

THE ROLE OF SUNGAI ASAHAN IN TRADE DURING THE DUTCH COLONIAL PERIOD, 1867–1942

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ABSTRACT

The Asahan River is one of the major rivers on the east coast of Sumatra that served as the lifeline of trading activities for communities along its course, from the upstream area around Lake Toba to its estuary at Tanjung Balai Port. This article aims to reconstruct the role of the Asahan River in trading activities during the Dutch colonial period of 1867–1942 and to examine the obstacles and maintenance efforts undertaken to sustain the flow of trade. This study employs the historical method comprising heuristics, source criticism, interpretation, and historiography, drawing on colonial archives (Algemeene Secretarie, Binnenlandsch Bestuur), memories van overgave, contemporary newspapers, and Dutch East Indies reports. The findings show that after Asahan was established as an afdeeling in 1867, the Asahan River played a central role in connecting the upstream–downstream relations that had existed since the Sultanate of Asahan, while also serving as the main route for mobilizing plantation commodities—tobacco, rubber, palm oil, gambier, and tea—to Tanjung Balai Port for export. The river's navigability was repeatedly disrupted by siltation caused by sedimentation and upstream land clearing for plantations, which the colonial government addressed through dredging, road and railway construction, and the partial relocation of port functions to Teluk Nibung. These findings demonstrate the central position of the Asahan River in sustaining the movement of commodities between the upstream plantation areas and Tanjung Balai Port during the colonial period. This study contributes to the historiography of rivers in Sumatra, particularly the still under-studied east coast region.

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INTRODUCTION

Asahan is an area located on the east coast of Sumatra, bordered by the Strait of Malacca to the north, so it is very strategic as an international trade route (*Encyclopedisch Bureau Voor de Buitenbezittingen, Oostkust van*

Sumatra, 1918). The scope of the Asahan area includes the entire flow of the Asahan River and its tributary, the Silau River, which originates in Lake Toba and flows through Sampuran Harimau, Bandar Poelau, Tanjung Balai, Teluk Nibung, to Bagan. Its depth and width make this river navigable by ship to the estuary, while its location on the east coast far from the hills gives it a relatively stable flow compared to the rivers on the west coast of Sumatra (Suprayitno et al., 2019).

These geographical conditions make the Asahan River not only a landscape, but also a link between the community and trade activities in the upstream and downstream areas since the Asahan Sultanate. For the first time, the Asahan River is recorded in historical documentation during the expansion of Sultan Iskandar Muda to Asahan (1607–1636), when this river is described as having a beautiful location and rich in freshwater fish (Siregar et al., 2024). More detailed records come from John Anderson, the envoy of the British Governor in Penang, who on 2–6 March 1823 visited the upper reaches of the Asahan River and recorded the abundance of vegetation in the area (Reid, 2005). Anderson also documented trading activities between the Batak people upstream—who came from around Lake Toba—and the Malay community downstream. The trade was centered in a town called the Batak Market in Bandar Poelau, where commodities such as cotton, coarse cloth, buffalo, and forest products were exchanged for opium, salt, fish, and clothing (*Beknopte Alphabetische Gids van Havenplaats En Reeden Bezocht Door de Stoomschepen Der Koninklijke Paketvaart Maatschappij*, 1925; Grote Bundel Besluit (No. 1539), 1891).

The upstream-downstream trade relations that had been formed during the Sultanate were not interrupted when the Dutch expanded their power in Asahan, but changed with the entry of colonial plantation interests. The fertility of the land along the river became an attraction for the Dutch to open European plantations, especially since Asahan was designated as *an afdeeling* based on the Decree of the Governor-General No. 2 of 1867 dated November 30, 1867 (Seri Grote *Bundel Massive Gouvernements Secretarie* (No. 4889), 1890). This status was established to make it easier for the Dutch to monitor all trade activities, while investment in plantations that were originally tobacco then switched to rubber and oil palm, as well as some gambier and tea continued to expand along the river. To maintain a balance between upstream and downstream relations, the Dutch implemented a land concession distribution system; The Sultan of Asahan received 32,733.78 guilders and the upstream rulers received 3,833.34 guilders from land concessions given to foreign financiers (*Verslag de Handelsvereniging Te Medan over Het Jaar*, 1940). The condition of the Asahan River, which can be navigated throughout the year, supports the mobility of plantation products to Tanjung Balai Port, but over time agricultural activities upstream damage the aquatic ecosystem, causing siltation downstream.

The change in the function of the Asahan River from an exchange route between upstream and downstream communities during the Sultanate period to a route for the mobilization of plantation commodities during the colonial period shows a continuity as well as a change in upstream-downstream relations. However, these dynamics have not received much attention in the historiography of rivers in Sumatra. Historical studies of rivers in Sumatra have recently begun to develop, although they generally focus on rivers in central Sumatra. Asnan's (2016) work provides an overview of the history of major rivers in Sumatra such as Musi, Indragiri, and Batanghari, while Barus' (2018) thesis examines river shipping and trade in the Jambi Residency in 1906–1942. The study of upstream-downstream relations in East Sumatra before the mid-19th century was also described by Kathirithamby-Wells (1993), who emphasized that the upstream-downstream concept is not only the direction of river flows, but also differentiates community groups and trade flows. Meanwhile, the journal Sumarno et al. (2019) highlight how upstream-downstream trade activities helped shape Malay identity in East Sumatra in the 20th century. A similar upstream-downstream pattern was also found in the case of salt trade between the Karo highlands and the Deli coast, as studied by Suprayitno et al. (2019), which showed that inland communities (*perlanja sira*) routinely went to the coast to exchange produce for salt, opium, and cloth, an exchange pattern that was also found in upstream-downstream relations in the Asahan River.

Although these studies have explained river trade and upstream-downstream relations in various regions of Sumatra, studies that specifically place the Asahan River as a trading space and examine changes in upstream-downstream relations in the context of colonial plantation expansion in the period 1867–1942 are still limited. Previous studies have also not specifically linked the role of the Asahan River as a commodity mobilization route with the problems of navigability, siltation barriers, and river maintenance efforts to maintain trade flows. This gap is the *research gap* of this study.

Based on this gap, the *novelty* of this research lies in the reading of the Asahan River as a space that shows the continuity and change of upstream-downstream relations from the Asahan Sultanate to the Dutch colonial period, especially through the relationship between trade, plantation development, navigation obstacles, and river maintenance efforts during the period 1867–1942. Thus, this study not only sees the river as a transportation route, but places it as a link between upstream production areas and trade centers and downstream ports in colonial economic changes.

Based on the description above, this study was prepared to answer two main questions: (1) what was the role of the Asahan River in trade activities during the colonial period of 1867–1942? and (2) how were the obstacles and efforts to maintain the river carried out to facilitate these trade activities? This study is temporally limited between 1867, when Dutch rule in Asahan began, and 1942, when Dutch rule was replaced by Japanese military rule.

To read the relationship between upstream production areas and downstream trade centers, conceptually this study uses the upstream-downstream framework developed by Bronson (1977) to explain the pattern of trade and political relations between upstream areas and estuary areas in Southeast Asia. According to this framework, the furthest upstream meeting points in the case of the Asahan River are Bandar Poelau and Bandar Pasir Mandoge which function as upstream product collection sites for trade, while the downstream area in Tanjung Balai serves as a gateway for export-import goods. This framework is relevant to rivers from the former Dutch colony, including the Asahan River, as also shown by Asnan (Asnan, 2016).

METHOD

This research uses a historical method consisting of four stages: heuristic, source criticism, interpretation, and historiography (Gottschalk, 1985; Kuntowijoyo, 1994). At the heuristic stage, primary and secondary sources are searched at the National Archives of the Republic of Indonesia (ANRI) and the National Library of the Republic of Indonesia (PNRI) in Jakarta. The archival sources found include the Textual Archive of the Algemeene Secretarie: Serie Binnenlandsch Bestuur Grote Bundel 1862–1944, the Grote Bundel Missive Gouvernements Secretarie 1890–1942, the Grote Bundel Besluit 1891–1942, and the Tekstual Archive of the Binnenlandsch Bestuur 1910–1942. Additional sources were obtained through the digitization of the Leiden University collection and the Delpher site, in the form of *the memorie van overgave* report by L. Knappert, H.J.E. Moll, and C. Boterhoven de Haan, the report *Kolonial Verslag* 1868–1869, by M. Hamerster, C.A. Kroesen, and *the report Rapport Betreffende Een Onderzoek Naar in Te Voeren Veerdiensten op Rivieren in Midden-Sumatra*. Contemporary newspapers such as *De Sumatra Post* and *Deli Courant* were also used, complemented by literature studies at the University of North Sumatra Library, the North Sumatra Regional Library and Archives, and the Tengku Luckman Sinar Library in Medan.

The source criticism stage is carried out through external criticism (physical authenticity of the source) and internal criticism (credibility and consistency of content). Sources that have gone through the criticism stage are then analyzed by identifying and grouping information based on themes related to trade activities, upstream-downstream relations, plantation commodities, navigation conditions of the Asahan River, and river maintenance policies and efforts. Information from colonial government archives and reports was compared with contemporary newspapers and secondary sources to see the suitability, differences, and linkages of information between sources. The results of the analysis were then placed in a temporal and geographical context to see the changes in the function of the Asahan River in trade activities during the period 1867–1942. The interpretation stage used an economic and geohistorical

approach considering that the focus of the research was on export-import activities that used the Asahan River as a means of transportation, associated with the geographical conditions of the research area. The final stage, historiography, is arranged chronologically to order events based on the time of their occurrence.

RESULT AND DISCUSSIONS

Geographical Conditions and Population along the Asahan River

Asahan officially became an *afdeeling* since the Decree of the Governor General No. 2 of 1867 dated November 30, 1867, domiciled in Tanjung Balai, and included a combination of three areas: Asahan, Labuhan Batu, and Batubara (Hunger, 1924). The region is located between 3°27' to 1°40' North Latitude and 100°20' to 99°9' East Longitude, bordered by the Strait of Malacca to the north, *Afdeeling* Bengkalis to the east, Tapanuli Residency to the south, and *Afdeeling* Simalungun, Tanah Karo, Deli, and Serdang to the west.

This geographical position places the Asahan River as a link between the inland and coastal areas. The Asahan River is an overflow of Lake Toba which has a water surface area of about 1,300 km², with a watershed of more than 7,000 km², although only about 3,000 km² is included in the administrative area of Asahan (*Encyclopedisch Bureau Voor de Buitenbezittingen, Oostkust van Sumatra*, 1918). From Lake Toba, the river flows through Sampuran Harimau, a waterfall that is the upstream boundary for shipping, then Bandar Poelau, Tanjung Balai, Teluk Nibung, and Bagan. This river has a number of tributaries, including the Silau River, the Hessa River, the Teluk Dalam River, the Masihi River, and the Nantaloe River, with the Silau River as the farthest tributary that can be navigated by smaller ships (Lestari et al., 2025).

The composition of the population along the river shows the pluralistic character of the region. The upstream region is dominated by the Toba Batak people who migrate from the Tapanuli highlands in search of new agricultural land, while the downstream area is dominated by the Malays. The Chinese population controls the trade sector, including the dry fish trade, where in 1908 there were 21,636 kg of salted fish, 5,760 kg of shrimp paste, 8,706 kg of fins, and 15,852 kg of hides (*Aansvullingsnota van Toelichting Betreffende Het Landschap Asahan*, 1911). The growth of the population of Asahan between 1915 and 1930 also took place along with the expansion of plantation investment, as shown in Table 1.

Table 1. Asahan Population Data in 1915 and 1930

Groups	Male 1915	Female 1915	Total 1930
Europe	294	165	1.353
Indigenous	36.021	27.915	307.247
Chinese	7.151	1.262	23.712
Arabic	4	—	1.455
Others	434	102	—
Total	73,348 inhabitants		333,767 inhabitants

Sources: *Encyclopedisch Bureau* (1918, p. 144); *Arsjad* (1933, p. 42).

The population growth that reached almost quadruple in fifteen years was in line with the rapid influx of contract workers from outside Asahan. In March 1912, for example, the H.A.P.M. rubber company in Sungai Silau employed 11,356 contractors, consisting of 3,994 Chinese, 5,633 Javanese, 1,477 Javanese women, 87 Klingen, and 165 Bandjareezen (*Beschrijving van Het Nieuwe Centrale Koelie-Hospitaal Der Hollandsch-Amerikaansche Plantage Maatschappij in Asahan (Oostkust van Sumatra) En van Den Dienst in Genoemd Hospitaal*, 1914). This ethnic diversity also shaped the pattern of settlements along the river, with stilt houses overlooking the river as a marker of the river's importance as a major transportation route.

Sungai Asahan during the Sultanate Period: Hulu-Hilir Relations

Prior to colonial expansion, upstream-downstream relations had become the foundation of trade activities in the Asahan River. The coastal areas had no commodities to trade, while commodities such as camphor, frankincense, gold, rattan, and slaves came from the interior. The meeting between the upstream and downstream areas occurred in Bandar Poelau (Asahan River) and Bandar Pasir Mandoge (Silai River), which functioned as a Batak town or market where downstream residents exchanged salt and other necessities for forest products and livestock from upstream (Perret, 2010).

Upstream-downstream relations do not only take place through the exchange of commodities, but also through political relations. King Margolang, the ruler of the upstream river, made a treaty with Sultan Iskandar Muda in Kampung Marjanji Aceh, Bandar Poelau, which affirmed the submission of the upstream rulers to the first Sultan of Asahan. This kind of bond is often renewed through political marriages, such as the marriage of Sultan Muhammad Husinsyah to the daughter of the Batak King Buntu Panei, Tuan Telaha. However, upstream-downstream relations are not always harmonious; conflicts have occurred between the Sultanate of Asahan and Si Margolang, the king of the Batak tribe in Buntu Panei, which led to conquest and peace agreements (Ardhillah et al., 2022; Hutagaol, 2016).

The Asahan Sultanate also derived revenue from the slave trade involving the Batak population upstream, with the active involvement of Chinese traders (Amin, 2024). Anderson records his encounter with a merchant from Penang who bought twelve slaves in Asahan in exchange for pepper in Deli, a practice that was prevalent until the early 19th century before the international slave trade network shrank in the first decade of the 20th century. In addition to slaves, the main commodities that flowed from upstream to downstream throughout the 19th century included horses, tobacco, rice, rattan, cotton, and dyewood, which were typical only in Asahan and Langkat. Downstream, the sultan and Chinese traders built rice mills on Mandi Island to support large quantities of rice exports (Anderson, 1971).

Dutch Colonial Expansion and Plantations along the Asahan River (1867–1942)

The upstream-downstream relationship that had been formed during the Sultanate entered a new phase after Asahan came under Dutch rule. Foreign financiers flocked to obtain land concessions for plantations along the Asahan River. The year 1885 marked the beginning of tobacco plantation investment with four contracts, which grew to 23 contracts in the 1890s, and reached 25 concessions in 1908 (Ansari & An-nadwi, 2024; Sukarmila & Fitriisia, 2023). The Asahan Tobacco Company "Silau" (1901) built 3,000 ha, the Asahan Tobacco Agricultural Company (1902) built 2,600 ha in Tanah Radja Lama, and another tobacco company in Poelau Mandi (1901) built 3,750 ha. Of the 25 concessions recorded in 1908, the highest concession fee was paid by the Range plantation at 18,837 guilders per year, while the lowest by Teluk Dalam at 335 guilders per year (Series Grote Bundel *Massive Gouvernements Secretarie* (No. 4889), 1890).

Changes in the type of commodity then followed the development of the world market. The soaring demand for rubber in line with the growth of the United States automotive industry prompted the Dutch-American *Plantation Company (Holland-America Plantage Maatschappij/H.A.P.M.)* to take over the Asahan Baru Tobacco Company in 1911 and convert it into a large-scale rubber plantation. Of the 230 rubber companies on the East Coast of Sumatra, H.A.P.M. alone manages five million rubber trees, three million of which have entered the tapping stage (Pasaribu et al., 2023). At least eleven plantation companies operate along the main flow of the Asahan River and thirteen more on the Silau River, mostly focusing on rubber, with the rest growing oil palm, gambier, and tea (Batubara et al., 2025).

Three main factors explain why the Asahan River is a favorite location for financiers: the fertility of the soil along its flow, the availability of abundant irrigation water, and the ease of mobility of plantation products from upstream to estuaries throughout the year for further trade (Dafisco et al., 2025). Apart from being a means of transportation, the power potential of the Asahan River waterfall was also looked at by the colonial government; By decree of 27 August 1919 No. 48, a concession permit was granted to *Exploratie Maatschappij Verrijking* Asahan to utilize the power of the waterfall of 200,000 PK to support the nitrogen fertilizer plant and the electrochemical

industry (*Beknopte Alphabetische Gids van Havenplaats En Reeden Bezocht Door de Stoomschepen Der Koninklijke Paketvaart Maatschappij*, 1925).

Trade Commodities and Export-Import Activities

The development of plantations changed the scale of trade that took advantage of the Asahan River. Rubber became the most profitable commodity in the early 20th century. The massive conversion of tobacco plantations to rubber in 1911 was spearheaded by H.A.P.M., which since 1907 had planted two million rubber trees on more than 60,000 hectares of former tobacco land (Schadé, 1919). Latex production in Asahan reached 2,129 tons in 1937 and jumped to 21,164 tons in 1940.

Palm oil emerged as the next *prima donna* commodity. In 1924, Asahan produced 1,699 tons of palm oil and 544 tons of palm kernel from an area of 1,223 hectares, with Poelau Radja as the planting center covering an area of 3,552 hectares which is targeted to produce 5,000 tons of oil and 2,000 tons of palm kernel in five years. The financiers chose the riverbank as the location of the plantation because the capacity of the Asahan River reduces the cost of transporting plantation products to Tanjung Balai (Wahyuda et al., 2024).

Gambier began to be cultivated in 1908 with a production of 3,384 tons in the same year, concentrated in Gunung Melayu under the *Swiss Goenoeng Malajoe Plantagen-Gesellschaft A.G.*, which reached 304 hectares at the end of 1922 and produced up to 2,000 picoles of gambier per month to be exported to Switzerland as a silk tanning material (Wicaksono, 2021). Tea began to be grown in 1914 by Borneo Ltd. in Haboko, 28 km above Bandar Poelau, and expanded to Aek Inten by the Russian company Anglo Asiatic Tea Ltd.; The value of tea exports through Tanjung Balai reached 440 tons (1937), rose to 457 tons (1938), then dropped to 307 tons (1940) (Rahayu et al., 2024).

As the estuary of the Asahan River, Tanjung Balai Port became a meeting point between shipping from the interior that brought forest products, livestock, and plantation products and shipping from outside that supplied the needs of the community. The main export commodities included rubber, palm oil, gambier, copra, areca nut, tobacco, and tea, while necessities such as salt, opium, clothing, and other consumer goods became the main imported commodities that flowed upstream. In 1913, it was recorded that the traffic of steamships with a net weight of 407,684 cubic meters and sailing ships of 55,324 cubic meters (Series *Grote Bundel Massive Gouvernements Secretarie* (No. 4889), 1890) was recorded.

Salt is one of the most vital import commodities for the upstream population, given its status as a consumptive need that can only be obtained from coastal areas. Since the enactment of *Staatsblad van Nederlandsch-Indië* 1882 No. 73, the colonial government has implemented a monopoly of salt throughout the Dutch East Indies, including in East Sumatra, where the trade is then controlled through the intermediary of Chinese traders and salt is distributed in the form of briquettes with a standard size (Suprayitno et al., 2019). A similar monopoly policy is likely to have colored the pattern of salt trade flowing from Tanjung Balai to the upper reaches of the Asahan River, considering that both regions were both under the colonial regime of East Sumatra in the same period.

Land Transportation as a Complement to River Routes

The development of trade was not only supported by rivers. The Dutch East Indies government also built land infrastructure to boost the economy of Asahan. The Toba road connecting Bandar Poelau with Tanah Toba along about 70 km through the mountains was built to support the distribution of forest, agricultural and livestock products from the upstream population, who then continued their journey through the Asahan River to Tanjung Balai. The construction of the road from Porsea to Bandar Poelau began in 1925 with the cooperation of the Tapanuli and Asahan governments (*Grote Bundel Besluit* (No. 1539), 1891).

The colonial government also built the *Deli Spoorweg Maatschappij* (DSM) railway line and station in Tanjung Balai in 1915, which was then extended from Kisaran through Bilah and Panei to Pinang City along about 150 km (Efthymiou, 2019). The total road network connecting Tanjung Balai with various inland areas reached 201 km in the early 20th century, built by both plantation companies and the colonial government (Mailin, 2017). However,

the transportation of products and heavily loaded goods still relies on river routes as the main route, considering its capacity is much more economical than land routes.

Siltation Obstacles and Asahan River Maintenance Efforts

The large trade dependence on the Asahan River is faced with increasingly serious navigation problems. At least four navigation obstacle points were recorded: rock cliffs in Ulak Medan, rock mounds in Kampoeng Pasagoean, boulders in Ulak Pinang Lima, and boulders in Ulak Poetar near Bandar Poelau, plus tree stumps that obstruct shipping lanes. This siltation is exacerbated by forest exploitation upstream and humus sedimentation carried by river currents (Siregar et al., 2024).

The Royal Packet Shipping Company (*Koninklijke Paketvaart Maatschappij*) repeatedly complained about the shallowness of the water channel downstream of Nibung Bay, which only reached four feet at low tide. The Department of Civil Public Works then proposed an eight-foot deepening of the river at a budget of f 60,000, plus f 30,000 for maintenance, which was planned to be financed by a ship entry and exit rate of 5–10 cents per cubic meter (Grote Bundel Serial Massive Gouvernements Secretarie (No. 4889), 1890). A hydrographic survey in 1911 recorded about 150,000 cubic meters of sediment clogging the flow of the Asahan River.

Siltation had a wide impact: floods often hit settlements in *Onderafdeeling* Asahan due to the overflow of the Silau River, while hydrographic maps show the formation of four small islands downstream that hindered large ship traffic. To overcome this problem, the colonial government carried out gradual dredging, cleared wooden stumps from the river, supported the construction of the Tobaland road from Bandar Poelau to Toba, and placed security posts along the river from upstream to downstream (Lestari et al., 2025). The position of these posts—ranging from the Kepayang River, Simpang Kawat, Tebing Kisaran, Bandar Poelau, Pasir Mandoge, to Tanjung Balai—indicated the Dutch special attention to the security of river traffic as a support for trade.

When the mouth of the Asahan River became increasingly difficult to navigate and the Port of Tanjung Balai lost its strategic position, the colonial government decided to move part of the port's functions to Teluk Nibung, about 5 km downstream of Tanjung Balai. The construction of this new port began in 1915 with a budget equivalent to six tons of gold, along with the construction of the supporting railway line completed in 1918.

DISCUSSION

Upstream-Downstream Relations as the Basis of the Asahan River Trade Structure

The findings of the study show that the role of the Asahan River in trade did not emerge after the arrival of the Dutch colonialists, but was rooted in the upstream-downstream relationship that had been formed since the Asahan Sultanate. Bandar Poelau and Bandar Pasir Mandoge became the meeting point between inland commodities and necessities from the coast. In this structure, the upstream area produces camphor, frankincense, gold, rattan, livestock, and various products, while the downstream area provides salt and goods from the coastal trade network (Perret, 2010). Thus, the river functions as a connecting space between two economic zones that have different commodities but need each other.

This pattern is not a phenomenon that only occurs in the Asahan River. Suprayitno et al. (2019) show a similar pattern between the Karo highlands and the Deli coast, where inland residents called *perlanja sira* periodically descend to the coast to obtain salt, opium, and cloth—commodities that are only available in coastal areas—by exchanging produce such as frankincense and beeswax. The similarity in the exchange pattern between salt from the coast and forest products from the interior confirms that the upstream-downstream relationship is a common pattern along the East Coast of Sumatra, including in the Asahan River, and not just a local peculiarity.

However, upstream-downstream relations in Asahan are not limited to economic exchanges. The agreement between King Margolang and Sultan Iskandar Muda as well as the marriage relationship between the Asahan Sultanate family and the Batak rulers in the interior show that the river route also forms political relations between downstream and upstream rulers (Ardhillah et al., 2022; Hutagaol, 2016). The occasional conflict shows that the control of these

relationships has strategic value. Therefore, trade, political power, and river space are three interrelated elements in the formation of upstream-downstream relations before colonial rule.

The Transformation of Upstream-Downstream Relations in the Colonial Period

The entry of colonial power after 1867 did not remove the existing upstream-downstream structure, but changed its scale and economic orientation. If during the Sultanate the flow of commodities mainly relied on the exchange of forest products, livestock, rice, and community needs, during the colonial period the same network was increasingly directed to transport plantation commodities to the export market. The growth of concessions from four tobacco contracts in 1885 to 25 concessions in 1908 shows that the area along the river was gradually integrated into the colonial plantation economy (Ansari & An-nadwi, 2024; Sukarmila & Fitriisia, 2023).

The change from tobacco to rubber, palm oil, gambier, and tea further strengthens the function of the Asahan River as an economic route. The existence of at least eleven companies along the Asahan River and thirteen companies in the Silau River shows that the location of plantations is closely related to access to the river flow (Batubara et al., 2025). Soil fertility and water availability are indeed important factors, but the ease of transporting plantation products from the production area to Tanjung Balai provides greater economic benefits because it can reduce transportation costs (Dafisco et al., 2025; Wahyuda et al., 2024).

This development also explains the growth of the population of Asahan from 73,348 people in 1915 to 333,767 people in 1930. The flow of contract workers that accompanied the expansion of plantations made the river area not only a corridor for the movement of goods, but also people. The existence of 11,356 workers in the H.A.P.M. company in Sungai Silau in 1912 shows the magnitude of the need for labor in the plantation economy. Thus, colonial expansion changed the social landscape along the Asahan River along with a change in its economic function.

Asahan River as an Export-Import Corridor

The development of plantation commodities shows that upstream-downstream relations during the colonial period were increasingly integrated with international trade. Rubber, palm oil, gambier, and tea moved from the production area downstream, while salt, opium, clothing, and consumer goods moved from the coast to the interior. Tanjung Balai is in an important position in this circulation because it is the meeting point between the river shipping network and shipping connected to areas outside Asahan.

The large production of rubber and palm oil shows a change in the scale of the economy. The production of latex, which increased from 2,129 tons in 1937 to 21,164 tons in 1940, along with the development of oil palm, gambier, and tea production, shows that the Asahan River is increasingly linked to the need to transport export commodities (Schadé, 1919; Wahyuda et al., 2024; Wicaksono, 2021; Rahayu et al., 2024). The traffic of steamships, which in 1913 reached a net weight of 407,684 cubic meters and sailing ships of 55,324 cubic meters, further emphasized this function (Series Grote Bundel *Massive Gouvernements Secreterie* (No. 4889), 1890).

These trade flows still show the reciprocal character of upstream-downstream relations. Plantation commodities move downstream to be exported, while people's needs move in the opposite direction. Salt is an important example because inland communities depend on supplies from the coast. The implementation of the colonial salt monopoly through the *Staatsblad van Nederlandsch-Indië* 1882 No. 73 shows that the flow of goods from downstream to upstream is inseparable from the control of the colonial government (Suprayitno et al., 2019). Thus, colonialism does not create upstream-downstream relations from the beginning, but rather takes over, regulates, and orients previously formed networks for the benefit of the colonial economy.

Land Infrastructure and the Sustainability of the Role of Rivers

The construction of roads and railways showed the next change in the Asahan transportation system. The Toba road connecting Bandar Poelau with the Land of Toba and the construction of the Porsea–Bandar Poelau road since 1925 expanded the connection between the hinterland and the river navigation point (Grote Bundel Besluit (No. 1539),

1891). Similarly, the construction of the *Deli Spoorweg Maatschappij* network and Tanjung Balai station since 1915 strengthened connectivity between the production area, trade center, and port (Efthymiou, 2019).

However, the existence of land transportation does not necessarily replace the function of the Asahan River. The 201 km road network and the construction of railways actually work together with the river route in connecting production areas with distribution centers (Mailin, 2017). Heavily laden goods are still more economical to be transported through the river. Therefore, land infrastructure can be understood as a complement to the river network, not as a direct replacement. This pattern shows that the position of the Asahan River remained important even when the colonial government began to build a modern transportation system.

Siltation, River Maintenance, and the Ecological Boundaries of the Colonial Economy

Economic dependence on the Asahan River ultimately comes at odds with the ecological condition of the river itself. Upstream forest exploitation and humus sedimentation exacerbate siltation, while rocks and wooden stumps become direct obstacles to navigation (Siregar et al., 2024). Findings of about 150,000 cubic meters of sediment in a hydrographic survey in 1911 show that navigation problems are not just technical problems, but a threat to the smooth running of the river-dependent trading system.

The colonial government's response showed the economic value of the Asahan River. The proposal to deepen the channel to eight feet with a budget of f60,000 and an additional f30,000 for maintenance showed that maintaining the navigability of the river was considered important for the sustainability of trade (Grote Bundel Massive Gouvernements Secretarie Series (No. 4889), 1890). Dredging, clearing of wooden stumps, construction of Tobaland roads, and placement of security posts from Sungai Kepayang to Tanjung Balai show that river management includes technical, transportation, and security aspects at the same time (Lestari et al., 2025).

At the same time, the problem of siltation shows a direct relationship between economic changes upstream and downstream trade conditions. Land and forest exploitation in the upstream part increases sedimentation which then hinders shipping downstream. Thus, the upstream-downstream concept in the case of the Asahan River not only explains the direction of commodity and human movement, but also shows an ecological relationship: changes that occur upstream produce consequences for economic activity downstream.

The decision to move part of the functions of Tanjung Balai Port to Teluk Nibung became the most obvious form of adaptation to this problem. When the mouth of the Asahan River became increasingly difficult to navigate, the construction of a new port in Teluk Nibung since 1915, about 5 km downstream of Tanjung Balai, accompanied by a supporting railway line completed in 1918, showed the colonial government's efforts to maintain the smooth flow of trade. Thus, the development of the Asahan River during 1867–1942 shows that the sustainability of colonial trade depended on the ability to connect upstream production areas with distribution centers downstream while overcoming the ecological limitations of the river as a transportation route.

CONCLUSION

The Asahan River is an important route that connects the upstream area around Lake Toba with the downstream area in Tanjung Balai. Topographical differences form an economic interdependence between upstream that produces forest products and livestock and downstream as a trade gateway. This relationship has been formed since the time of the Asahan Sultanate through the city system, swear bonds, and political marriages. After Asahan was designated as *afdeeling* in 1867, the pattern did not disappear, but developed along with the influx of foreign plantation investment. Tobacco plantations, which were later converted to rubber since 1911, followed by oil palm, gambier, and tea, further strengthened the function of the Asahan River as a commodity transportation route to Tanjung Balai Port. The construction of roads and railways complements the network, although the transportation of heavily laden goods still relies on river routes.

The smooth running of trade faced obstacles in the form of siltation due to sedimentation and forest exploitation upstream. The colonial government responded through dredging, clearing of timber stumps, construction of the Bandar Poelau–Toba road, placement of security posts, and the transfer of part of the functions of Tanjung Balai Port to Teluk Nibung in 1915–1918. This finding confirms that the Asahan River is the lifeblood of colonial trade that connects upstream production areas with downstream trade centers. At the same time, the problem of sedimentation shows that economic activities upstream have a direct impact on navigation and trade downstream. Thus, the sustainability of trade through the Asahan River depends on the connection between economic interests, transportation infrastructure, and river environmental conditions.

This research contributes to the historiography of rivers in Sumatra by showing the continuity and change of the upstream-downstream relationship of the Asahan River from the Sultanate to the Dutch colonial period, while placing the river as a space that connects trade, plantations, transportation, and the environment. The implication is that the development of the colonial economy needs to be understood not only through plantations and ports, but also through the relationship between economic activities upstream and changes in river conditions downstream. Further research can expand the study through the comparison of the Asahan River with other rivers on the East Coast of Sumatra and explore changes in the environment and community life along the river flow in the period before and after the end of Dutch colonial rule.

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