zhangnaoliao (Jhangnaoliao) Station

At altitude of 543m, Zhangnaoliao Station is 23.3km away from Chiayi. During the Japanese colonization, this place was once an important site for producing camphor and the station was known for camphor trees planted all around it.Planted by the station master of Zhangnaoliao Station, the two rows of camphor trees have become a boulevard of flourishing camphor trees. Something special about Zhangnaoliao Station is that it is a switch back station. To prevent trains being stuck in climbing route and having difficulty to move upward, the main routes with a gradient over 5 out of 1,000 were designed with an alignment built on the left of the track in flat areas to let the train enter the station during the Japanese colonization. This is the reason that this station's railway track was designed with an "X"shaped switch back. If an upward train enters the station to wait for the incoming train, it shall drive into the lateral alignment in flat area, park and then reverse to enter the right station track. As for the downward train, it can directly pass through and drive away.

▼Zhangnaoliao Station

Dulishan Loop Line and Spiral Route

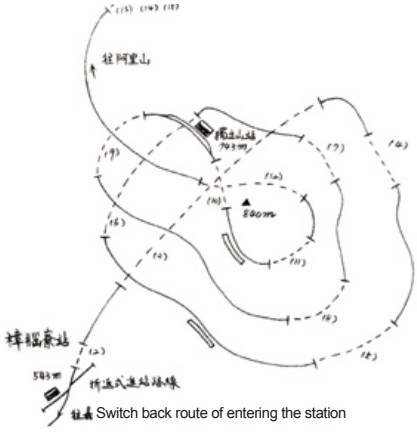
Loop Line and Spiral Loop of Mountain Railway

The most appealing parts of the Alishan Forest Railway are the switch backs, so-called “Alishan Express running up against the wall”, and the “mountain railway” of Dulishan’s spiral loop. Spiral loop is the second method of the world’s five technological solutions of hill-climbing railway and the one with most loops of Alishan Railway.

Dulishan’s spiral mountain route is known far and wide for a very long time. At altitude of 816m, Dulishan is not a steep mountain, but a very peculiar one. If visitors look down at Dulishan from the mountain top on the opposite side, they will see the train appeared at four different altitudes and observation decks established in the first and third loop of the railway.

For passengers who climb up to Dulishan to Zhangnaoliao by taking Alishan Express, they may choose to sit on the left side window, which provides you a good position to see Zhangnaoliao Station four times at the different altitude. They are 25.3km away from Chiayi at the exit of Tunnel No. 5 (the first loop); 26.9km at the exit of Tunnel No. 8 (the second loop); 27.8km at the exit of Tunnel No. 10 (the third loop) and 28.5km at the exit of Tunnel No. 12 (the fourth loop). For the first, second and fourth loops, the station can be seen from the left side window; for the third loop, the station can be seen after passed through Dulishan Station from the right side window. “Look back the past roads and here they are beneath the window at the foot of hill” – this is the marvelous feeling of climbing up the mountain through spiral route by taking the train.

▼The loop line and spiral route of Dulishan



▼An overview of the Dulishan railway

Dulishan Station

Situated at altitude of 743m and 27.4km away from Chiayi, Dulishan Station is right inside a valley between the inner side of Dulishan and southern side of Hongnankeng. Therefore, Dulishan Station cannot be seen from Zhangnaoliao, but from Jianqingtai (Jianqing Deck) situated in the "C" shaped mountain range after the train leaves Dulishan and makes a big turn, and from Yizhishan located on the ridgeline behind Dapingshan. Today's Dulishan Station still preserves the water crane used to add steam locomotive's water. As there are many visitors visiting Dulishan now, almost every train stops by during the holidays. The station and surrounding facilities have also been repaired, making the station a new popular sightseeing spot.

Dulishan Station is located between Tunnel No. 9 and Tunnel No. 10. The old brick entrance of Tunnel No. 10 was very characteristic, but was unfortunately reconstructed. In the past, people could also see the fourth loop train passing through from the top of the tunnel. Today, the spot has been covered by weeds and bushes that people can only hear the train behind the bushes instead of seeing it.

▼Dulishan Station

Railway Journey to the Subtropical Forest: Altitude between 800m and 1,800m

Jiaoliping Station

Jiaoliping Station is at altitude of 997m. Jiaoliping is only 3.5km away from the Liyuanliao Station and this section is the only climbing route of Alishan Railway that has no “tunnels”, but only switch backs. The length from Chiayi Station to Alishan Station is 71.4km and Jiaoliping is at 34.9km, around the middle of the Alishan Railway. As Jiaoliping is also connected with highway, Alishan Express that used to go up and come down the mountain every day would meet here at 3:13pm in the past. Today, as Alishan Express must exchange train tokens in front of Jiaoliping Station before continuing its journey, passengers who wait here to watch trains intersecting each other will see the interesting view of conductors exchanging the tokens.

Shuisheliao (Shueisheliao) Station

▼Shuisheliao Station

At altitude of 1,186m, Shuisheliao Station is located at the end peak of Sitianwangshan (formed by four mountains above1,400m), which is right in the cove exit between Sitianwangshan and Shipanlongshan. The exit, which faces the south and is featured with a great view, used to be a compulsory route for people who hiked Sitianwangshan and Shipanlongshan (1,380m): with only 45 minute hiking from the train station, people can reach the peak of Sitianwangshan. The most interesting thing about this station is that its trackforms into a shape of “Ω”. In other words, trains will make a 180 degree turn from entering to leaving the train station. Among all Alishan Railway stations, only Shuisheliao and Erwanping have this kind of design. Today, Shuisheliao has become a bat ecological and educational guide station, with a new prosperous beginning.

Fenqihu (Fenchihu) Station

Fenqihu Station is at altitude of 1,403m. Originally named "Benjihu" (literally means “dustpan”), Fenqihu is located in a triangular basin beneath Guanglunshan (1,815m). As it is surrounded by mountains on three sides, it was therefore named after its dustpan-like shape. Despite of being called the “lake” (“-hu”), it is actually not a lake and definitely no water as “-hu” here refers to the “basin”. Benjihu was then renamed Fenqihu because of homonym. In the past, Fenqihu was known for its boxed meal and square bamboo. In early years, Alishan


▼Fenqihu Station

Railway was mainly used to transport lumbers and it had one passenger and freight mixed train going up and coming down the mountain. The upward train departed from Zhuqi in Chiayi at 9:00am, arrived in Fenqihu at 11:45am and reached Alishan at 2:20pm; the downward train departed from Alishan at 9:30am and arrived in Fenqihu at 11:47am. As these two trains would meet and park here for a while during the lunch time, local catering business was therefore prospered and turned Fenqihu "The City of Boxed Meal(Lunch Box)".

Fenqihu Old Station and locomotive depot are one of the local scenic spots.Fenqihu Old Station is a wooden train station located on the right side of the old Fenqihu Street entrance. Before the new station was launched, this station was used as the Fenqihu Railway Maintenance Section. Later, as therestoration of historic sites became a trend, this building was fully renovated in 2004. At the moment, Alishan Railway has six wooden old train stations including Beimen, Lumacha, Zhuqi, Fenqihu, Alishan and Zhaoping. Apart from Beimen and Zhuqi which and restored according the original look of the historic site for preservation, others were rebuilt after dismantled the historic sites.

Shizilu (Shitzulu) Station

Shizilu Station is located on the ridgeline at the southern foot of Shizilushan (1,558m). Southwards, it can access the hill tribe of Tapang hosa (Tsou people) and, northwards, reach Fengshan, Laiji (Pnguu tribe) and Taihe (Haliwei tribe). As the place was the entrance of entering Alishan Historical Trail and other historical trials to Laiji and Tapang tribes, it was named "Shizilu" (literally means the "crossroad"). Before Alishan Highway was constructed, aborigines often got on and off at this station. The station therefore had its importance until Alishan Highway was open to traffic. The station has a "S" shaped railway and Tunnel No. 39 on the uphill direction has a unique stone-made entrance. Besides, two sides of the railway on the downhill direction were planted with Cryptomeria, making it a great place to find tranquility and have a good exploration.

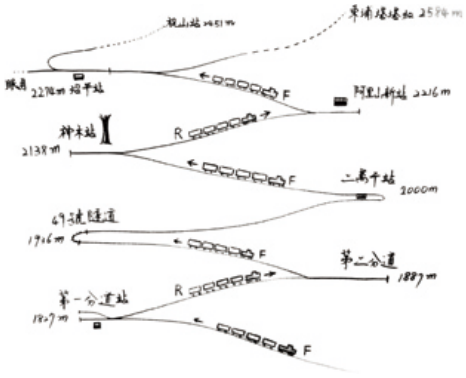
As landslides often occur in sections above Shizilu, this place is often used as the transfer station of Alishan Railway and highway apart from Fenqihu. With frequent passengers, Shizilu Station and Shifen Station share a similarity: the trains are very close to houses. Besides, it also has European-style B&Bs that look exceptionally eye-catching. After 2003, Shizilu Station even built a wooden observation desk that enables visitors to watch the romantic sunset and cloud sea of Tashan. All of these have turned this place a new scenic spot with a great potential in tourism.

Switch back (zig zag) mountain route

Switch back (zig zag) mountain railway

Switch back mountain railway is also known as “Alishan Express running up against the wall”. To overcome the problem of not being able to turn at the curves on the mountain due to little space after Bingzhena, Alishan Railway has adopted the switch back (zig zag) mountain railway design. The train was originally pushed up to the mountain from the left-side railway and then, after parked and reversed the turnout, climbed up from the right-side railway. This kind of “Z” shaped railway is formally called “Switch Back” and is often applied in mountain railway design in many countries.

▼ The Switch Back Route of Alishan Railway



Here in this place, Alishan Railway has adopted both “switch back” and “U-turn” to climb the mountain. Apart from two big U-turns in Erwanping Station and Tunnel No. 49, there are four turning points for switch back, including: 1-st switch, 2-nd switch, Shenmu Station and Alishan Station. If today’s Shuishan Line (i.e. Zhaoping Station to the direction of Dongpu and Tatajia) is also counted, there are totally five points that “run up against the wall” and seven zig zags. This unique vertical climbing method – sometimes forward and sometimes backward – has therefore become the best selling point of railway traveling for this section.

Switch back turning point is important for trains to make a reserve and to intersect. After Alishan Express stops, the conductor will jump off the train, reverse the turnout, and then jump on the train when the train slowly moves. Their agile moves often impress many foreign tourists and some even applaud them! After knowing about it, many passengers on the Alishan Express often pop their head out with the camera to watch the conductor’s performance at the switch back turning point!

1-st switch

“1-st switch” is at altitude of 1,827m and is 62.7km away from Chiayi. Starting from here, all the trains climb up the mountain in switch back. The place also has a station building and dual tracks for trains to intersect. However, they are no longer be used. In early years when Alishan mixed passenger car (ordinary train) was still available, at least two trains would intersect here every day! From the

1-st switch to 2-nd switch of Alishan Forest Railway, the trains were “pushed up” to the mountain instead of being “pulled up” as it is today. From the appearance, the pushed up Alishan Express seemed to be back to normal here. However, as the train’s moving direction was on the opposite side of the seat, passengers inside the carriages would feel like moving backwards and quite uncomfortable. When the tourism of Alishan just started to be developed, some people had little knowledge about it: they thought that they went too far and ran up against, so that they had to return backwards. This is how the hearsay “Alishan Express running up against the wall” was created.

▼1-st switch

Railway Journey to the Temperate Forest: Altitude between 1,800m and 2,274m

Erwanping Station

After passing through three zig zags – 1-st switch, 2-nd switch and Tunnel No. 49 – continuously, Alishan Express will eventually reaches the fourth zig zag "Erwanping Station". As it arrives in Erwanping, it is actually at altitude of 2,000m. The pronunciation of the word "-ping" originally used in its name refers to "spacious land" (Chinese: "坪") instead of today's "flatness" (Chinese: "平"). When Alishan Railway was firstly opened in 1912, Erwanping Station was its last station. At that time, the station was established not only with wye to reverse the train, but also a train depot. Later in 1914, Alishan Railway was extended to today's Zhaoping Station and the depot also moved to the proximity of Zhaoping. Erwanping, which was originally designed as the end station, then gradually lost its function. Apart from the wye, Erwanping Station is also featured with a U-turn. As Erwanping is also one of the seven zig zags of the switch back route, the train has to make a U-turn behind the wye before going up to the mountain. In nowadays, only Erwanping and Shuisheliao have this kind of station with a big U-turn.

Shenmu (Sacred Tree) Station

Known for its "Five Wonders", Alishan has another important symbol and landmark: the famous three thousand year old chamaecyparis "Shenmu" (Sacred Tree). As the matter of fact, Shenmu Station is the forest railway's "Third Lane" that the train must stop first before heading towards Alishan Station. As the high and erect Shenmu is particularly lofty in the forest, it often becomes the lightning target. Around 4pm on the 7th of June 1956, Shenmu was struck by lightning in a dusk thunderstorm and got on fire. Not only was its trunk burned into hollow ragged hole, but also its height was reduced to 35m only. On the 1st of July 1997, a torrential rain caused cracks of Shenmu and made it half-falling due to loose soil and ponded water in the trunk. To avoid accidental collapse that may cause tourist casualties, an electric saw was used to lay it down at 12:53pm on the 29th of June 1998 and Shenmu officially entered the history. The renowned landscape of Shenmu under the bright sunshine has now become an eternal memory of Alishan.

Alishan Station

At altitude of 2,216m, today's "Alishan Station" is the terminal station of Alishan Mountain Railway and the start point of Alishan Forest Railway's branch lines (Zhushan Line, Mianyue Line).

As this end station of mountain railway and the start point of Alishan branch lines, Alishan Station is actually a switch back station: Downward to Shenmu is "Shenmu Line" and upward to "Zhaoping"is "Zhaoping Line". This has divided the

▼Alishan New Station

▼Zhaoping Station (photographed by Liu, Chin-Yuan)

main route of mountain railway into two new branches.

On the night of September 21 Earthquake in 1999, Alishan Station was damaged and concrete blocks scattered on the ground. The New Station therefore became a condemned building. It was firstly sealed and then, due to safety concern, dismantled. In September of 2007, the station rebuilt as a wooden building was launched. Today, Alishan Station is the biggest wooden train station in entire Taiwan.

Zhaoping (Chaoping) Station

On the 11th of March 1981, Alishan Forest Recreation Area was officially launched. At that time, hostel and the catering industry nearby by Alishan New Station sprang up like mushrooms. This not only took away visitors of the old Zhaoping Station, but also turned Alishan Forest Recreation Area a new hot tourist attraction. After Alishan Highway opened to traffic on the 1st of October next year (1982), a parking zone was built in the square in front of Alishan New Station.

Therefore, apart from those who made reservation at Alishan Gou Hotel that needed to take train to Zhaoping Station, others passengers would normally go to Alishan New Station directly and stayed in nearby hostels. Zhaoping Station therefore degenerated into a train station for branch lines such as Zhushan Line and Mianyue Line. At the end of 2008, the reconstruction project of Zhaoping Station was awarded. On the 22nd of April of 2013, the project was completed and the wooden station was officially launched. Among the six wooden stations of Alishan, it is at the highest altitude and is Taiwan's highest wooden train station.

Branch Lines of Forest Railway: Altitude between 2,274m and 2,451m

Zhushan (Chushan) Line: The Highest Railway in Taiwan

The sunrise of Alishan is known far and near for a very long time. During the Japanese colonization, although there were trails to Duigaoyue and Zhushan for people to watch the sunrise they were winding paths that cannot be passed through easily. In 1971, Forestry Bureau started to develop tailored forest road, built the Sunrise Viewing House, and established Zhushan Bus to transfer passengers with middle size buses. Although the traffic condition was improved, there were still many illegal taxis soliciting customers on the Zhushan Forest Road and increasing the price arbitrarily, which have seriously damaged the quality of traveling and watching the sunrise.


▼Zhushan Station


▼The splendid sunrise

Forestry Bureau therefore gave an order to seal Zhushan Forest Road and only vehicles with the pass could enter this area. Nevertheless, after the launch of Alishan Highway in October of 1982, the enormous number of visitors who came to watch the sunrise really made the place overcrowded. Therefore, from May of 1984, Forestry Bureau started to build the railway (Zhushan Line) to serve people who come to watch the sunrise. Besides, among all the Alishan Forest Railways, Zhushan Line is the only railway built by our people.

Zhushan Line, which starts from Alishan New Station and ends at Zhushan Station, is extended eastwards from Shizifendao (Cross-Turn Lane), a station located in the middle way of Mianyue Line. As parts of its front section were built on the roadbed of “Tashanli Line” and the rear section was redeveloped according to the terrain, the entire line had no tunnels. Before reaching Zhushan Station, the train will firstly pass through “Duigaoyue Station” before reaching Zhushan Station. With a total length of 6.25km, Zhushan Line ends at Zhushan Station, which is Taiwan’s apogee and the highest train station at altitude of 2.451m. The construction work lasted for a year and half and the maximum gradient is 55 out of 1,000. On the 13th of January 1986, Zhushan Line was officially launched. Due to the enormous crowd for the sunrise, Zhushan Line is the most profitable branch line of Alishan Railway.

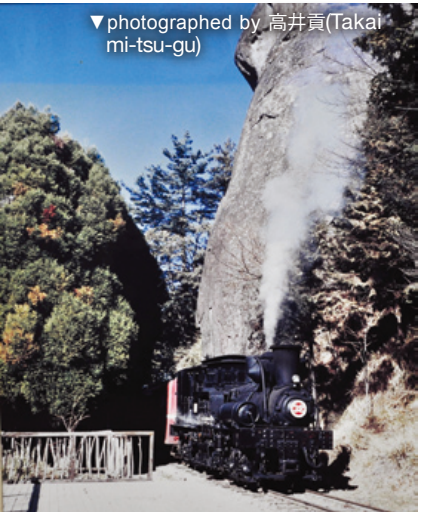
Mianyue Line: The Sad Legend of Kawai Shitarō

Mianyue Line was Tashan Line developed between 1913 and 1915. Its origin is a legendary history. When Fujita Group was constructing Alishan Railway in 1906, Dr. Kinzan Kawai, one of the contributors of developing Alishan, went to Shigupanxi (Shigupan River) to investigate the forest there. One day when he laid on a big rock, he saw the bright moon slowly climbed up the mountain and the erect old trees all surrounded him. Impressed by such natural landscape, he listened to the flowing water, mused over things of the earth, and could not sleep for a very long time. Thirteen years later (1919), he returned to the place where he stayed overnight before and found that all the old trees were cut down. All the vegetation on the mountain was gone that the ground was covered with giant lumbers to be transported down to the mountain. Crushed with a great sorrow, he wrote this poem:

"The axes entered the verdant tranquil mountain and cut down the forest of thousand-year old trees.

My stone pillow and moss mat were gone and only the flowing water reminds me the old good memory."

▼Mianyue Line



▼photographed by 高井貢(Takai mi-tsu-gu)

To memorize the good memory of sleeping under the moon and being together harmoniously with the great nature, the place was named "Mianyue" (sleep under the moon) and the story was passed on to the future generation. This is the origin of the name "Mianyue".

Formerly retired on its laurels in 1979, Tashan Lineis featured with forests of Chamaecyparis and cryptomeria. These local resources were also drawn to build wooden bridges, which look very impressive. Long before Mianyue Line open to traffic, "Axi Vertical Hiking Trail" – a 36km long hiking route from Alishan to Xitou – was a prevalent trend. Due to its beautiful landscape and the beauty of forest railway with luxuriant trees, Mianyue Line was rebuilt and launched with steam locomotives on the 11th of February 1983. This not only attracted a surge of tourists, but also caused a great sensation inside and outside the country!

The specialty of Mianyue Line is "Taiwan Pleione" (Pleione formosana Hayata). Known widely around the world for its elegant flower form, Taiwan Pleione blossoms every March and April, and mainly grows on the palisades from Tunnel No.

5 to Tunnel No. 10. “Taiwan Pleione Nature Reserve” was then established to prohibit citizens from picking up Taiwan Pleione illegally. In 1996, Mianyue Line and Zhushan Line even launched the new type passenger carriages simultaneously to serve the tremendous crowd. In the past, Mianyue Line was always full of crowds in weekdays and holidays, which created a considerable tourism revenue for Alishan Railway suffered from a serious deficit, until its suspension after the September 21 Earthquake. Today, the earthquake has been gone for more than ten years. People of the nation all wish that this beautiful forest railway will “see the light of the day” again and that Mianyue Line will not be ended in this way. It is our expectation that, in the near future, Mianyue Line will be launched again.

Dongpu Line: The Lost Altitude at 2,584m

Among Alishan’s forest farm lines, there is one legendary high elevation mountain railway that is above altitude of 2,500m and has 49 bridges. Featured with the beauty of forest and mountain railways, it has the romance of poem-like misty forest, splendidness of changing cloud seas and vastness of tremendous mountains. This Taiwan’s highest railway is the disappeared Dongpu Line.


▼A model of Dongpu Line

In 1931, Japanese people started to rebuild the rear section a trial nearby Zizhong into a railway. After the railway from Zhaoping to Tatajia (Tsou: Tataka) through Xingaokou (Japanese: “Niitaka”, refers to “new highest”) was completed section-by-section in 1932, a direct train from Chiayi to Xingaokou was launched in 1933. In 1934, hikers to Yushan (also known as “Jade Mountain” and “Xingaoshan / Niitakayama”) could take the Dongpu forest farm line to Xingaokou and started their hiking from there. As it helped to save hikers’ time, the number of hikers therefore largely increased. In the same year, Lulin Lodge was also completed for hikers to take a rest. On the 17th of December 1937, Japan established “Xingao Alishan National Park (Japanese: Niitaka Arisan National Park)”, whichcreated tremendous visitors to Xingaokou (Japanese: Niitaka) to hike Xingaoshan (i.e. Yushan, Japanese: Niitakayama). Taking Alishan Railway to hike Xingaoshan almost became a nationwide activity during the Showa era that even people lived in Japan also formed groups to visit the place. The name of Dongpu Line was therefore known nationwide and abroad. Apart from transporting lumbers, Dongpu forest farm line also became a “Scenic Railway for Hikers of Yushan” that revealed the beauty of mountains and cloud seas along the way to the world.

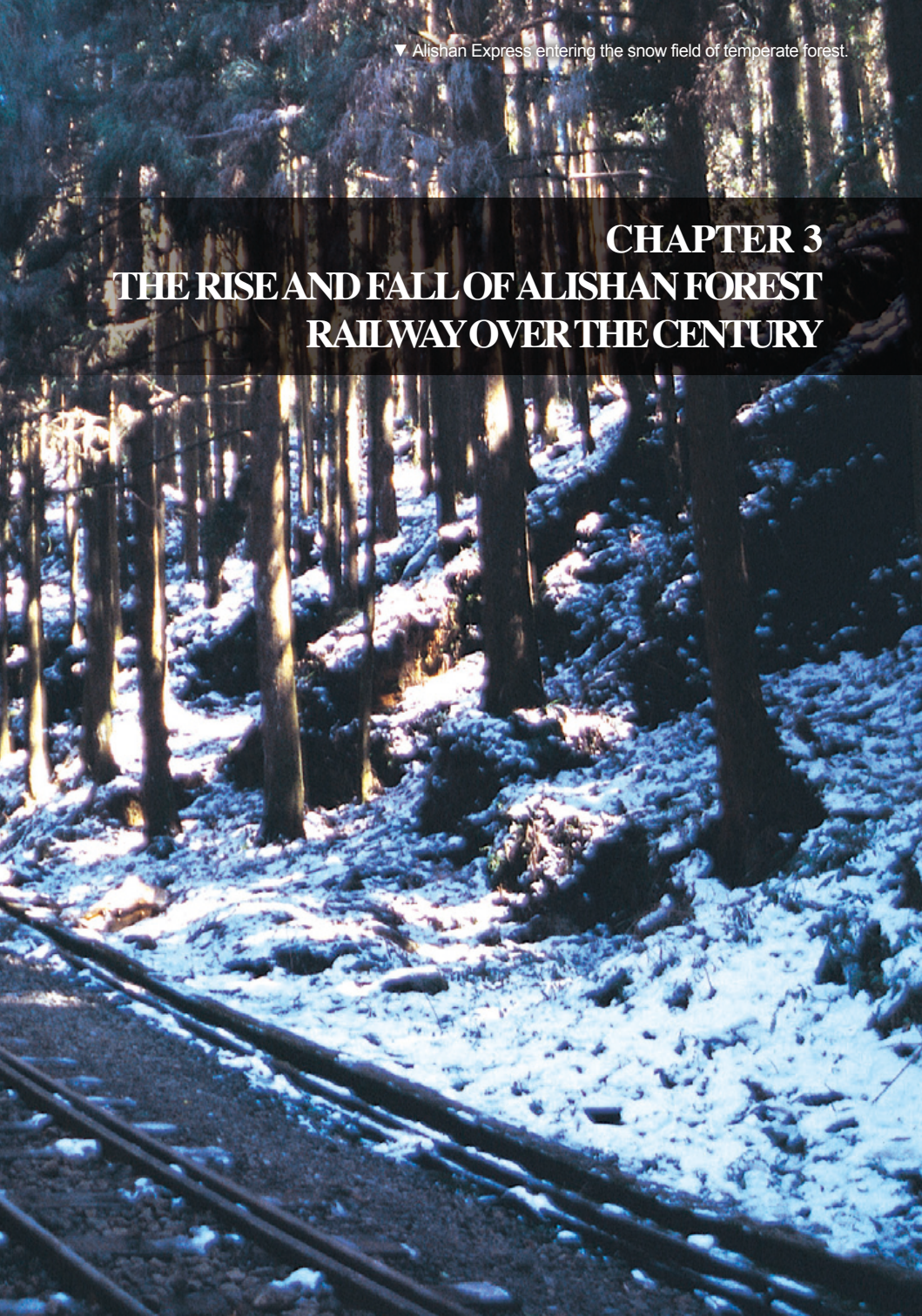
The end station of Dongpu Line was TatajiaDongpu Forest Depot at altitude of 2,584m. It was the apogee of Taiwan's railway in history and made Dongpu Line the highest narrow-gauge mountain rail in Asia. Unfortunately, no one ever realized that the Dongpu Line's importance was on the fact that it was the highest narrow-gauge mountain rail in Asia as people in that generation generally believed that highway was more important than railway. At the end of 1978, Dongpu Line was closed due to the completion of lumber collection works. Later in July of 1979, people started to dismantle this forest farm line and asphalt was poured over on the old railway bed to build "New Central Cross-Island Highway" (Provincial Highway 18, from Alishan to Tatajia). Dongpu Line therefore became a history.

Shuishan Line: The Re-launch of the Front Section of Dongpu Line

The front section of the past Dongpu Line is from the old tunnel of New Central Cross-Island Highway to the old railway in Zhaoping, which has a good roadbed in general. As for the rear part of Dongpu Line, it has now become the roadbed of New Central Cross-Island Highway. As the rear part was dismantled, the remaining railway was therefore extremely precious as it was the last remains of Dongpu Line. With a length of 1.6km, the last section – from Zhaoping to the old tunnel of New Central Cross-Island Highway – had long been preserved by Forestry Bureau, only it was covered by weeds and the collapsed bridges can no longer be passed.

In 2003, Forestry Bureau decided to repair and restore this section and its side slops and bridges were all rebuilt. The reconstruction work was completed in 2004 and officially named as "Shuishan Line". This branch line also became Alishan's newest tourist branch line after Mianyue Line and Zhushan Line. Nevertheless, due to failed privatization, natural disasters and other reasons, Shuishan Line was unfortunately suspended with an unknown schedule for reactivation. In the future, it is expected to have Shuishan Line re-launched with steam locomotive train and cypress carriages in order to show the charm of forest railway in the most primitive way. So let's wait with our great passion!

▼Shuishan Line



▼ Alishan Express entering the snow field of temperate forest.

CHAPTER 3
THE RISE AND FALL OF ALISHAN FOREST RAILWAY OVER THE CENTURY

Japanese Colonial Period: Lumber Transport (1912 to 1945)

In 1910, Office of the Governor-General of Taiwan took over the construction project; on the 25th of December 1912, the traffic from Chiayi to Erwanping was officially opened; on the 14th of March 1914, the opened route was extended to Zhaoping Station and the following sections of Alishan Railway's Main Line was then finalized. With a total length of 71.9km, the Main Line of Alishan Forest Railway was completed.

When Alishan Forest Railway was firstly opened in 1912, it was used only to transport lumbers. In 1918, freight cars were remodeled to transport not only lumbers and freight, but also passengers due to the needs of residents along the railway. This was the beginning of Alishan Railway's passenger transportation service. In 1920, Forest Bureau was decommissioned and replaced by Forest Office of Production Bureau. Beimen Maintenance Plant under the Chiayi Branch Office of Production Bureau (today's Chiayi Forest District Office of Forestry Bureau)was requested to build passenger cars and to launch the operation of freight and passenger mixed trains. As the railway was then used to transport passengers and livelihood materials, the railway built for the lumbering industry was shouldered with the new traffic function between flat areas and mountains. The operation of Alishan Forest Railway also put on the right track.

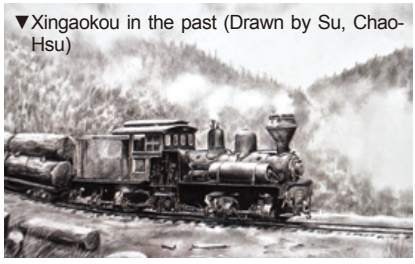
▼The original look of Alishan's Shenmu during the Japanese colonization.

From the 1st year of Showa in 1926, Alishan Forest Railway was becoming busy. As Alishan Railway was extended to Xingaokou in 1933, a direct train from "Chiayi to Xingaokou" appeared: departed from Chiayi at 9:38am, arrived in Alishan Zhaoping Station at 4:00pm, departed 4:10pm and headed towards Xingaokou, and then reached the destination at 5:25pm. This train schedule was designed for passengers who wished to hike Xingaoshan (Yushan), so that they could stay in the lodge overnight and started to hike Yushan the next day.

From the 10th year of Showa in 1935, an enormous amount of Alishan's best lumbers were exported from Taiwan to Japan as Yasukuni Shrine's building material. On the 17th of December 1937,

Japan established “Xingao Alishan National Park (Japanese: Niitaka Arisan National Park)”, which created tremendous visitors to Xingaokou to hike Xingaoshan. Taking Alishan Railway to hike Xingaoshan became a nationwide activity during the Showa era that even people lived in Japan also formed groups to visit the place. This made Xingaokou the primary scenic spot of Taiwan’s railway during the Japanese colonization. Nevertheless, this boom was temporarily ended in 1941 as WWII exploded.

▼Beimen Station in the past (Drawn by Su, Chao-Hsu)



▼Xingaokou in the past (Drawn by Su, Chao-Hsu)

What are the Differences of Alishan Forest Railway before and after the Retrocession of Taiwan?

When Alishan Forest Railway was firstly opened, the distance between Chiayi and Alishan Zhaoping Station was 71.9km in 1914. At that time, the entire route ever had 25 stations situated at different altitudes (from 30m to 2,274m), 72 tunnels with a total length of 9.857km, and 114 bridges with a total length of 2.8km. Its maximum gradient was 66.7 out of 1,000 (TRA is only 26 out of 1,000) and the minimum radius of curvature was only 40m (TRA’s Main Line is 300m and branch line is 200m). Due to the long route, big gap, numerous tunnels and bridges, and steep and winding tracks, Alishan Forest Railway was therefore built into a great mountain railway due to the extreme environment.

After the retrocession of Taiwan, its operation was often interrupted mainly because of natural disasters and Forestry Bureau therefore gradually made improvement on the route conditions in order to repair them in time. Comparing its status in 2014, small tunnels were dismantled or merged, bridges were rebuilt or the route changed, the number of Main Line’s tunnel reduced to 49 and bridges to 75, the maximum gradient reduced to 62.5 out of 1,000, and the distance from Chiayi to Alishan Station is 71.4km and to Zhaoping Station is 72.7km. All of these statistical data have now become the standardized information to introduce Alishan Railway.

But, does it mean that there will no more changes? No! Typhoon Morakot(2009) destroyed Tunnel No. 46 and it is a must to rebuild a long tunnel and a number of shielding tunnels. Typhoon Morakotal therefore flashed away many bridges that must be rebuilt. The frequently occurred natural disasters are the variants of Alishan Forest Railway’s statistical data! Although Alishan Railway already restored its operation to Fenqihu on the 27th of January 2014, all the statistical data shall be finalized in 2015 when the entire route is open to traffic.

In the Early Years of Taiwan's Retrocession: Lumber and Passenger Transport (1945 to 1963)

After the retrocession of Taiwan, Alishan Railway was transferred from Taiwan Development Co., Ltd. managed by Japanese peopleto Forestry Bureau of Taiwan Province and managed as a forest railway. Continued its missions during the Japanese colonization, Alishan Railway not only transported livelihood materials and agricultural products between flat areas and mountains, but also relied mainly on lumber cars with little passenger cars. At that time, freight and passenger mix trains were still its main force.

In the early years of the retrocession, two of the most famous trains of Alishan Railway were mixed train No. 51 and No. 52. No. 51 departed from Chiayi at 8:00am, arrived in Fenqihu at 11:45, reached Alishan at 14:40 and the same schedule continued until the 1980s; on the other side, the downward train No. 52 departed from Alishan at 9:00am, arrived in Fenqihu at 11:47 and met the upward train there, and reached Chiayi at 15:07. These two trains happened to meet in Fenqihu during the lunch time and stopped there for 15 minutes to reverse the locomotive and to add coals and water. Because of this, Fenqihu is also reputed as "The City of Boxed Meal".

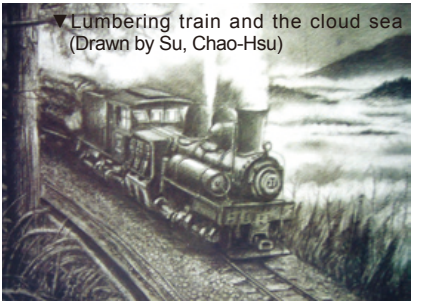
Besides, during that period, there were at least 6 lumber cars going up and coming down the mountain every day in average. For example, the long-history upward train No. 111, No. 113 and No. 115, and the downward train No. 110, No. 112 and No. 114 all adopted Shay steam locomotive as the primary transportation force. When the steam locomotive came down the mountain, it could haul maximum 9 cars with full-load of lumbers or freight and its maximum speed per hour could reach 16km/h. Although the trains had less loads due to downgrade, it was still a must not to get overloaded to ensure a normal functioning of the train's brake power.

After the retrocession of Taiwan, the apogee of Alishan Forest Railway was maintained at Dongpu Forest Depot in Tataka instead of further developing the railway to remote mountains. In the 1960s, the transportation method of Alishan Railway also changed. For example, trucks and trains were both adopted to transport goods in areas around Dongpu Line and Nanzixianxi (Nanzixian River), and cable ways were used to transport lumbers. Besides, as Dongpu and Mianyue lower branch lines had relatively more forest resources, they also tended to be busier at transporting lumbers. However, at that time, forestry resources were already reduced due to the overdevelopment during the Japanese colonization and the lumbering industry could hardly be maintained. This is the reason that, 20 years after the retrocession of Taiwan, Taiwan's forestry transformed itself from lumbering to conservation and forestation.

From 1945 to 1963, two important things happened: one was the launch of diesel powered railway. Although Forestry Bureau's plan to purchase four diesel locomotives (11403-1 to 11403-5) was failed, this experience had built a good foundation for the future of diesel powered cars. Another one was the August 7

Flood happened in 1959 and its scale of damage was no less than Typhoon Morakot(2009), which happened 50 years later. The only difference was that, as Alishan Highway was not existed that time, it was a must to immediately resume the railway transportation as people lived in mountains were stuck there without food. This resulted not only in the crush accident of No. 27 steam locomotive and "the death of the driver," but also in the legend of Tunnel No. 24 – the first tunnel of Alishan Railway built by people of the nation.

▼Steam train at Fenqihu Station



▼Lumbering train and the cloud sea (Drawn by Su, Chao-Hsu)

Alishan Forest Railway
Transformation of the operation unit over the last hundred years

1906 – 1908	Fujita Group (Construction)
1910 – 1914	Alishan Work Station of Production Bureau (Construction and Operation)
1915 – 1918	Alishan Branch Office, Forest Office
1919 – 1919	Chiayi Branch Office, Forest Office
1920 – 1925	Chiayi Branch Office, Forest Office, Production Bureau
1926 – 1942	Chiayi Branch Office, Forest Office (Forestry) / The Taiwan Development Co., Ltd. (Railway)
1943 – 1943	Chiayi Forest Office, Production Bureau (Forestry) / The Taiwan Development Co., Ltd. (Railway)
1944 – 1945	Chiayi Forest Office, Tainan Prefecture (Forestry) / The Taiwan Development Co., Ltd. (Railway)
1945	Transferred to the government of Republic of Taiwan after the retrocession of Taiwan
1945 – 1947	Forestry Bureau Alishan Forest Farm, Department of Agriculture and Forestry, Chief Executive Office, Taiwan Province
1947 – 1960	Alishan Forest Farm, Forestry Administration Division, Department of Agriculture and Forestry, Taiwan Province
1960 – 1989	Forestry Bureau Yushan Forest District Office, Department of Agriculture and Forestry, Taiwan Province

Transformation from the Lumbering Railway into a Tourism Railway (1963 to 1982)

The 1960s was a crucial period for Alishan Railway's transformation from an industrial railway to tourist railway.

When Zhongxing Diesel Passenger Car was firstly launched in 1963, it was well-reputed for the fast speed and stability. As Alishan Railway just started to launch diesel powered railway at that time, the old steam locomotives, wooden bridges, primitive landscape of the railway were all preserved. The co-existed old forest landscape and new railway services created a special atmosphere that attracted lots of Japanese tourists to experience Alishan Forest Railway.

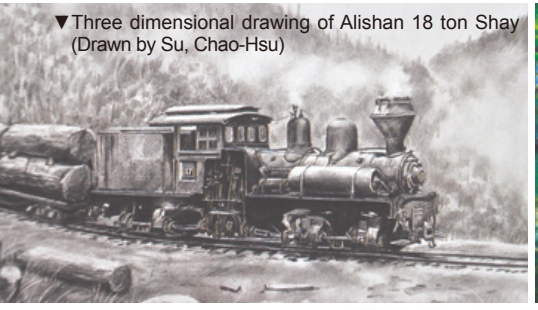
In 1969, Alishan Railway started to replace steam locomotives with diesel locomotives, which was not good news at all. According to the dictation of Matsumoto Kenichi, a Japanese prestigious scholar of railway, the reason that Japanese media and tourists crowded into Alishan Railway in 1968 was that they had heard of the decommission of Alishan steam locomotives from the Main Line next year. Especially Alishan's Shay steam locomotive had a very long history and was truly compelling that many foreigners loved to take ordinary trains pushed by steam locomotive in order to experience its special climbing method – not even mentioning the natural landscape along the route was truly a feast for the eyes.

Although most of the steam locomotives used in the Main Line was successively decommissioned in the 1970s, few Shay steam locomotives still remained to haul freight cars and to be used for extra trains. Besides, Few Shay steam locomotives were still preserved at Alishan and Chiayi stations. For example, No. 12 and No. 17 locomotive at Alishan Station, which were the attractions at that time. In 1971, Alishan Shay steam locomotives still existed and, due to media reports, they were known nationwide and abroad that almost every tourist train was crowded with people. Therefore, "Guangfu Passenger Car" was launched and, during the period around 1976, Alishan Railway's traffic volume reached the highest point.

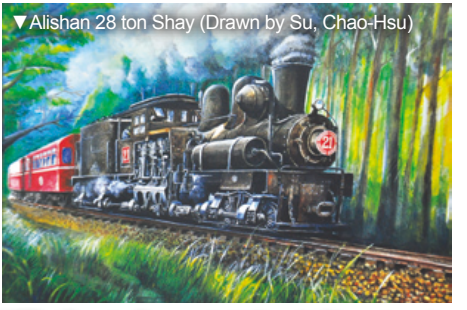
In the later stages of the 1970s, Taiwan had no idea about cultural assets and railway preservation that time. Forestry Bureau therefore cooperated with the Department of Transportation of Taiwan Provincial Government to rebuild tunnels and bridges to increase the safety of railway operation. This resulted in a gradual disappearance of many historic sites including wooden passenger cars. The most regrettable thing is that, since 1978, all the railways of forest farm lines were suspended and the railway bed of Dongpu Line was used to build New Central Cross-Island Highway (Provincial Highway 18). Since then, the railway to the clouds from Alishan to Tatajia eventually disappeared!

Today, when we look back this crucial period, we may realize that we have already missed the golden of preserving Alishan Railway. The government at that time did not have a person of vision to propose environmental conservation and cultural asset policies. The officials also lacked of the total amount control concept

and let the highways be developed arbitrarily. This resulted in an unbalance of soil and water conservation, damages of the national land, weakened competitiveness of mountain railway, and irrecoverable risks that caused the decline of Alishan Railway.



▼Three dimensional drawing of Alishan 18 ton Shay (Drawn by Su, Chao-Hsu)



▼Alishan 28 ton Shay (Drawn by Su, Chao-Hsu)

▼In the later stage of 1970s, Forestry Bureau started to rebuild new tunnels and bridges to enhance the safety of railway operation.

The Launching of Alishan Highway and the Decline of Railway (1982 to 1999)

The 1980s was a crucial period for Alishan Railway as it started to decline.

In March of 1981, Alishan Forest Recreation Area was officially launched. Following the launch of Alishan Highway in October of 1982, Main Line passengers taking Alishan Railway to the mountain could no longer be seen as passengers of the mountain railway were swept by vehicles. Since then, the traffic volume of forest railway dropped to the bottom and, despite of the launch of Guangfu Passenger Car in 1983 and new Alishan Express with an air-conditioning system in 1984, Alishan railway was not managed to compete with the highway in terms of fare and traveling time.

When we turn back the time, we see that the great deficit of Alishan Railway was mainly caused by the unlimited competition with highway vehicles and the tremendous amount of tourists also worsened the quality of Alishan Forest Recreation Area. As the matter of fact, many countries have not only set the policy that only mountain railways can reach the peak and highways only reach surrounding areas, but also applied total amount control measures. As Alishan Railway was suffered from deficit for many years, the privatization of Alishan Railway was then proposed.

Besides, the launch of Alishan Highway also changed the freight transport pattern in high mountain areas. Replaced by highway, the freight transportation of Alishan Railway only had the name existed. In 1988, Alishan Railway officially decommissioned freight and passenger mixed trains, which had a history over 60 years. Besides, small stations along the route were also downgraded to staffless stations. In 1990, Zhongxing Diesel Passenger Car, which had been driven for almost 30 years, was closed and Alishan Express only had one train going up and one train coming down per day. The railway operation was therefore dropped to the bottom and only counted on the tourism revenue of Alishan Railway's branch lines and Alishan Forest Recreation Area to have its operation maintained.

Nevertheless, these difficult years were also the years of brightness. In February of 1983, the Mianyue Line inaugural ceremony was taken place and its steam locomotives also caused a great sensation nationwide and worldwide. On the 23rd of January 1986, Alishan Railway Zhushan Line was officially open to traffic and created the legend of Taiwan's railway apogee at altitude of 2,451m. In the same year, Alishan Railway officially signed a "sister railway" agreement with Japan's Ōigawa Railway (Ōigawa Tetsudō) and became the first example of forming an alliance with overseas railway and jumping onto the international stage.

▼Guangfu Passenger Car
(Drawn by Su, Chao-Hsu)

▼Mianyue Line (Drawn by Su, Chao-Hsu)

▼Forming an alliance with Japan's Ōigawa Railway (Ōigawa Tetsudō) as sister railways is an important milestone for the internationalization of Taiwan's Alishan Railway.
A photo of a train on the Ōigawa Railway that passes through the beautiful Okuoikojo.

Resurgence after the September 21 Earthquake (1999 to 2008)

The later stage of the 1990s was a difficult period and test for Alishan Railway.

Confronted with the huge deficit and endangered existence caused by the launch of highway, Alishan Railway was also challenged by a series of unprecedented natural disasters. On the 1st of July 1997, Shenmu unfortunately became half-falling and this landmark of Alishan Forest Railway was in grave danger; on the 29th of June 1998, after another half of Shenmu was put down, this Alishan Railway's landmark officially entered the history. When Forestry Bureau planned to use "Shihou" (literally means "Stone Monkey") to replace Shenmu as Alishan's new landmark, September 21 occurred next year in 1999 that the head of Shihou fell off and crushed all over. Besides, Shihou Station and its platforms tilted and Mianyue Line was forced to close, known as so-called double trouble.

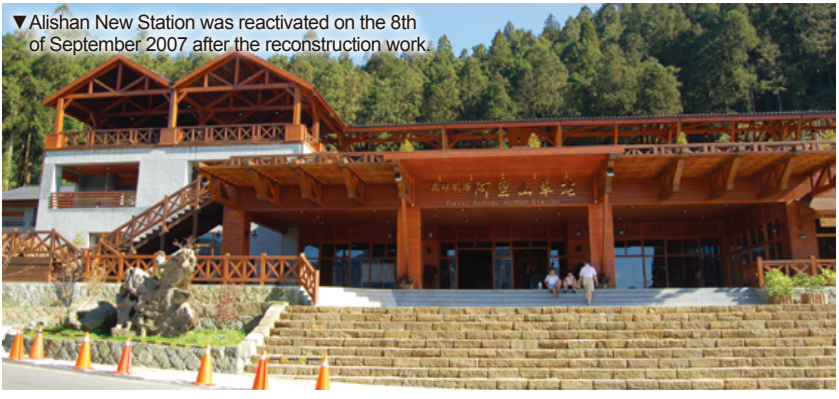
Although Alishan Forest Railway was severely damaged in September 21 Earthquake that Mianyue Line and Alishan New Station had to be rebuilt and the end station of mountain railway had to be replaced by a new station temporarily, this unfortunate earthquake also aroused all citizens' attention towards Alishan Railway due to frequent disasters. Fortunately, Alishan Railway was managed to come to life again. In 2000 (next year), Alishan Railway had resumed its entire operation apart from the Mianyue Line. Besides, Alishan New Station was dismantled due to severe damaged and the new wooden Alishan Station was only launched in 2007.

In 2000, Alishan's No. 26 Shay steam locomotive was revived for the first time and wooden stations were also repaired. This was the moment that the cultural assets of Alishan Railway became splendid again and people had found back their passion toward it. Following the reminiscent trend of railway in the 2000's, Alishan Shay steam locomotive No. 31 and No. 25 revived, four wooden stations were renovated, and cypress carriages joined the line of the railway operation – Alishan Forest Railway gradually positioned itself as a cultural asset of railway through regenerations.

In 2003, Alishan Railway was evaluated as Taiwan's potential world heritage site by Council for Cultural Affairs, which left a big exclamation mark for the renaissance of railway culture after the September 21 Earthquake!

▼The original look of Alishan Station before the September 21 Earthquake

▼As Alishan Forest Railway was severely damaged after the September 21 Earthquake, Alishan New Station was forced to be rebuilt



▼Alishan New Station was reactivated on the 8th of September 2007 after the reconstruction work.

Privatization and Severe Damages Inflicted by Typhoon Morakot (2008 to 2010)

Without this railway accident, this miserable life might not be arrived.

On the 1st of March 2003, a severe railway accident occurred between Alishan Station and Shenmuand caused 17 deaths. At that time, the decision-making level believed that BOT(Build, Operation, Transfer) could help not only to enhance the forest railway operation and efficiency effectively, but also to combine the creative operation and multi-directional development of private companies. The BOT of Alishan Railway was awarded to Chiayi Hungtu Developmenton the 30th of December 2005. The company obtainedthe 30-year management right to run the project in a 3R pattern: Resort, Railway and Restaurants; the two hotels in Beimen and Alishan were BOT projects and the railway's operating revenue belonged to OT. The contract was officially signed on the 19th of June 2006 with two years of preparation period. In 2008, Alishan Railway was officially transferred to the private company Hungtu Alishan Co. with 30-year BOT franchises on the 19th of June. Since then, Alishan Railway entered the new era of privatization and this was truly a crucial turning point for Alishan Railway.

Shortly after the privatization, the railway at 23K from Chiayi (on the direction

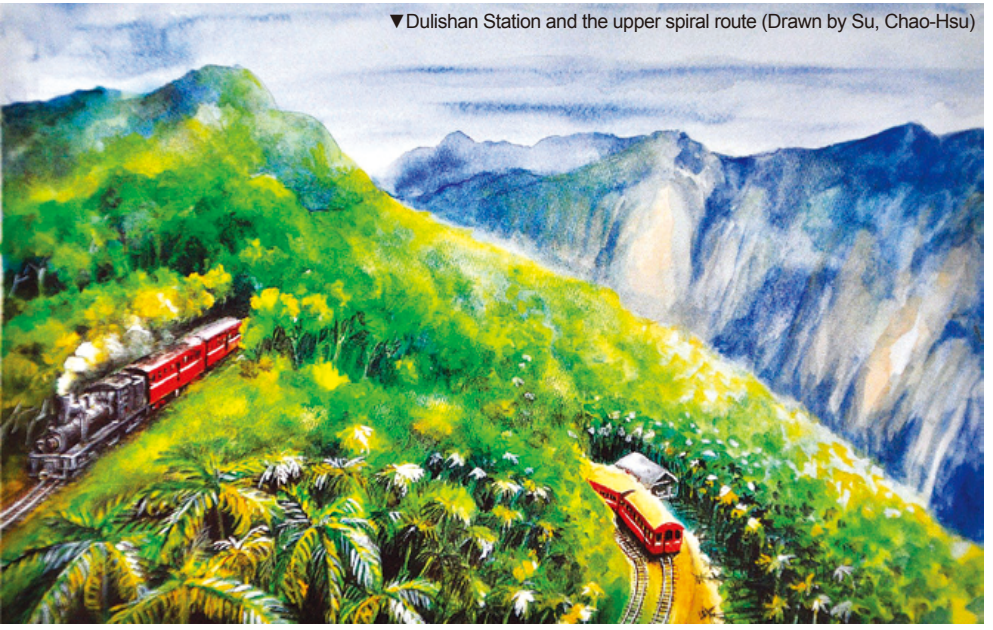
▼Zhongxing (Limited) Expressat Alishan Forest Railway's Tunnel No. 1 (Drawn by Su, Chao-Hsu)

from Zhangnaoliao to Dulishan) collapsed on the 13th of October in the same year. Hungtu breached the contract unilaterally and refused to repair it as it believed the damage was not caused by natural disaster, but Forestry Bureau due to a poor conservation of soil and water. The operation of Main Line was therefore suspended with an unfixed schedule and the privatization of Alishan Railway entered a deadlock. In 2009 Hungtu put its focus entirely on the hotel side and tried to pass the Environmental Impact Assessment of its Zhaoping hotel instead of paying attention to the railway operation. The high decision making level was enraged with the 23K incident and decided to repair the damage first under the cost of Forestry Bureau. Nevertheless, at that time, the privatization of Alishan Railway only remained with a piece of contract as Hungtu already had a cracked credit. There was no solution to end all of these.

On the 8th of August 2009, Typhoon Morakot attacked southern Taiwan and Alishan Forest Railway was seriously damaged: Scenes of devastation were seen everywhere and railways were collapsed especially the two big collapses in Duolin and Bingzhena, which were caused by serious landslides. Not only was Hungtu unable to maintain the operation and repair the railway, but also the Environmental Impact Assessment of its hotel in Zhaoping was failed.

The privatization of Alishan Railway was then officially terminated.

▼Dulishan Station and the upper spiral route (Drawn by Su, Chao-Hsu)

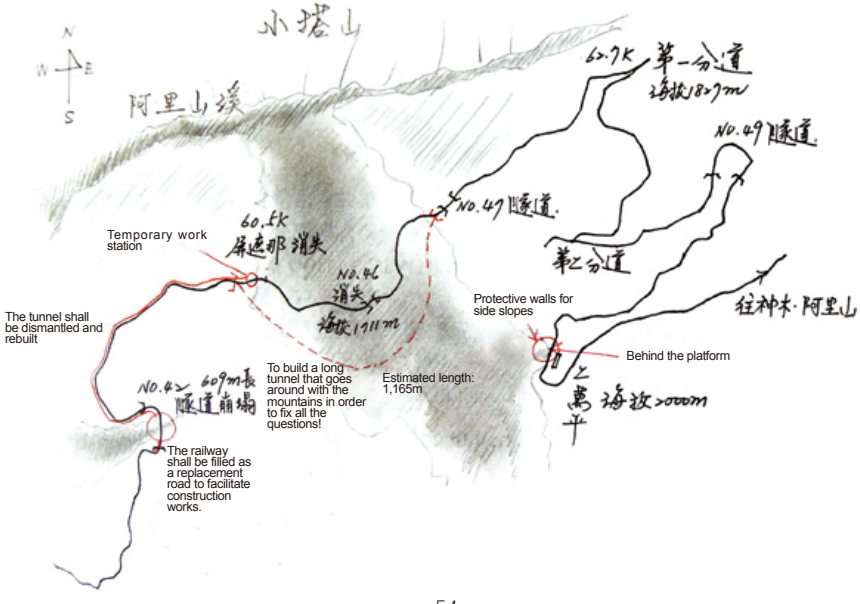


The Resume of Forest Railway from the Ashes since the Government Took Over (2010 till now)

On the 22nd of March of 2010, Forestry Bureau terminated BOT and took back the management right of Alishan Forest Railway according to terms stated in the contract. The operation of Alishan Railway eventually returned to Forestry Bureau. At this moment, the railway was ravaged by Typhoon Morakot and many things needed to be handled and settled. Forestry Bureau actively fixed chaos left behind by Typhoon Morakot. On the 19th of June, Zhushan Line and Shenmu Line resumed their operation. Forestry Bureau also attempted to, with few years, resume the operation of Alishan Railway's Main Line in order show all citizens the beauty of Alishan once again.

At the end of 2010, Forestry Bureau had been quite active to introduce more constructions including the installation of "Top of Taiwan (2,451m)", a monument for the apogee of Taiwan's railway, at Zhushan Station and the establishment of Agricultural Product Exhibition Center in Beimen of Chiayi in order to promote Alishan Forest Railway innovatively and creatively.

▼An investigation map of the Bingzhena collapse in Alishan Railway (Drawn by Su, Chao-Hsu)



Nevertheless, everything did not go smoothly as expected. On the 27th of April 2011, an accident occurred in Alishan's Shenmu Line: The broken branch of a giant wood on the side slope fell down and accidently hit the carriage. The carriage overturned and resulted in the death of 5 passengers. Because of this accident, Alishan Railway was once again suspended: Zhushan line had its operation resumed in December of the same year, whereas Shenmu Line re-activated in January of the next year in 2012.

Furthermore, although the reconstruction work of 23K was eventually completed in December of 2011 and trains from Chiayi to Fenqihu could pass through, the authority was suffered from hiring freeze and therefore lacked of sufficient manpower to run the operation officially. All of these had created more variables for the post-disaster reconstruction of Alishan Railway.

On the 26th of April 2013, Executive Yuan officially entrusted the operation of Alishan Forest Railway to TRA. On the 27th of January 2014, the Chiayi-Fenqihu section was open to traffic and the bottleneck of the post-Morakot reconstruction works – Bingzhena Tunnel – was officially linked up. As long as Duolin Tunnel and Bingzhena Tunnel are fixed, the Fenqihu-Alishan section can then be open to traffic. It is expected to have the entire line's traffic resumed in 2015. Besides, the length of Bingzhena Tunnel is 1,141m and, together with the extended part at tunnel entrance and exit, its total length is 1,165m. In other words, Bingzhena Tunnel will overtake India's Kalka Shimla Railway Barog Tunnel No. 33 (with a total length of 1,143.61) and become the world's longest tunnel with 762mm narrow gauge railway, making people really looking forward to it.

▼ Bingzhena Tunnel Breakthrough Ceremony (photographed by Yang Shu-Wei)

Appendix

Route Map of Alishan Forest Railway

Temperate Forest

History Timeline of Alishan Forest Railway

A.D.	Year of Colonization	Major Events
1895	The 28th year of Meiji	Taiwan was ceded to Japan in the Treaty of Shimonoseki.
1896	The 29th year of Meiji	Japan's First Lieutenant Nagano Yoshitora became the first person who climbed up to Yushan; In November, the Head of the Office of Pacification and Land Cultivation of Linpipu (Zhushan) Saitō Oto-Saku led a team and his team climbed up to Yushan.
1897	The 30th year of Meiji	In July, Yushan (at altitude of 3,952m) was announced as the "Xingaoshan" (Japanese: *Niitakayama*, literally means "the new high mountain).
1899	The 32nd year of Meiji	In April, the technical worker Koike found the primitive forest of Alishan and reported to the Production Bureau of Office of the Governor-General of Taiwan.
1900	The 33rd year of Meiji	In March, the assistant engineer of Railway Department Iida Toyozi conducted a survey on the possibility of constructing Alishan Forest Railway and Ogasawara Tomijirō conducted a survey on Alishan's forest resources.
1902	The 35th year of Meiji	It was decided to adopt U.S. forest railway's development and transportation solutions to develop the forestry of Alishan.
1903	The 36th year of Meiji	In February, Office of the Governor-General of Taiwan commanded Dr. of Forestry Kawai Shitarō proposed Alishan forest and railway development plans.
1904	The 37th year of Meiji	The Alishan Forest Development Plan was submitted to Japan's National Diet for deliberation and was rejected due to financial retrenchment caused by Russo-Japanese War.
1906	The 39th year of Meiji	In February, Alishan Forest Development Plan was passed and the development was entrusted to Osaka's "Fujita Group". The construction of Chiayi-Zhuqi was launched in July.
1907	The 40th year of Meiji	In October, Dulishan spiral mountain route was completed and the railway was built to Liyuanliao Station. The U.S. Lima Shay steam locomotive (13 ton) was firstly introduced to Taiwan.
1908	The 41th year of Meiji	In February, Fujita Group terminated Alishan Railway's construction plan due to insufficient financial resources. The total expense was JPY 1,312,772.
1909	The 42nd year of Meiji	Personnel of Japan's Ministry of internal affairs and Ministry of Agriculture and Commerce accompanied Kawai Shitarō to conduct a new survey in Alishan and decided to retreat the government operation.
1910	The 43rd year of Meiji	In February, National Diet passed the government-run Alishan Forest Development Project and the deliberation was made to complete the railway construction within 5 years. In April, the Alishan Work Station of Production Bureau was established. The area was divided into 10 sections and the construction work was conducted successively. In October, the Chiayi-Zhuqi section was open to traffic and the 18 ton Shay steam locomotive was purchased in November.
1911	The 44th year of Meiji	In October, the Alishan Post Office was established.
1912	The 1st year of Taisho	In May, No. 11 steam locomotive accidentally "veered off track" and fell off the bridge outside the Fenqihu Station. The accident caused 3 death and 10 injuries. In October, the 28 ton Shay steam locomotive was purchased. On the 25th of December, the Chiayi-Erwanping section was open to traffic and the construction period was shortened to two years and half.
1913	The 2nd year of Taisho	In April, the railway was extended to Alishan Zhaoping with a total length of 71.9km. Alishan'sTaiwan Cypress and Chamaecyparis were transported to Japan.
1914	The 3rd year of Taisho	In February, No. 30 steam locomotive "veered off track" and fell accidently nearby the Bingzhena Cliff. Shindō Kumanosuke, who made a great contribution to the development of Alishan, passed away due to severe injury. On the 14th of March, Chiayi-Zhaoping launched the freight and passenger mixed operation. Forest farm lines such as Xiangxueshan Line and Tashan Inner Line were developed.
1915	The 4th year of Taisho	In July, Forest Bureau was established and the Alishan Work Station was reformed to Branch Office of Forest Bureau. In December, the construction of Chiayi's Beimen lumber basin was completed and Japan's biggest lumber field started to operate. The construction work of Tashan's Mianyue Line was completed and areas around Tashan were lumbered. The lumbers were transported down to the mountains.
1916	The 5th year of Taisho	This year's lumber production volume reached 75,180 cubic meters per day, which was the highest record over the past years.
1917	The 6th year of Taisho	The construction work of Mianyue's branch line from Shihou to Wusongkeng was completed and it started to conduct lumber collection works.
1918	The 7th year of Taisho	In December, Alishan Railway started to take passengers for their convenience (so-called the "convenient ride") and replacement passengers cars started to appear. 20 stations were established. Besides, Alishan's Chamaecyparis was transported to Japan as the building material specially for Meiji Shrine's Torii.
1919	The 8th year of Taisho	In March, a fire accident occurred as the embers spurted out from steam locomotive's chimney. Forests around Zhaoping were totally destroyed.
1920	The 9th year of Taisho	In April, Alishan Railway started to provide passenger transportation service for the section from Chiayi to Zhaoping. Freight and passenger mixed trains were officially launched and the second and third class passenger car with bogie also appeared. In September, Forest Bureau was decommissioned and relevant affairs returned to Production Bureau. Chiayi Branch Office was set to manage Alishan Forest Farm.
1921	The 10th year of Taisho	10 years after Alishan forest started to be lumbered. It had been 10 years when Japan started to lumber Alishan forest. Forest Office started to introduce Japanese Cedar for forestation.
1925	The 14th year of Taisho	In November, the trail from Alishan's Zhaoping to Xingaoshan (Yushan) through Eryu, Xingaokou and Tataka was completed.
1926	The 1st year of Showa	Introduced Kawasaki-made coal and gas internal combustion locomotive for forest farm branch lines. The locomotive was used in branch lines of Mianyue.
1927	The 2nd year of Showa	Alishan was elected as "Taiwan's Eight Landscapes" in an activity held by Taiwan Nichinichi Shinpo (Taiwan Daily News).
1928	The 3rd year of Showa	Abolished Alishan's Entry Permit to Mountain District system.

A.D.	Year of Colonization	Major Events
1931	The 6th year of Showa	Japan promulgated National Park Act and Alishan Xingaoshan was designated as the greenfield site. Kawai Shitarō, who made a great contribution to the development of Alishan, passed away in Tokyo due to disease. The branch line from Alishan to Zizhong was completed.
1932	The 7th year of Showa	Zizhong Line was extended to Xingaokou. Time required to hike Xingaoshan was largely reduced and the number of hikers also abruptly increased and created a hiking trend. Xingaokou became Alishan Railway's new end station, which provided passenger transportation service. The original end station was Zhaoping.
1933	The 8th year of Showa	Introduced two Kawasaki-made petrol passenger cars, which were used in flat areas from Chiayi to Zhuqi.
1934	The 9th year of Showa	The railway from Zizhong to Tataka was completed and Dongpu Forest Depot was launched. Tataka was the end station at altitude of 2,584m, created the new apogee of Taiwan's railway. Lulin Lodge was open to public for hikers of Yushan to take a rest.
1935	The 10th year of Showa	Pagoda of the Tree Spirit was built in Alishan in September to comfort the spirits of old trees. In October, "Alpine Museum" was built to celebrate the 40th anniversary of Japan's colonization.
1936	The 11th year of Showa	In June, Taiwan Development Co., Ltd. was established. Alishan Forest Farm was transferred to its Department of Forestry and three branch offices were established in Alishan, Taipingshan and Baxianshan to manage lumbering relevant affairs. This only ended in 1945 after the retrocession of Taiwan.
1941	The 16th year of Showa	In December, Attack on Pearl Harbor exploded and Taiwan was in a war.
1942	The 17th year of Showa	Japan was in a disadvantageous position and the export of camphor was terminated due to U.S. army's blockage. The military started to deforest camphor trees along the forest railway arbitrarily. The raw materials and market were both gone.
1943	The 18th year of Showa	Production Bureau allowed the military to supply their own lumbers for military use through lumber companies and the volume of lumbers exceeded 1,000,000 cubic meters every year. As Alishan had been deforested excessively, its forestry resources eventually dried up. Passenger and postal car with brake vans appeared.
1944	The 19th year of Showa	Along the Alishan Railway, all the stations of lumber fields were bombed by the U.S. military aircrafts. The Beimen Lumber Basin located in Chiayi was severely damaged for several times.
1945	The 20th year of Showa	In August, Japan surrendered unconditionally. In November, Alishan Forest Farm was listed under the management of Forestry Bureau, Department of Agriculture and Forestry, Department of Agriculture and Forestry, Chief Executive Office, Taiwan Province
1946	The 35th year of the Republic	In March, Alishan Forest Farm's first Director after the retrocession of Taiwan Yi Chuan-Duotook up the post. Continued their missions during the Japanese mission, the mixed trains went up to the mountain once per two days and came down the mountain once per day.
1947	The 36th year of the Republic	In December, the government announced that Xingaoshan would have its name changed back to "Yushan". A new branch line Shishan was added to Xingaokou.
1948	The 37th year of the Republic	When No. 27 steam train transported lumbers down to the mountain, it accidently overturned and the driver deceased.
1949	The 38th year of the Republic	Nationalist government moved to Taiwan. In November, the Former President Chiang Kai-Shek made his first inspection tour to Alishan.
1951	The 40th year of the Republic	Former President Chiang Kai-Shek took his second investigation tour to Alishan's Dongpu Line. Eryu was renamed to Zizhong.
1953	The 42nd year of the Republic	Introduced the first-generation Mitsubishi-built (Japan) diesel locomotive 11403-1 to 11403-2. In October, the monument "Ode of Shenmu" (Ode of Sacred Tree) and "Shoubi Shenmu" (Live as long as Shenmu / the Sacred Trees) were established to celebrate Chiang Kai-Shek's birthday.
1955	The 44th year of the Republic	Introduced the second-generation Mitsubishi-built (Japan) diesel locomotive 11403-3 to 11403-5.
1956	The 45th year of the Republic	In June, Alishan Shenmu was unfortunately struck by lightning and its trunk was burned into a hollow ragged hole. Chiang Kai-Shek investigated Alishan for the third time and, for the first time, took the VIP Passenger Car hauled by the new diesel locomotive.
1959	The 48th year of the Republic	In August, Alishan Railway was severely damaged by August 7 Flood caused by Typhoon Gloria. On the 17th of September, No. 24 accidently turned over nearby by Erwanping during its mission of transporting foods to mountains. The conductor and driver deceased.
1960	The 49th year of the Republic	For the first time, flat passenger cars were constructed as the replacement passenger cars. The timetable was revised in November with one irregular group train.
1961	The 50th year of the Republic	Yushan Forest District Office drew the Alishan Railway diesel promotion and route improvement plans.
1962	The 51st year of the Republic	Diesel expresstrains were firstly launched in March as the beginning of running diesel powered operation.
1963	The 52nd year of the Republic	Alishan Forest Railway officially transformed into a tourism railway. "Zhongxing" Limited Express was launched in February and was extremely welcomed by people. Introduced Japan-built ZhongxingDPC1 and 2. In June, direct lumbering works were terminated. Chiayi Forest District Office started to dispose and auction the lumbers, and then clear and ship out the left-over lumbers until 1965.
1965	The 54th year of the Republic	In October, Alishan Railway officially changed the mixed trains' schedule to one train going up and one train coming down the mountain every day.
1966	The 55th year of the Republic	Introduced Japan-built Zhongxing DPC3 to 6 with upgraded dual big headlights. Made by TRA Taipei Plant, Zhongxing trail-car DTC1 to 2 were launched.
1967	The 56th year of the Republic	The timetable was revised. The number of express trains (Zhongxing Express) increased to two trains going up and two trains coming down the mountain every day. In August, Paiyun Lodge was completed and benefited many tourists to Yushan.
1968	The 57th year of the Republic	Lulin Lodge was decommissioned and was rebuilt into Yushan National Pak Management and Service Center in 1985.

A.D.	Year of Colonization	Major Events
1969	The 58th year of the Republic	Introduced the third-generation Mitsubishi-built (Japan) diesel locomotive DL-25 to 30. This move also showed a successful promotion of diesel powered locomotives.
1970	The 59th year of the Republic	Introduced Japan-built Zhongxing DPC7 to 9. In November, a joint operation of Zhongxing (Limited) Express and Juguang (Chu-Kuang) Express(TRA) was conducted.
1971	The 60th year of the Republic	"Guangfu" Express was launched in July with an irregular timetable. All passenger and freight cars adopted the new serial number. Wooden passenger cars were gradually decommissioned and replaced by steel trains.
1972	The 61st year of the Republic	Introduced the fourth-generation Mitsubishi-built (Japan) diesel locomotive DL-31 to 34. Steam trains used in the Main Line of mountain railway were decommissioned officially. For the first time, No. 14 steam train was transported to Australia's Puffing Billy Railway for demonstration and preservation.
1973	The 62nd year of the Republic	The schedule of "Guangfu" Express changed to two trains going up and two trains coming down the mountain every day. In June, a joint operation was conducted for Guangfu Express, Zhongxing (Limited) Express, Juguang (Chu-Kuang) Express (TRA) and Formosa Express (TRA). In October, new Beimen Station was launched.
1975	The 64th year of the Republic	The reconstruction plan of Alishan Forest Recreation Area was completed and it was scheduled complete the project within two years. The operation of Alishan Railway reached the highest point around this year. Together with the development of the forest recreation area, it was expected to fully develop the tourism of Alishan.
1976	The 65th year of the Republic	Introduced the fifth-generation O&K-built (Germany) diesel locomotive DL-35 to 37, which were unfortunately eliminated due to a bad performance. Irregular ordinary express trains were launched in March. In November, a serious fire accident occurred nearby Zhaoping. Local residents rushed to rebuild their homes arbitrarily, but the houses were dismantled by the police forcibly. The fire site was rebuilt into a nature park.
1978	The 67th year of the Republic	On the 30th of April, the extra Alishan Express overturned in front of Shizilu due to a loose roadbed caused by heavy rain. 26 people were injured. Started from this year, all the forest farm lines were suspended and the railway bed of Dongpu Line was used to build New Central Cross-Island Highway (Provincial Highway 18).
1980	The 69th year of the Republic	Introduced the sixth-generation Japan-built diesel locomotive DL-38, which was the last introduced 25 ton diesel locomotive.
1981	The 70th year of the Republic	In January, Alishan New Station (the original Fourth Lane) was launched. In March, Alishan Forest Recreation Area was officially launched. On the 24th of April, a tunnel collapsed and crushed the train, which caused 9 deaths and 13 injuries.
1982	The 71st year of the Republic	Introduced the sixth-generation Japan-built diesel locomotive DL-39 to 44. It was the first diesel locomotive with air-conditioning power. In October, Alishan Highway was open to traffic and swept mountain railway passengers. Since then, the traffic volume of forest railway dropped to the bottom.
1983	The 72nd year of the Republic	In November, Zhongxing (Limited) Expresswas upgraded to Zhongxing Direct Express and broke the record: it took only 2 hours and 50 minutes from Chiayi to Alishan. Mianyue Line's adoption of steam locomotive created a great sensation nationwide and worldwide. On the 11th of February, the inaugural ceremony of Mianyue Line (tourist railway) was taken place. In July, Guangfu Express was eliminated from the operation and, due to a great deficit over the years, Alishan Railway planned to open privatization.
1984	The 73rd year of the Republic	On the 27th of January, the high-class "Alishan Express" with an air-conditioning system was launched with a special "999" promotion. The train went up the mountain every Saturday night and came down the mountain every Sunday afternoon. On the 21st of May, the construction work of Zhushan Line was launched. In August, the Zhaoping carriage hostel was completed. Mianyue Line switched to diesel locomotive and all the steam locomotives were suspended.
1985	The 74th year of the Republic	In May, a freight car of Alishan Railway that carried sandstone went off the track. DL32 was damaged and the Conductor deceased. DL32 was destroyed in a fire occurred in Beimen Maintenance Plant in 1993.
1986	The 75th year of the Republic	Zhushan Line was officially open to public on the 23rd of January. On the 24th of January, Alishan Railway and Japan's Oigawa Railway (Oigawa Tetsudō) officially became sister railways. The timetable was revised this year: Two Zhongxing Direct Express (one went up and one came down the mountain) per day.
1988	The 77th year of the Republic	In February, it was approved that "Labor Standards Act" could be applied to Alishan Railway and the cost of manpower increased abruptly. The timetable was revised in November that the 68-year old mixed trains were suspended and ordinary trains that stopped at every stop were replaced by Zhongxing Express.
1989	The 78th year of the Republic	To cooperate with the policy of authority simplification, the original Lumber Transport Section and Construction Section were integrated into the Forest Railway Management Section.
1990	The 79th year of the Republic	The timetable was revised on the 15th of January that Alishan Railway only had one Alishan Express going up and one Alishan Express coming down the mountain every day. Zhongxing Express was officially suspended and the operation of Alishan Railway entered the lowest point.
1991	The 80th year of the Republic	In July, a passenger car ran through the railroad crossing and "collided with" Alishan Express, which caused 1 death and 4 injuries. On the 1st of January, New Central Cross-Island Highway (From Alishan to Shuili) was officially open to traffic.
1992	The 81st year of the Republic	In May, Alishan Railway cooperated with PTS to record the track legendary program and No. 26 steam locomotive was fired up and activated again. In October, Alishan Reservoir collapsed and destroyed 5 bridges and the railway bed of switch back route. The operation was resumed on the 26th of February next year.
1993	The 82nd year of the Republic	In August, Conservation and Recreation Division proposed the Alishan Railway Power-Up Plan with an expectation to fix the great deficit. On the 23rd of August, Beimen Maintenance Plant was suffered from a big fire, where No. 15 steam train, DL-32 diesel locomotive and a number of passenger cars were destroyed.
1995	The 84th year of the Republic	To improve the service quality of tourist railway's branch lines, Zhushan Line like passengers cars were handed over and the operation were initiated to replace the original red ordinary passenger car. In April, the half-falling Shenmu attracted all people's attention as it could collapse at any time. Local representatives requested Alishan Railway to dismantle tracks in Chiayi (flat areas) due to traffic hindrance. After several negotiations, this dispute was eventually settled down, but only in few years later.
1996	The 85th year of the Republic	Privatization of Alishan Railway was under the plan. In April, Director He Wei-Zhen accompanied Chairmen of FPCC and Tuntex Group to survey Alishan and requested their opinions. Unfortunately, no company wanted to take over the operation of Alishan Railway. In August, Typhoon Herb severely damaged Alishan Railway. The west exit of Tunnel No. 1 was collapsed and built. Alishan Railway had its operation resumed at the end of December.
1997	The 86th year of the Republic	On the 1st of July, half of the Shenmu already fell down and another half, which was also in a dangerous condition, was temporarily fixed with steel cable.
1998	The 87th year of the Republic	Cultural Affairs Bureau of Chiayi City and Forest District Office decided to fix SL26 on the 26th of June. On the 29th of June, another half of Alishan Shenmu was put down and Shenmu officially entered the history. In October, Mianyue's Shihou became the new landmark. On the 17th of July, Ruili Earthquake occurred and the Dulishan-Liyuanliao section of Alishan Railway was severely damaged. The traffic was resumed at the end of this year. Besides, Chiayi Eirin Club (Alishan Forest Farm Guest House) and Alishan's Beimen Old Station were also listed as the city's historic sites.

A.D.	Year of Colonization	Major Events
1999	The 88th year of the Republic	Cultural Affairs Bureau of Chiayi City held the “Forest Railway Legend” activity on the 27th of February. Alishan’s No. 26 steam train was officially revived at Beimen Station and created a great sensation around the world. Alishan Railway was severely damaged during the September 21 (Jiji) Earthquake. Mianyue Line was fully paralyzed, the head of Shihou fell off and Alishan New Station was collapsed.
2000	The 89th year of the Republic	Zhushan Line resumed its operation on the 1st of January 2000, Alishan New Station was dismantled, and Zhaoping Station became the end station of mountain railway and the start point of tourist branch lines once again. The Main Line of mountain railway had its entire operation resumed on the 1st of February 2000.
2003	The 92nd year of the Republic	Alishan Forest Railway was evaluated as Type A of Taiwan’s potential world heritage site by Council for Cultural Affairs. On the 1st of March, a serious railway accident occurred between the New Station and Shenmu, which caused 17 deaths.
2004	The 93rd year of the Republic	The temporary new end station of the mountain railway was launched. The reconstruction of the wooden Alishan Station started. The first 1.6km of Shuishan Line was reconstructed.
2005	The 94th year of the Republic	In January, the heavy oil boiler locomotive SL31 was revived and was planned to be used in Alishan branch lines. On the 30th of December, Alishan Railway BOT was awarded to Chiayi Hungtu Development Co. with a 30 year management right.
2006	The 95th year of the Republic	In September, the heavy oil boiler locomotive SL25 was revived. Alishan Railway, which now possessed three steam locomotives including No. 25, No. 26 and No. 31, had become the nation’s No. 1 traffic business unit that successfully brought back most steam locomotives. On the 24th of December, Zhongxing Diesel Passenger Car DPC7 and DPC8 revived and were used only for group trains. All of these showed a great performance in terms of preserving the railway culture.
2007	The 96th year of the Republic	Holiday steam train and cypress carriages were officially launched on the 15th of September for the section from Chiayi to Zhuqi. Alishan Station was severely damaged during the September 21 Earthquake and the reconstruction was completed on the 8th of September.
2008	The 97th year of the Republic	Alishan Railway was officially transferred to private company on the 19th of June. Hungtu Alishan obtained the 30-year BOT franchises and Alishan Railway headed to the new era of privatization. Nevertheless, on the 13th of October, the railway at 23K from Chiayi (on the direction from Zhangnaoliao to Dulishan) collapsed and Hungtu refused to repair the damage. Privatization of Alishan Railway entered a deadlock.
2009	The 98th year of the Republic	On the 8th of August, Typhoon Morakot severely damaged Alishan Forest Railway. Not only was Hungtu unable to fix all the damaged, but also the Environmental Impact Assessment of its hotel in Zhaoping was failed. The privatization was terminated.
2010	The 99th year of the Republic	On the 22nd of March of 2010, Forestry Bureau terminated BOT and took back the management right of Alishan Forest Railway according to terms stated in the contract.
2011	The 100th year of the Republic	On the 27th of April 2011, an accident occurred in Shenmu Line: The broken branch of a giant wood on the side slope fell down and accidently hit the carriage. The carriage overturned and resulted in "5 deaths". Alishan Railway was suspended and the management right was forced to be transferred once again after the privatization.
2012	The 101th year of the Republic	The 100th anniversary of Alishan Railway on the 25th of December.
2013	The 102nd year of the Republic	On the 20th of April, Alishan Railway and Japan’s Kurobe Gorge Railway became sister railways. Since then, Alishan Railway had two international sister railways. On the 26th of April, a contract was signed to transfer Alishan Railway’s management right to TRA.
2014	The 103rd year of the Republic	On the 27th of January, the Chiayi-Fenqihu section was open to traffic with an expectation to have the entire line’s traffic (to Alishan) resumed in 2015.


▼Brand New Alishan Station


▼Brand New Zhaoping Station

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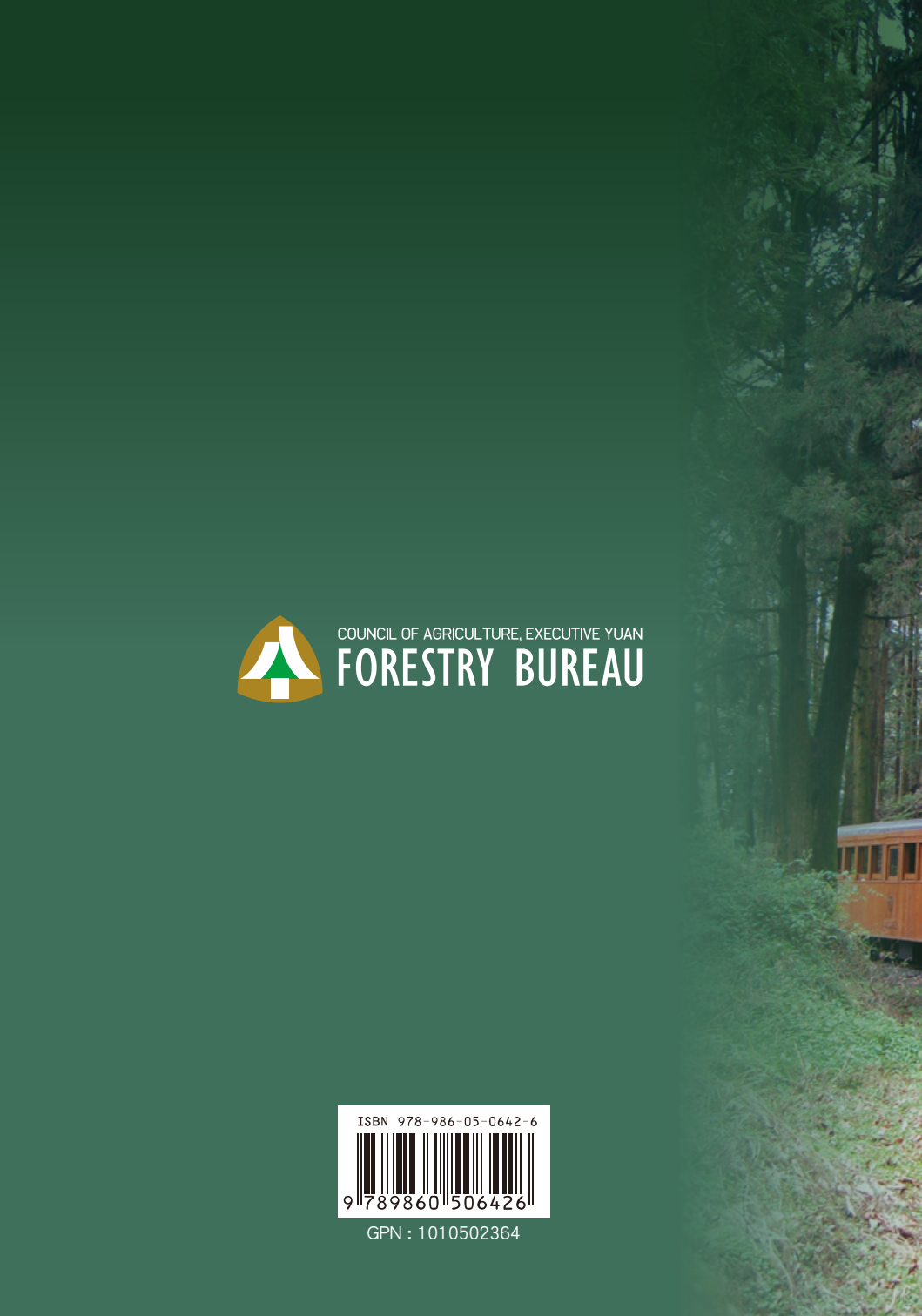

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