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The Development and Economic Impact of Railway in Batavia, 1873-1930

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Abstract: This study aims to determine the background of rail transportation modes developed in Batavia, focusing on the process, the activities between 1873 and 1930, and their economic impact in 1930. It was discovered that the increase in agricultural and plantation yields during the Cultivation Era led caused serious problems in transporting agricultural products from the plantation area to the port. It led to the construction of the first train connecting Batavia to Buitenzorg, operated by the *Nederlandsche-Indische Spoorweg Maatschappij* (NISM) on 31 January 1873. Another railway company, *Staatsspoorwegen* (SS), designed to operate the western route, including Batavia – Tanjung Priok, was inaugurated in 1885. It was followed by Batavia – Anyer in 1900 with a Duri – Tangerang branch in 1899 and *Bataviasche Ooster Spoorweg Maatschappij* (BOSM), which opened the eastern route, Batavia – Bekasi – Karawang, in 1891. Moreover, there is also the Batavia horse tram operated by *Bataviasche Tramweg Maatschappij* (BTM) in 1869, which served as the beginning of the history of the railroad in Batavia. It was also discovered that the train significantly impacted all economic actors in Batavia, including the farmers, traders, and industries.

Abstrak: Penelitian ini bertujuan untuk: mengetahui latar belakang pembangunan moda transportasi kereta api di Batavia, proses pembangunan moda transportasi kereta api di Batavia dan perkembangan perkeretaapian di Batavia pada 1873-1930 serta dampak moda transportasi kereta api terhadap perekonomian Batavia 1930. Hasil penelitian ini bahwa terjadinya peningkatan hasil pertanian dan perkebunan pada era Tanam Paksa yang jumlahnya belipat-lipat menyebabkan masalah yang cukup serius bagi pengangkutan hasil perkebunan dan pertanian dari daerah perkebunan ke pelabuhan. Untuk mengatasi permasalahan-permasalahan itu, maka dibangunlah kereta api pertama di Batavia yang menghubungkan Batavia dengan Buitenzorg yang dioperasikan oleh *Nederlandsche-Indische Spoorweg Maatschappij* (NISM) pada 31 Januari 1873. Selanjutnya terdapat perusahaan kereta api lainnya yang turut beroperasi di Batavia, yaitu *Staatsspoorwegen* (SS) yang mengoperasikan lintas barat, meliputi Batavia – Tanjung Priok diresmikan tahun 1885, Batavia – Anyer 1900 dengan cabang Duri – Tangerang tahun 1899 dan *Bataviasche Ooster Spoorweg Maatschappij* (BOSM) yang membuka lintas timur, Batavia – Bekasi – Karawang tahun 1891. Tak lupa juga terdapat trem kuda Batavia yang dioperasikan oleh *Bataviasche Tramweg Maatschappij* pada tahun 1869 yang mengawali sejarah berdirinya sejarah kereta api di Batavia. Dengan ini kereta api mampu memberikan dampak ekonomi bagi seluruh pelaku ekonomi di Batavia, mulai dari petani, pedagang hingga industri sekalipun.

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INTRODUCTION

The train is a mode of transportation with its propulsion and ability to run alone or in combination with other related railway facilities (Law No. 23 of 2007). According to Hidayat in Pramyastiwi et al. (2013, p. 63), train (KA) has several advantages, which include the ability to transport passengers and goods in large and mass quantities, save energy, save land, environmentally friendly, have a high level of safety,

adaptive to technological developments, and ability to reach economic centers (Directorate General of Railways, 2019). It implies it ensures accessibility and connectivity between regions, which significantly increases regional productivity (Biomantara & Herdiansyah, 2019, p. 7). Trains are, therefore, one of the most widely used forms of transportation, and databooks further confirmed that the number of rail service users reached 14.3 million in March 2021, which is approximately a 24.44% increase from the previous month.

The development of railways in the capital city of Jakarta is becoming more lively due to the presence of the Electric Rail Train (KRL), Mass Rapid Transit (MRT), Light Rail Transit (LRT), and Jakarta – Bandung Fast Train (KCJB) which are expected to overcome the problem of traffic congestion in the city. These three types are believed to be Jakarta's latest generation of train-based services since 1925. It implies that the current development of rail transportation in the capital city started during the Dutch colonial era.

Jakarta, known as Batavia then, was a port city and the economic and Dutch colonial administration center surrounded by export-selling plantation areas such as Buitenzorg (Bogor), Depok, Bekasi, and parts of Banten (Tangerang). The bustle of Batavia's trading activities, dominated by plantation products at that time, required a qualified mode of transportation to support the smooth running of economic activities at the center of the Dutch colonial government. It was further confirmed by quite complex transportation problems being experienced, which led the colonial government to immediately build a mode of transportation such as trains to satisfy the very urgent transportation needs at the time.

It was, however, reported that the railways constructed did not run smoothly as indicated by the construction of the first railway line in Indonesia connecting Semarang-*Vorstenlanden* (Semarang – Solo – Yogyakarta) in 1867. The development process was observed to have been plagued by political and economic conflicts between people in business or liberals, the colonial government, and the Dutch royal government. This series of conflicts further affected the railway network development between Batavia - Depok - Bogor - Bekasi, and Tangerang between 1870 and 1930.

Rail transportation increased the productivity of plantations owned by private companies, bringing considerable benefits to the Netherlands (Witton, 2003, p. 25). It was also intended to promote the economic growth of the population in the colonized country, the Dutch East Indies (Indonesia), in addition to meeting the needs of the colonials. Moreover, rail became a separate economic opportunity for Batavia to encourage the improvement of the people's welfare by creating jobs in both the plantation centers as well as railway line construction sites.

Several relevant studies have been conducted on the development of rail transportation in Batavia from 1870-1925 (Hatmawan, 2002) with a focus on the history, factors that prompted the construction of the railway network, and the subsequent impact on the economy of the city. It is considered relevant because it briefly reviews the construction of the railway network in Batavia. The study discusses the history of the railway in Batavia starting from the construction process but does not explain the associated economic conditions or motives. However, this study comprehensively discusses the motives and economic impacts of developing the rail transportation modes in Batavia. Moreover, another study focused on the development of rail transportation in Jakarta (Jumardi et al., 2020), emphasizing its history up to the present time.

These studies have focused on trains in Batavia, but there is a need to comprehensively analyze the existence of railways in Batavia to have a complete picture of the existing findings. Moreover, several people do not know the history of the railways even though it is the oldest mode of mass transportation initiated in the 19th century in Indonesia, with most of the station buildings currently designated as Indonesian cultural heritage (Deddy, 2015; Purwandono, 2017). It means it is crucial to provide a history of the railroad to make the people aware of the nation's journey.

This study is expected to provide a historical background of the history of railways using cultural heritage as the source of information, ensuring there is enough awareness to preserve railway cultural heritage by avoiding vandalism or other unlawful acts against rail transportation facilities and infrastructure.

METHOD

Historical research aims to reconstruct the past objectively and systematically by collecting, evaluating, verifying, and interpreting evidence to obtain accurate conclusions (Suryana, 2010, p. 18). The reconstruction process was conducted using literature, archival studies, and documentation. Moreover, the historical method focuses on critically examining and analyzing records and relics and writing down the observations based on facts obtained

Table 1. Number of Passengers on the Batavia – Buitenzorg Train in 1873

Months to	Total Passengers Total	Number of Passengers/ day	Number of Passengers/ train/day
I (September)	35,740	2,383	170
II (October)	45,091	1,455	104
III (November)	26,758	892	64
IV (December)	22,015	710	51

Source: Sutarma, 1988, p. 58)

through imaginative reconstruction or historiography (Irwanto & Sair, 2014, p. 11).

The method also involves researching and writing history through methods, procedures, or techniques associated with the rules of historical science (Daliman, 2015, p. 27). It is expected to produce scientific, objective, systematic, and analytical historical writing. Furthermore, data can be collected using two main sources, which include primary and secondary sources. According to Sugiyono (2016, p. 137), the primary involves retrieving data directly from sources, while the second is associated with the indirect retrieval of data. The methods or techniques for data collection vary. Those used in this study are explained as follows: (1) Archival studies which involve the direct examination of sources associated with the colonial era railways in the National Archives of the Republic of Indonesia (ANRI) as well as digital data sourced from credible and trustworthy websites such as https://www.delpher.nl/, https://indearchipel.com/, https://javapost.nl/, and others; (2) Literature study involves searching, reading, researching, and reviewing written sources such as books, journals, papers, and other scientific works as well as assessing official websites to retrieve relevant research topics such as PT. KAI, PT. PGN, PTPN X, and others; (3) Documentation involves watching videos of historical interviews filled by leading practitioners such as Prof. Dr. Djoko Marihandono (Professor of History UI) and Dr. Dicky Soeria Atmadja, academician in the field of mapping techniques at ITB and the vice chairman of the International Council on Monuments and Sites (ICOMOS) Indonesia.

THE DEVELOPMENT OF RAILWAYS IN BATAVIA IN 1930

The *Nederlandsch Indische Spoorweg Maatschappij* (NISM) Railway Line Batavia (Jakarta) – Buitenzorg (Bogor) 1873

The train observed in Batavia in 1873 was motivated by the need for rapid and efficient mass transport to support the distribution of the products from the estate of Buitenzorg to the city and to be exported to Europe through the Port of Sunda Kelapa, Batavia (Jumardi et al., 2020, p. 41). It could reduce transportation challenges since it was not affected by the weather like the horse, there was no need to break the night, and it also could reduce theft and excess charge. The train fire NISM had a high number of passengers after a half month of operation, but the number declined after some months, as indicated in Table 1.

The train travel costs were divided into three classes which include class I (Europe) at f 0.12 per km, class II (foreign eastern: Chinese, Arabic) at f 0.09 per km, and class III (inlanders/natives) at f 0.03 per km. It is possibly the reason for the loss suffered by the NISM in 1872, which subsequently reduced the entrepreneurs' confidence in the company's success (Stroomberg, 2018, p. 411).

The details of the NISM receipts from passengers, goods, consignments, vehicles, goods for tasks, and others were only f 72,384.29, indicating a loss of f 4,277.83. However, NISM experienced quite a drastic profit in 1873 and the following years after the Batavia – Buitenzorg railway line started operating as indicated by the net income of f 379,547.95 recorded in the year while the total expenditure was f 174,250,375, thereby showing a profit of f 205,297,575.

The NISM report from 1870 – 1880 showed that the Batavia-Buitenzorg route was generally dominated by freight transport which covers 25% local transportation, 25% direct transportation of raw materials from Priangan (Bogor), 5% direct transportation to Tanjung Priok port, 5% transit, and 11% construction work. Moreover, 77% of the goods transported were owned by private companies, including coffee, sugar, potatoes, peanuts, cinnamon, wheat flour, oil, palm sugar, and rice.

The profits earned from the Batavia – Buitenzorg railway operation between 1874 and 1899 are presented in table 2.

Due to its good profits, the rail transportation business became one of the mainstays of entrepreneurs for investment in the period. Moreover, the successful construction of the Semarang – Yogyakarta and Batavia – Buitenzorg railway lines stim-

ulated investors to construct the lines in other areas

Year	Reception f	Expenditure f	Profit f	Dividend %
1874	458,671	213.091	245.580	3.75
1879	644.674	263.544	381.130	6.75
1884	751.562	321,497	430.065	8.25
1889	716,944	324,871	392.073	6.10
1894	741,486	327.593	413,893	9.40
1899	844,909	396,006	448,903	11.10

(Hardini, 2009, p. 14). These two lines also prove that the train is a solution to the practical and smooth transportation of plantation products (Jumardi et al., 2020, p. 40). Furthermore, NISM, as a private railway company, expanded its wings by building other railway lines on the island of Java.

In addition to the Batavia – Buitenzorg (middle cross) railway line opened by NISM, several other railway companies also operated train lines in Batavia, such as Staatsspoorwegen (SS) or the State Railway Company on the western route, including the Batavia – Tanjung Priok line inaugurated in 1885 and Batavia – Anyer in 1900 while the Duri – Tangerang branch was started in 1899. Another example is the Bataviasche Ooster Spoorweg Maatschappij (BOSM) or the East Batavia Railway Company in the eastern route with the Batavia – Bekasi – Karawang line in 1891.

These three railway companies did not cooperate, leading to the improper management and integration of Batavia's railway network and infrastructure (Raap, 2017, p. 26). Therefore, the colonial government decided that the entire railway network be managed by only one party, the SS, a state company established on 6 April 1875 based on *Staatsblad* No. 141. From the beginning of its existence, the SS was encouraged to take over the entire railway network in Batavia to ensure the improvement of the facilities and infrastructures.

This takeover plan was initiated in 1877 due to the government's desire to have a direct railway line from Bandung to Batavia, and this is expected to be achieved by taking over the Batavia – Buitenzorg line. The focus was also to integrate this line with others in Batavia. The government, therefore, initiated tough negotiations with NISM to take over the Batavia – Buitenzorg line (Hariyadi & Sudarsih, 2015, p. 57).

The sales agreement was made with the price set at f 6,000,000.00 in 1881, but it could not be implemented because the price was deemed too high, and SS had difficulties procuring the budget. Therefore, in 1898, the SS changed its preference to the Batavia - Karawang (BOSM) line to realize the Batavia - Bandung direct railway line but finally connected Batavia - Bandung via Karawang - Padalarang in 1906.

The profits of NISM from the Batavia - Buitenzorg railway line were decreasing, and the company started losing money after the government opened the Batavia - Karawang - Padalarang line. Moreover, the Batavia - Buitenzorg - Cianjur railway line was not completed at the same time as the Batavia - Karawang - Padalarang. It led more passengers to use the Batavia - Karawang - Padalarang line when heading to Bandung or Batavia because it was considered faster than the Batavia - Buitenzorg - Cianjur line (PT. KAI, 2017b). It immediately prompted NISM to sell the Batavia - Buitenzorg route to the government. The situation allowed the SS to renegotiate the *f* 11,000,000.00 requested by the company. The two parties, however, reached an agreement of 10,600,000.00 in 1913, and the line officially became part of the SS network based on Staatsblad Number 469 of 1913 and was integrated into other lines (Katam, 2014, p. 6).

SS started repairing the facilities and infrastructure on the line in the same year (Hariyadi & Sudarsih, 2015, p. 57), with some lines and stations demolished while some were renovated and new ones were also built. A double line was constructed in 1917, while the Batavia SS Station (ex-BOSM/ Jakarta Kota) was closed in 1923 (Hariyadi & Sudarsih, 2015, p. 58). The Batavia Noord Station (ex-NISM/Jakarta Kota), located approximately 200 m north, was temporarily used as the central station to serve the passengers.

The entire building of the Batavia SS Station was demolished in 1926 by the BOW to build a more extensive and more magnificent station. It was designed by *Algemeen Ingenieur Architectenbureau* (AIA) or the General Bureau of Architects and Engineers (Hariyadi & Sudarsih, 2015, p. 58) in 1927 by FJL Ghijsels. The station design consists of 12 lines, and Hollandsche Beton Maatschappij (HBM) won the tender for the construction in 1928. It was completed after a year and inaugurated on 8 October 1929 under *Batavia Benedenstad Station*. The inauguration was held as a morning greeting ceremony directly witnessed by the Governor General jhr. ACD de Graeff, was the ruler of the Dutch East Indies from 1926-1931(Kompas, 2009).

The construction of the new Jakarta Kota Station was combined with the electrification of the line, which is the second after the Tanjung Priok – Meester Cornelis line (PT KCI, 2017), which was electrified in 1928 by SS on the part of the Batavia –

Koningsplein – Manggarai – Meester Cornelis (Laksana dkk., 2020, p. 3). It is important to note that the Kracak PLTA supplied the electricity on the route through Depok and Kedungbadak (Bogor) substations. Therefore, an Electric Railroad (KRL) line operated for the first time in 1930.

Tanjung Priok Port Service Batavia – Tanjung Priok Train Line in 1885

The existence of this railway line cannot be separated from the bustle of Tanjung Priok Port which had become a port of pride during the Dutch East Indies era. It did not only serve as the gate of the city of Batavia but also the Dutch East Indies. Moreover, the port of Sunda Kelapa (Batavia), developed around the Fish Market, was no longer adequate due to sedimentation of canal mud at the Ciliwung estuary in 1832 and its peak in 1859 (Hariyadi and Sudarsih, 2015, p. 57). The port experienced severe silting that stopped the docking of ships, which meant cargo needed to be transported from the middle of the sea by boats. Therefore, a new port facility was built at Tanjung Priok, which is about 10 km to the east of the Sunda Kelapa port, as a replacement.

The Batavia – Tanjung Priok route was initially built by the Tanjung Priok Port Service to transport construction materials (Laksana et al., 2020, p. 6). The old Tanjung Priok Station, located right above the pier of Tanjung Priok Port, was also constructed at the same time by *Burgerlijke Openbare Werken* (BOW) in 1883. The operation of this line was subsequently handed over to the SS in 1884 (Hariyadi et al., 2016, p. 15) and inaugurated on 2 November 188, coinciding with the opening of the Tanjung Priok Port. Initially, the train line was only designed to reach Batavia NISM, with the passengers directly transferred to the NISM train going to Bogor (Raap, 2017, p. 116). It was, however, further connected to the Batavia SS Station (ex-BOSM/ Jakarta Kota) to ensure the transfer of passengers to the BOSM train going to Karawang.

The increase in port activity in 1914 led to an expansion of the port, thereby causing the dismantling of the old Tanjung Priuk Station (Hariyadi et al., 2016, p. 18). The SS searched for a new place next to the Lagoa warehouse to construct a new station with Ir. CW Koch was employed as a prominent architect, and a mock-up model was designed to prepare for the construction. It is important to note that the construction process required approximately 1,700 workers, of which 130 were European nationals.

SS also planned to electrify the railway network in Batavia and its surroundings while constructing the new station in 1917 (PT KCI, 2017). The electrification was considered economically profitable, and the Tanjung Priok – Meester Cornelis section was prioritized. The process was reported to have started in 1923 and completed on 24 December 1924. The electricity on this route was supplied by the Department of Water and Electricity, which constructed the Ubrug Hydroelectric Power Plant (PLTA) and the Kracak Hydroelectric Power Plant in the Sukabumi area at the time. The electricity was also supplied to the Ancol and Jatinegara substations.

The colonial government bought some electric locomotives to pull the train series (PT KCI, 2017), and those purchased include the 3000 series made by Swiss Locomotive & Machine works (SLM) – Brown Baverie Cie (BBC). The 3100 series is made by *Allgemaine Electricitat Geselischaft* (AEG) in Germany, the 3200 series is made in Werkspoor in the Netherlands, and the KRL from the Westinghouse and General Electric factories. Moreover, the electrification was extended to the Batavia - Kemayoran, and Batavia - Koningsplein - Manggarai - Meester Cornelis routes (PT KCI, 2017).

A new station was opened for the public outside the supervision area of the Tanjung Priok Port Service on 6 April 1925 (Raap, 2017, p.117). It coincided with the launch of the first KRL route Tanjung Priok – Meester Cornelis, and also occurred during the commemoration of SS's 50th anniversary. The station was large with eight lines and five platforms and was as big as *Batavia Benedenstad Station* (Jakarta Kota) in 1929 (Widayanti & Widyarsih, 2012, p. 7). The station building had an Art Deco style with an area of 3678 m2 (0.3678 ha) standing on an emplacement area of 46930 m2

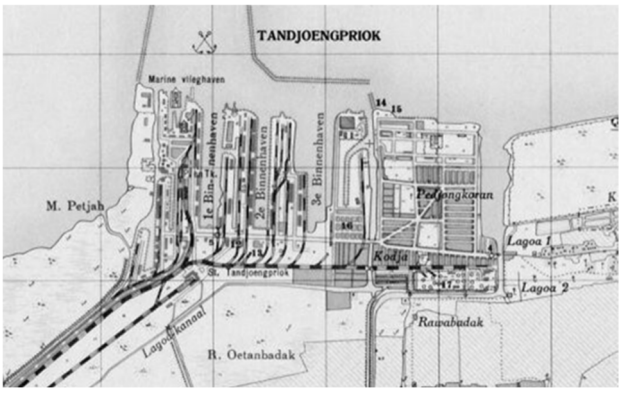

Figure 1. Tanjung Priok Port and Station
(Source: https://javapost.nl/2020/04/18/badplaatsen-van-batavia-tjilintjing/)

(4,693 ha) (Widayanti & Widyarsih, 2012, p. 9). Furthermore, the City of Batavia passed the KRL surrounding the city on 1 May 1927, and several "wastes" were linked to the SS after the station's completion.

This station was also equipped with temporary lodging on the left wing for passengers willing to continue their journey by boat. However, SS faced a tough challenge opening Kemayoran Airport, which serves general flights, because many passengers switched to airplanes. Passengers were also reluctant to use the new station built approximately one kilometer from the port (Hariyadi et al., 2016, p. 24). It caused several trains connected to the ships to be immediately turned to the harbor dock, and this extended beyond the new station, which had always been quiet from the start and was redesigned to serve only as the terminus for KRL starting from 1925 (KA Magazine, 2014).

13

***Bataviasche Oosterspoorweg Maatschappij* (BOSM) Batavia – Bekasi – Karawang Railway Line in 1891**

Railway lines were also constructed by other private companies, such as *Bataviasche Oosterspoorweg Maatschappij* (BOSM), which obtained the concession to construct a railway line to cross East Batavia. The Batavia – Bekasi line was initially planned to be constructed by HJ Meertens, Firma Tiedeman, and Van Kerchen, but the company failed after it was granted permission by the colonial government. Therefore, the government revoked the concession on 16 September 1882 and transferred it to the *Nederlandsche Handel Maatschappij* (NHM) based on Government Decree 19 February 1884 Number 1. NHM changed the route from the previous plan proposed by HJ Meertens, Firma Tiedeman, and van Kerchen. It led to the construction of the Batavia via Pasar Senen and Meester Cornelis to the Bekasi line, which means the company failed to construct the Batavia – Bekasi line. NHM consequently handed over the concessions to *Bataviasche Oosterspoorweg Maatschappij* (BOSM) after six months.

BOSM started to build a segment of the railway line that stretched from Batavia Zuid (South Batavia) - Bekasi for 27 km, which started operating on 31 March 1887. (Java-bode: nieuws, 1885). It was reported that the transportation on the Batavia-Bekasi railway in November 1889 produced f 9,633.38 or f 11.89 per kilometer day, and the figure for December was f 8,827.49 or f 10.54 per kilometer day. It is smaller than the profit recorded on the Batavia-Buitenzorg line at the beginning of its operation (De locomotief, 1890), but this did not discourage BOSM from developing this pathway.

Figure 2. Batavia – Bekasi railway line (Source:https://heritage.kai.id/page/Stasiun%20Bekasi)

BOSM subsequently proposed to extend this route to the district capital of Karawang in the Citarum River basin in 1895 and was also observed to be interested in increasing the transportation of agricultural products in Karawang after the Batavia – Bekasi route was opened. It was based on the consideration that Batavia's villages around Bekasi and Karawang were the center of rice farming at the time (Firdausi, 2018).

Agricultural products from Karawang used to be transported via the Citarum River by boat and later to the Kedunggedeh Station, where they were to be moved via train and sold to Batavia city (PT. KAI, 2017a). It was believed that constructing a railway line from Kedunggedeh – Karawang would speed up the transportation of agricultural products from Karawang without the need to use boats. The colonial government approved the application for the extension from Kedunggedeh to Karawang through a Government Decree (Besluit) dated 10 December 1895, number 19, and Law of 9 June 1898 Staatsblad 222. Moreover, BOSM submitted the request with a capital guarantee of *f* 5,000.00 for a distance of 5 km.

The extension was conducted in stages, which included the 17km Bekasi - Cikarang section initiated on 14 August 1890, 13km Cikarang - Kedunggedeh on 21 June 1891, and 6km Kedunggede-Karawang on 20 March 1898 (Bataviaasch Nieuwsblad, 1890). BOSM also had a station in Batavia, which is known as Batavia BOSM Station, to support its operations. Therefore, the company owns the 63 km Batavia – Karawang railway line operated through Meester Cornelis and Bekasi.

BOSM experienced financial problems and poor management after the extension (PT. KAI, 2017a), which led to the agreement that the Batavia

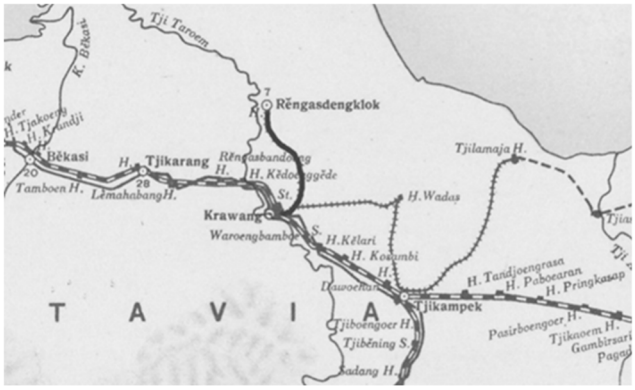

Figure 3. Bekasi – Karawang railway line (Source: https://heritage.kai.id/page/Pembangun%20 Trem%20Lintas%20Karawang%20Rengasdengklok)

Figure 4. Line Map of Batavia SS – Duri
Source: http://maps.library.leiden.edu/apps/s7#

Figure 5. Map of Rangkasbitung – Anyer Kidul Railway (Source:https://heritage.kai.id/page/Stasiun%20Rangkasbitung)

– Karawang line, including the Bekasi Station, be purchased by the state railway company (SS) after its completion. Finally, the agreement was fulfilled after the completion of the extension on 4 August 1898, with the line officially purchased by the SS for f 5,000,000.00(Laksana et al., 2020, p. 4) due to the government's desire to have a direct train line to Bandung.

It means eight train lines stopped at Bekasi Station in a day throughout 1900, including four from Batavia-Karawang and vice versa. The journey from Batavia to Bekasi requires approximately two hours and fifteen minutes, and the cost differs based on the class, such that class 1 passengers were required to pay f 1.7, class 2 passengers paid f 0.8, class 3 included mixed and indigenous passengers, paid f 0.45, and class 4 paid only f 0.26. Meanwhile, the cost of goods per 10 kg was f 0.10.

Staatsspoorwegen Railway (SS) Duri – Tangerang 1899 and Batavia – Anyerkidul 1900

Staatsspoorwegen (SS) started operating in the Banten area in the 1890s after constructing the railway line across the southern Java island. It was due to the need to open up the isolated Banten, which became one of the areas that experienced many upheavals during the Dutch colonial period, in addition to the construction of Jalan Raya Pos Anyer – Panarukan (Wijokangko et al., 2020). The area's infrastructure was continuously developed to ensure smoother mobility, which motivated the initiation of the West Java (Banten) railway line.

The construction started after SS obtained a concession issued by the government based on *Staatsblad* No. 180 dated 15 July 1896 to build the Batavia - Rangkasbitung - Cilegon - Anyer Kidul railway line and the Duri - Tangerang branch crossing with a total length of 175 km as well as the Tanah Abang - Pegangsaan link (PT. KAI, 2017e). The company constructed the Batavia – Anyer Kidul line from Batavia Station, Angke, turned south towards Duri, and met at Tanah Abang, where the route was directed west to Rangkasbitung. The line was completed on 1 October 1899, but the Batavia SS Station to Angke section stopped operation and was dismantled in 1929 to construct the new Batavia SS Station as the central station.

The line was extended from Rangkasbitung to Serang on 1 July 1900 and ended near the port of Anyer Kidul on 20 December 1900. Moreover, SS also built a 56 km cross-branch from Rangkasbitung – Pandeglang – Labuan, which operated on 2 May 1906, and a cross-branch Cilegon – Merak 10 km long started operation in 1914.

A train service makes it easier to transport passengers and goods (PT. KAI, 2017e). It was observed a need to distribute the imported goods from the port of Batavia to Banten and transport agricultural and plantation products such as rice, rubber, and fruits from the interior of Banten to the Tanjung Priok port. An average Banten resident is a farmer; the most critical plantation product is coconut, while the only European plantation was rubber (hevea) in the southern part of the community.

Figure 6. Railway Line Branching to Cisadane River (Source: http://maps.library.leiden.edu/)

Figure 7. Location of Duri Station (left) and gas plant (right)
(Source: https://heritage.kai.id/page/Stasiun%20Duri)

The route also transports passengers to the Merak - Lampung ferry port, and the series of trains operating on the route were classified into four based on the passenger class. These include class 1 for Europeans, class 2 for foreign easterners such as Chinese and Arabs, class 3 for mixed and natives, and class I, which was reserved for indigenous groups.

The 19 km Duri – Tangerang branch line was also inaugurated on 2 January 1899, with branches to the Cisadane River to transport sand and agricultural products such as rice, peanuts, cassava, tilapia, coconut, and different types of vegetables (de Jong, 1993, p. 45).

The route also transports household handicrafts or small industries products such as woven bamboo hats known as Tangerang hats (PT. KAI, 2017f), purchased mainly by the Chinese and Europeans. The Chinese typically resell it domestically, while the Europeans used to send it abroad via the Tanjung Priok Port. It is important to note that the woven hat craft had an essential meaning at the time (PT. KAI, 2017f) and was observed to have reached more than 5 million units produced in 1913, with the sales recorded to be f 1,328,820 at a unit price of 26 cents.

Moreover, a branch from Duri was also opened to the LJN Eindhoven en Compagnie Gravenhage gas plant nine months after the route's inauguration.

The factory, which was established in 1862, distributed gas from the evaporation of coal for lighting needs in Batavia and Meester Cornelis (PT. PGN, 2018). The coal supply for the gas plant was supplied directly from the Tanjung Priok port, and the company was taken over by the state-owned gas company, *Nederlandsch Indische Gasmaatschappij* (NIGM), in 1864 (Alkatiri, 2019).

The Old Rail Link for Tanahabang – Salemba – Kramat in 1900 and the New Rail Link for Tanahabang – Manggarai – Jatinegara in 1913

Integrating the rail networks in Batavia led to constructing a connecting line through Tanahabang - Salemba - Kramat (Interchange Cikini) (Laksana and Wijokangko, 2020, p. 7). The line, which operated from around 1899 - 1900, coincided with the opening of the Duri - Tangerang railway line, started with Tanah Abang Station via New Gondangdia (Menteng Housing), cut through the Batavia - Bogor line near the Pegangsaan Bus Stop via Salemba Station, and continued with the Pasar Senen line - Meester Cornelis near Kramat Station.

The train line from Tanah Abang Station crosses a bridge over the Ciliwung River before heading to Salemba Station. Moreover, after crossing the railway bridge over the Ciliwung River, the connecting line has branches to the Opium Factory in the Salemba area. The Opium Factory estimated to have existed since 1901, is opposite Salemba Station and has a unique train line to Salemba Station. Since opium was legal, official, and managed effectively by the government in the Dutch colonial era. The large profits the Dutch East Indies government obtained from taxes on opium made the government legalize its trade and consumption. The government also established and managed opium factories for health purposes and partly for consumption.

Opium was sourced from outside Dutch East Indies, with those legally owned by the government imported from Turkey, Persia, and Bengal. The largest consumers in the Dutch East Indies at the period were the Indigenous people and the Chinese, followed by the indigenous aristocrats and Europeans.

A circular route was formed around the city of Batavia (*ceintuur-baan*), starting from Batavia SS, Angke, Duri, Tanah Abang, Pegangsaan, Salem-

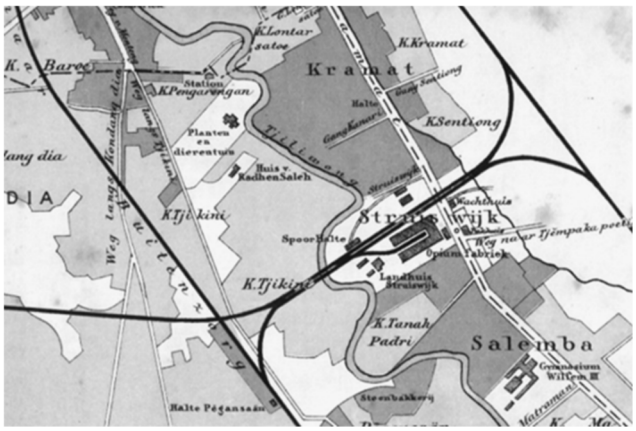

Figure 8. Old Connection Line Tanah Abang – Pegangsaan - Salemba
(Source: http://poestahadepok.blogspot.com/2016/12/sejarah-jakarta-9-kereta-api-batavia.html)

Figure 9. New Connection Line Tanah Abang – Manggarai – Meester Cornelis (Source: http://poestahadepok.blogspot.com/2016/12/sejarah-jakarta-9-kereta-api-batavia.html)

ba, Pasar Senen, Kemayoran, and returning to Batavia SS due to the connecting line. Moreover, the line was undergoing restructuring when the SS rearranged the railway facilities and infrastructure on the Batavia – Buitenzorg route (Hariyadi and Sudarsih, 2015, p. 139). It was indicated by the demolition and replacement of Bukit Duri Station (which was later converted into a train depot) with a bigger station in Manggarai. The arrangement also involved rebuilding the connecting line with the new Manggarai - Jatinegara link to remove the line from the New Gondangdia area. The station, completed on 1 May 1918, had one of the complete large workshops owned by the SS to conduct maintenance on trains, wagons, and steam locomotives.

SS constructed a double line that goes uphill from Jatinegara Station to connect Manggarai Station and was made higher than before. A concrete bridge was also built over the Ciliwung River, while the railway line was raised by constructing a viaduct (bridge) over Matramanweg (Jalan Matraman), completed in 1918 to avoid level crossings with

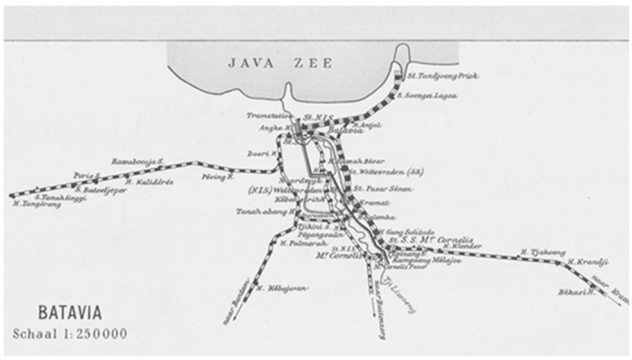

Figure 10. Cross-Jakarta Railroad
(Source: https://heritage.kai.id/page/Stasiun%20Tangerang)

congested highways.

The new connecting line started from Tanah Abang (south of Menteng Housing) - Manggarai – Jatinegara, and a new canal (Flood Kanal Barat) connected to the Krukut River in Tanah Abang was also constructed at the same time.

The Manggarai Station and new connecting line constructed made the old connecting line Tanahabang - Salemba - Kramat (Cikini Interchange) not function again. It led to the development of the Tanah Abang (via the south of Menteng Housing) - Manggarai - Jatinegara (Interchange Jatinegara) connecting route. It means the train lines in Batavia were genuinely connected to a unified whole known as the Trans-Jakarta Railway (Jabodetabek).

THE IMPACT OF THE RAILROAD TRANSPORT MODE ON THE BATAVIAN ECONOMY IN 1930

The development of rail transportation modes by the colonial government of the Dutch East Indies was intended to promote the economic growth of the population in the colonized country in addition to meeting the needs of the colonialists. The lines at the Batavia, the economic center of the Dutch colonial government, provided separate economic opportunities for the city and encouraged the improvement of people's welfare.

The rail mode of transportation is driving the expansion of the plantation area, which further leads to the need for more transportation and the motivation of investors to build rail lines in other areas due to its profitability. It is evidenced by other companies engaged in cattle trains, such as SS, BOSM, BVM, and others. The process created jobs, as observed with people earning wages by becoming laborers in plantation centers and construction sites.

The inland areas of the plantation centers

around Batavia were isolated and difficult to reach because of the hilly or mountainous terrains. It made it difficult for farmers to sell their plantation products. Therefore, the train was introduced at the Batavia (port) to facilitate the distribution of these products for sale. The smooth distribution later increased the quantity sold to other areas, and the money received by these farmers served as their means of survival and was used as an indicator of their level of welfare.

The increase in the transport capacity also encouraged investment in the supporting facilities for export-import activities such as warehouses, packaging, and pre-shipment processes through the largest port in Batavia, Tanjung Priok Main Port, which is also the main gateway to the city and the entire Dutch East Indies. Moreover, the existence of rail services assisted the operation of essential industries in the city, such as the first gas factory, LJN Eindhoven en Compagnie Gravenhage, which supplies gas-fired electricity for lighting needs in Batavia and Meester Cornelis. The second is the Opium Salemba factory, one of the largest sources of income. Furthermore, the subsequent railway developments led to specific economic activity centers such as markets near stations such as Pasar Baru (near Juanda Station), Pasar Minggu, Pasar Senen, and others. There were also hotels near these train stations, such as the Train Hotel near the Bogor Station. It means these stations function as a local trade network in addition to their primary role of transporting passengers and goods.

CONCLUSION

The construction of the railway line in Batavia was motivated by the difficulty in transporting plantation and agricultural products from the interior of isolated plantations and agricultural centers to the port in Batavia. The presence of the railway further became increasingly important for the economy of Batavia and its surroundings due to the fierce competition between the industry players, including the government and private companies, as well as all levels of actors, such as the farmers, traders, and industries. The train continued playing its role as a reliable mode of transportation up to the independence revolution era and even till today.

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