THE DIGGING AND DREDGING OF CANALS IN THE SOUTHWEST OF VIETNAM DURING THE FRENCH COLONIAL PERIOD (1867-1945)

Nguyen Ngoc Huyen
Phuoc Kien High School, Nha Be District, Ho Chi Minh City, Vietnam

ARTICLE INFORMATION

Journal: *Vinh University Journal of Sciences*
ISSN: *1859-2228*
Volume: 52
Issue: 1B

****Corespondance:***
anh.tranle@gmail.com

Received: *22 November 2022*
Accepted: *10 February 2023*
Published: *20 March 2023*

Citation:
Nguyen Ngoc Huyen (2023). The digging and dredging of canals in the Southwest of Vietnam during the French colonial period (1867-1945). ***Vinh Uni. Jour. Sci.*** *Vol. 52 (1B), pp. 61-72*
doi: 10.56824/vujs.2022sh03

ABSTRACT

Vietnamese society during the French colonial period (1867-1945) was marked by the French colonization of three provinces in the western region of Cochinchina, turning this land in particular and Cochinchina in general into a colony of France. At that time, Southwest Vietnam still had many deserted areas, interlaced rivers and canals, which were not convenient for exploitation. However, the Southwest region will bring great benefits in terms of rice, seafood, etc. if it is invested. Therefore, the French colonialists boldly invested in irrigation and drainage in the Southwest region in various forms such as: dredging the old canals, digging a number of great canals, etc. to serve economic, political and military purposes for France. Therefore, the irrigation and canal system in the Southwest region had many changes during this period. Residents' mobility became easier, the trade between regions becomes favorable, that has contributed to the economic and social transformation of the Southwest region. However, within the scope of this article, we mainly refer to the digging and dredging of canals in the southwestern region of the French colonial period; thereby drawing some comments on the characteristics of the canal system in the Southwest of Vietnam during this period.

Keywords: Southwest of Vietnam; French colonial period; colonial government, digging and dredging canals.

1. Some key features of the southwestern region of Vietnam

In 1802, after the establishment of the Nguyen Dynasty, King Gia Long quickly built an institution to govern the country from North to South. At that time, Cochinchina was divided into towns, directly under Gia Dinh government. By 1832, under the reign of Minh Menh, Cochinchina was divided into six provinces directly under the central government.

In 1862, under the pressure of the French colonialists, the Nguyen Dynasty signed the Treaty of Nham Tuat, recognizing 3 provinces in the Southeast region of Cochinchina including Bien Hoa, Gia Dinh, and Dinh Tuong as belonging to the French; Until 1867, Hue's court continued to recognize three provinces in the western region of Cochinchina, including Vinh Long, An Giang, and Ha Tien, belonging to France. Shortly thereafter, the Hue court again signed the Giap Tuat Treaty (1874), which legally recognized the three provinces in the

Southwestern region of Cochinchina as belonging to France. As such, from an international legal perspective, this is evidence of Vietnam's indisputable territorial sovereignty over the land of Cochinchina and the territory of Western Cochinchina (also located in this area, also known as the Mekong Delta in present) (Aumiphine Jean Pierre, 1994). Specifically, the North borders with Cambodia; the South borders the East Sea; the West borders the Gulf of Thailand; to the east is the Vam Co river system.

In terms of topography, Southwest Vietnam is formed on a delta triangle, a transitional place between the sea and the continent. Therefore, the terrain of Southwest Vietnam is formed from alluvial deposits and gradually accreted through the epochs of sea level change; resulting in the formation of sand dunes along the coast. The topography of the region is relatively flat, with an average height of 3-5 m, some areas are only 0.5-1 m above sea level (except for some remaining mountains in Kien Giang and An Giang with altitudes above 100 m). On the other hand, due to the influence of rivers and sea, the Southwest region has many different geomorphological forms, so there are many diverse and rich ecological regions.

In terms of climate, the Southwest region has tropical monsoon characteristics, which is hot all year round and there is a distinct dry season - rainy season division, depending on the activity of the monsoon circulation. In areas with abundant radiation, the average number of sunshine hours per day is over 6 hours (2000-2500 hours per year). The average monthly temperature varies between 27-28 ^{0}C. In general, the whole Southwest region has high humidity, due to "laying on the thin crust of the earth, evaporate and saturate in air" (Nguyen The Anh, 1970). Rainfall in the Southwest region is about 1800 mm, unevenly distributed both in space and time. The western strip from Ha Tien to Ca Mau has the highest rainfall, from 2000-2400 mm and the central region from Chau Doc to Go Cong has the lowest rainfall, from 1200-1600 mm. In a year, the rainfall is concentrated from April to December at the rate of about 87-90%; There is almost no rain from January to March.

The Southwest region is the place where "interlaced with thousands of rivers and canals in all directions" (Nguyen The Anh, 1970). Among them, the Mekong River is one of the longest rivers in the world and the largest in Indochina (4,200 km) with a basin of 800,000 km^2 (Dossier relatif aux travaux des dragues et à l'amélioration du réseau fluvial en Cochinchine années 1866-1895, G/5229, National Archives Center II). The downstream of the river flowing into the Southwest is about 250 km long, flowing along two large tributaries, the Tien and Hau rivers. In addition, in the Southwest region, there is the Vam Co river and the interlaced system of canals.

In addition to the large rivers mentioned above, there is also a small river system in the south, which empties into the Gulf of Thailand. Specifically, such as Giang Thanh (also known as Kien Giang), Cai Lon River, Cai Be River, My Thanh River, Ong Doc River, Cua Lon River, Ganh Hao River, Bay Hap River, Trem Trem River, Cai Tau River, etc.

The system of natural rivers and canals, which are mainly three rivers Tien, Hau and Vam Co, has an abundant amount of water, becoming a source of fresh water and a huge amount of alluvium for the plains of the Southwest region. At the same time, the above river and canal systems are also the first waterways of humans when there was no road traffic.

It can be said that, due to the special favor of nature, the Southwest has become a fertile land, creating favorable conditions for the development of agriculture and exploitation of natural aquatic resources. Along with the advantages of natural conditions. Along with the advantages of natural conditions, the Southwest also encountered many difficulties caused by nature, the most notable of which was the phenomenon of alum contamination; salinization; cyclical floods (every year) in many places have caused great obstacles to production and social development of the whole region. Therefore, the problem of treating alum and water has always been the top concern of residents of the Southwest region for many generations. To solve these problems, different measures have been applied such as construction of irrigation works, mainly digging and dredging canals regularly to drain water and discharge alum; digging canals for reclamation, restoration and conquest of new lands, etc. Among them, the most effective digging and dredging of canals in the Southwest region is the French colonial period (1867-1945).

2. The policy of digging and dredging canals of the French colonial government

After occupying three provinces in the southwestern region of Cochinchina in 1867, the French colonialists realized the importance of the canal system in Cochinchina in general and Southwest Vietnam in particular in economic development and generate enormous profits. The amount of investment capital is relatively small compared to the enormous benefits it brings. In addition, the wealth of the Southwest region prompted the French colonial government to act quickly. Talking about the irrigation purpose of the French in Cochinchina, J. P. Aumiphin said: *"Irrigation work for the Southwest region is to establish an appropriate network of canals to take advantage of the ebb and flow of the tides, remove excess fresh water and regulate the requirements of rice cultivation. In addition, these canals also serve for transportation and create a transportation system of great importance, for entering the rice fields as well as transporting the harvested rice. In terms of drainage (flooded fields) and transportation, the canals in Cochinchina make a major contribution to the life and wealth of the country"* (Aumiphine Jean Pierre, 1994).

On the other hand, in "Vietnam during the French colonial period", Nguyen The Anh also believes that the French colonialists invested in developing the Cochinchina irrigation system because, *"in the mid-nineteenth century, most of Cochinchina was still occupied by swamps, unable to cultivate. Since occupying Cochinchina, the colonial government has dug many canals and creeks, initially to allow soldiers to move easily through the marshy areas during the military operation, but later they were used to drain water and to transport agricultural products"* (Nguyen The Anh, 1970).

To initiate a "canal revolution", the French designed a very large-scale dredging scheme starting from 1886 to 1895 (*Dossier relatif aux travaux des dragues et à l'amélioration du réseau fluvial en Cochinchine années 1866-1895, G/5229*, National Archives Center II); followed by plans to dig and dredge canals from 1896 to 1906 (*Dossier relatif aux travaux de dragages en Cochinchine année 1896-1906, G/1573 - 5231*, National Archives Center II); The schedule of canal digging in the years 1910-1938 (*Dossier relatif aux travaux de dragages en Cochinchine année 1910-1938, G/5234*, National Archives Center II); The schedule of digging canals in Cochinchina in 1945 (*Travaux du canal à Cochinchine 1945, H61 - 38*, National Archives Center II. The digging

and dredging of canals in Cochinchina became even more extensive under the Governor General of Indochina Paul Doumer with the ambition of turning Vietnam into a "France in Asia" (Son Nam, 2008). At that time, the French realized the potential for rice production in the Southwest region, but the land is mostly fallow due to waterlogging, sour - alum - salty. Moreover, the French also found that the Southwest region has low-lying terrain, interlaced rivers and canals, the solution to dig canals is the most effective investment because irrigation projects can provide direct benefits *"allowing significant expansion of arable land while also providing a waterway transportation system. The capital surplus yields more than three times the costs, and the annual return represents 167% of the costs"* (A. A Pouyanne, 1926; Son Nam, 1997).

Thus, it can be seen that the irrigation work of the French colonialists was initially to serve political purposes, contributed to the rapid capture of Cochinchina and the pacification of the uprisings against the French of the Cochinchina people. Through the canal system, the French expeditionary army would quickly approach from Saigon to the southwestern provinces of Cochinchina. Besides, after stabilizing security and politics, the canal system in Cochinchina is increasingly geared towards the clearing of wasteland, economic development, bringing huge revenue to France. The improvement of waterway traffic, turning it into a tool for the development to transport goods and people, and more broadly, to diversify and enrich the general transportation system in Cochinchina. Stemming from the ambitions of irrigation of the French colonialists in Cochinchina, it has created prosperity in the activities of digging and dredging canals in the Southwest region.

3. Organization of digging and dredging canals

In terms of bidding methods, during the French colonial period (1867-1945), there were three successful bidding rounds for digging and dredging canals in Cochinchina, of which the most exciting was the Southwest region. Specifically, the first round of bidding took place from 1894 to 1904; the second bidding period took place from (1904-1913); the third auction took place from 1913 to 1918.

The three bidding rounds for dredging and dredging canals in Cochinchina above indicate that, colonial government reduced the burden of investment costs in irrigation by transferring to private French enterprises. On the other hand, it also proves that the colonial government was transparent in its investment in building technical infrastructure, restricting autocracy and corruption in the administration apparatus, ensuring the quality and progress of the works, in which the volume of excavated cubic meters always increases rapidly. Specifically, before bidding, in 1866, 50,000 m^3 was dug (Gouvernement générale de l'Indochine, 1911); the first bidding period in 1894, excavated 1,249.000 m^3 (*Dossier relatif aux travaux de dragages en Cochinchine année 1896-1906, G/1573 - 5231*, National Archives Center II); This amount reached 19,479,000 m^3 in the second bidding in 1905, and up to 65,759,000 m^3 in the third bidding in 1914 (National Archives Center II, *Amélioration du canal Latéral, G/53088*).

Regarding the forces involved in digging and dredging canals, the Fleet Admirals and Engineers specializing in irrigation of the French colonial government directly surveyed, designed and executed the construction. When the French first established domination in Cochinchina, French military officers played a very important role, the

ideation and leadership all came from the fleet admiral. Directly digging canals are mainly Vietnamese, hired mostly in the provinces of Cochinchina, especially in the early period.

Regarding the method of digging and dredging canals, French capitalists brought to Cochinchina modern mechanical machinery, which are shovels - dredgers operated by boilers with fuel sources of coal and firewood, interspersed with the use of manual labor of indigenous people. Especially when using geodetic techniques, the French used an optical theodolite and a tape measure, performed by the Fleet Admirals and Engineers specializing in irrigation with high precision. Therefore, the constructed canal system has more advantages, namely increased depth, width, length and straighter canal, etc.

In terms of construction organization, the use of modern machinery and specialized management has allowed the French to maximize efficiency in digging and dredging canals. The construction by ladle barge is organized according to each assigned specialized group, which includes nearly 100 people, consists of French Engineers and staff, Vietnamese interpreters, a medical team on standby, dozens of workers served firewood and burned boilers.

Due to motorized construction and professional management, the volume of canal excavation is many times faster than manual excavation. The image of the ladle barge entering the wilderness to dig canals is a symbol of the advanced technology brought by the French at that time; At the same time, it also demonstrates the improvement in creating, exploiting and managing irrigation works that was unprecedented "in the colony". All these techniques are guaranteed to follow the design set out from the beginning. Therefore, the system of canals increasingly shows very high irrigation value.

Regarding the method of payment of wages, all according to the Decree dated June 27th, 1872, i.e., 50 cents per day each person (Nguyen Dinh Tu, 2016). Payment can be divided into several installments. It is also possible that when the work is completed, payment will be made in cash.

4. Some typical canals

With the policy of "fighting while digging", although not completely captured Cochinchina, the French colonialists still dug and dredged some old canals that had important positions; at the same time, to dig a number of new canals to serve military and economic purposes. During the French colonial period (1867-1945), the colonial government dug and dredged many canals. Typical are as follows:

4.1. The area between Tien and Hau rivers

This region has fertile soil brought by alluvial deposits of Tien and Hau rivers. This area has sea estuaries such as Tieu, Dai, Ham, Co Chien, Cung Hau, Dinh An and Tranh De. Due to receiving water from Tien and Hau rivers, in the rainy season and flood season, there will be flooding in many places, while in the dry season, sea water can easily infiltrate to the mainland. To drain waterlogging and saltwater washing, it is necessary to dig a canal, furthermore, the canal will distribute water from Tien river to Hau river. Regarding commercial traffic, the canal will create the shortest path from Hau River to Tien River without going through the sea. These reasons forced the French colonialists to invest in digging and dredging canals in the area between the Hau and Tien rivers. In the interlaced

canal system here, the most important canals for for agricultural economic development and waterway transport are Duperré canal - Cho Gao canal and Xa No canal.

a. Duperré canal - Cho Gao canal

There was a need to export rice to Southern China before digging the Cho Gao canal. Therefore, the French colonialists wanted to find a way to transport goods from the largest reserve at that time, Cho Gao, to Saigon - Cho Lon. The first and strategic work of the French colonialists was to dig the Cho Gao canal - also known as Canal Duperré. Cho Gao canal is about 12 km long, 30 m wide, connecting Ky Hon canal to the Tien river and Tra river to the Vam Co river. The colonial government mobilized about 11,000 people to dig manually in two months with about 676,000 working days, excavated about 900,000 m^3 of land, making roads on both sides. According to the writer Son Nam, *"this is the first major project, inaugurated on July 10th, 1877, attended by Admiral Cochinchina himself"* (Son Nam, 1997).

b. Xa No canal

Xa No Canal was advocated by two French landowners - Guéry and Duval, which crosses Dinh Bao canton, connects Hau river with Cai Lon river (Rach Gia province), and at the same time connects the East Sea with the Gulf of Siam (Thailand). In early 1900, they persuaded the Governor of Cochinchina about the benefits of digging Xa No canal. The Governor General of Indochina and the Governor of Cochinchina recognized the benefits of canal digging in Can Tho province, approved and directed the Provincial Owner (Marquis) and Chief Engineer in charge of navigation services of Can Tho province, Provincial Owner of Rach Gia province (Rivet), conducting research on the benefits to promote the excavation of Xa No canal (E. Carle, 1924). On January 15th, 1901, the canal project was approved by the Governor General of Indochina, the estimated cost was 3,600,000 francs. After that, the Public Works branch proposed to modify the direction of the canal, which was approved by the Governor General of Indochina on September 30th, 1902, with an incurred amount of 344 francs (Nguyen Dinh Tu, 2016). Xa No canal was dug by Montvenoux company (France) with a surface of 60 m wide, the bottom of the canal is 40 m wide and 32 km long. The canal digging started from 1901 to July 1903, when it was completed. On August 1st, 1903, the canal was allowed to circulate and Governor-General of Indochina Paul Dumer attended the inauguration ceremony. Thanks to Xa No canal and its sub-canals, the land of Rach Gia, Can Tho and Chuong Thien has been promoted for reclamation and restoration. Regarding waterways, Xa No canal is one of the arterial traffic routes connecting Can Tho with Hau Giang, Kien Giang, Bac Lieu and Ca Mau.

4.2. Ca Mau peninsula area

Although reclaimed, this land is still desolate with acid and saline soil. In addition, waterway and road traffic to Rach Gia, Soc Trang and Can Tho provinces be very difficult. Before the Bac Lieu - Ca Mau canal, to go from Bac Lieu to Ca Mau, one had to go by Lang Road - that is, pull the boat through the trail (Son Nam, 2009). In 1882, Bac Lieu province was established by the colonial government. The first province owner, Lamothe De Carrier, realized that the future Bac Lieu would become "the largest city in Cochinchina, after Saigon" if "digging a canal connecting Bac Lieu - Ca Mau" (Son Nam,

2009). In 1885, the government of Bac Lieu province mobilized human and material resources to dig a canal linking Bac Lieu with Ca Mau. Since the beginning of exploitation, the French colonialists have realized that the Bac Lieu - Ca Mau area has great potential for agriculture, aquatic resources and benefits from Melaleuca forests. Therefore, they want to create a system of canals linking this area with many other provinces in order to bring exploited products to Saigon - Cho Lon. With that intention, the French invested in digging a system of consecutive and intersecting canals to form a very convenient waterway, typically the Quan Lo - Phung Hiep canal system.

In order to reclaim saline soil in Ca Mau peninsula, a system of interlaced canals was built to lead fresh water of Hau river from Cai Con to Phung Hiep, where 7 main canals are concentrated, including Muong Lo, Xeo Vong, Cai Con, Mang Ca, Quan Lo, Xeo Mon and Lai Hieu. In 1908, the Governor of Can Tho Province Outrey proposed a plan to turn Phung Hiep into a trading port. Since then, the Quan Lo - Phung Hiep canal system was formed and has a total length of 140 km. To create this waterway, in 1901, a canal connecting Phung Hiep with Soc Trang was dug. Then, the canals in the Quan Lo - Phung Hiep route were dug and completed over many years, specifically: The canal in Bac Lieu is 34 km long, dug in 1915; Quan Lo - Gia Rai - Chuong Thien, 17 km long, dug in 1920; Quan Lo Protection Canal has a length of 14 km, dug in 1931, etc. The Quan Lo - Phung Hiep canal system has both solved the need for road traffic (the land dug up and poured on both sides to become roads) and the need for waterway traffic. Basically, in Bac Lieu - Ca Mau, the French colonialists mainly dredging but not digging new canals, specifically: dredging Bay Hap canal in 1940, dredging Xeo Su canal in 1943, etc.

4.2. Long Xuyen Quadrangle Area

To exploit the Long Xuyen Quadrangle, in the years from 1918 to 1930, the French colonial government allowed to dig canals such as Rach Gia - Ha Tien canal, which runs parallel to the West coast and has 4 branch canals to drain water to the sea (Vam Rang, Lung Quynh, Vam Ray and Kien Luong); Tam Ngan canal; Tri Ton canal; Ba The canal; Cai San canal, etc. In the years from 1931 to 1945, the French colonial government continued to carry out many projects of digging and dredging canals in the low-lying area of the Long Xuyen Quadrangle which is dredging and expanding Mac Can Dung canal; continue to dredge and dig through Tam Ngan canal, Tri Ton canal, Ba The canal, Mac Can Dung canal, Hau river; digging Dao canal, Can Thao canal, Bon Tong canal, etc. However, this project was not completed as planned, it was not until 1942 that the Tri Ton canal was dredged, extended to the Mac Can Dung canal, out to the Hau river, finished digging Dao canal, Can Thao canal and Bon Tong canal, etc. Among them, the most notable is Rach Gia - Ha Tien canal.

The digging of the Rach Gia - Ha Tien canal had to overcome a long road of 80 km and 30 km of fields without a path, difficulties in supplying fresh water, and countless mosquitoes. However, in 1926, the whole project was presented and approved, including a main canal from Rach Gia to Ha Tien, running parallel to the coast with a length of 81 km, a depth of 3.5-3.8 m, a width of 26 m, a total excavated volume of 7,200,000 m^3. The main canal is connected to the sea by 4 distributaries (branch canals): Tri Ton canal, connecting Bay Nui canal and Rach Gia - Ha Tien canal, 31 km long, 2.5-3.1 m deep, excavated volume is 2,300,000 m^3; Nui Ba The canal, 40 km long, 2.5-3.1 m deep,

excavated volume is 2,900,000 m^3; canal No. 1, from Vam Ray connecting Vinh Te canal and canal No. 2, from Ba Hon connecting Vinh Te canal in Gianh Thanh, these two canals have the volume of excavation up to 7,100,000 m^3 (*Documents hydrauliques en agriculture, G/H6/16 - 17*, National Archives Center II). In 1926, 4 ladle barges were brought into the construction site: "Loire", "Nantes", "I", "II". The first two barges have a power of 350 horsepower with a monthly digging output of 250,000 m^3, while the two barges I and II can only dig 185,000 m^3 per month with a power of 150 horsepower each (*Documents hydrauliques en agriculture, G/H6/16 - 17*, National Archives Center II). On September 15th, 1930, Rach Gia - Ha Tien canal was inaugurated, with the attendance and speeches of Governor General of Indochina, P. Pasquier, and Governor of Cochinchina, J. Krautheimer (*Documents hydrauliques en agriculture, G/H6/16 - 17*, National Archives Center II). Thus, the Long Xuyen Quadrangle, specifically Rach Gia - Ha Tien, is where the canal digging process takes place later than the Tien and Hau river provinces. Because this area has a lot of potential, and is still unexplored wilderness, the French colonialists boldly invested and built a number of new canal systems.

4.3. Dong Thap Muoi region

This area is almost still flooded and heavily contaminated with alum. Due to its harsh natural features, after the entire Cochinchina region was occupied by the French colonialists, this area was still unspoiled, sparse and little known. Therefore, the French digging and dredging activities in the Dong Thap Muoi region took place very early, mainly to solve security and political issues and to testing in exploitation. Specifically, in 1879, the French dug Nuoc Man canal (Mirador canal - Hien Binh canal) connecting Can Giuoc river with Vam Co river, with a length of 1.9 km; Cai Bac canal was dug in 1897; Ba Dien canal was dug in 1898, etc. These canals are very useful in traffic and drainage of flood water to large rivers (*GouCoch, 3228*, National Archives Center II). Besides the small canals to drain the water into the river, French colonialists increased the digging of many large canals to deal with traffic in the region, such as Governor Loc Canal, Thap Muoi Canal.

a. Governor Loc Canal

Tran Ba Loc (1839-1899) was credited with the French Government for successfully suppressing many uprisings of the people when the French colonialists invaded Cochinchina, such as: Nguyen Trung Truc uprising (Tan An), the uprising of Thu khoa Huan (My Tho), Mai Xuan Thuong uprising (Binh Dinh), etc. In 1865, Tran Ba Loc was promoted to the position of owner of Cai Be district by the French government. In old age, despite being diagnosed with stomach cancer, he is still enthusiastically about "governing the state and helping humanity". Especially from 1895 to 1897, he himself came up with an investment plan to dig a canal in Dong Thap Muoi with the consent of the French government in Saigon. In 1895, Tran Ba Loc tried to dig a number of canals with quite successful results. In 1896, he dug 10 more canals with a total length of 103 km, the width of the canal was 3 m. Because the width of the canal is too small, just to drain the alum water, if it wants to be valuable for transportation, it has to be widened to 10 m in width. Therefore, he continued to force people to dig a large, wide, 47 km long canal, connecting from the slitting fields on the side of the Tien Giang river to Ba Beo canal, the next place is to the north of Cai Lay canal. The remaining canals, with a smaller width, act

as alum draining canals. In April 1897, after more than a year of implementation, the digging plan was completed. The owner of My Tho province, Bocquillon, held the inauguration ceremony in the presence of many French guests. In July 1897, the Governor General of Indochina from Hanoi entered the Cochinchine region and agreed to name the canal Governor Loc.

Thus, after many years of investing in canal digging, Tran Ba Loc has created a system of canals to go deep into the exploitation of Dong Thap Muoi. Governor Loc's canal system was found to be effectively exploited, especially to increase rice production in Tan An province. Therefore, in 1903, the provincial owner came up with a plan to dig a canal in the center of Dong Thap Muoi. This canal system will connect Vam Co Tay River to Cai Lay, Tan Lap (Moc Hoa district, Long An province in present), Tuyen Thanh (Long An), Tuyen Binh (in Vinh Hung district, Long An province). In parallel with the canal digging, Thu Thua canal, Ong Hong canal, Bao Dinh canal, Ong Lon canal, Bo Bo canal, etc. were also dredged.

b. Thap Muoi Canal

Thap Muoi Canal, the section in Cao Lanh territory, is 17 km long, dug in 1901. In 1922, the French colonialists dredged straight to Ba Beo canal from Chanh canal. Then, from the middle of Governor Loc canal (at the beginning of Cai Nua canal), dig straight to the west of Dong Thap Muoi to the Tien river with a length of about 60 km. This canal passes through the Go ruins, so it is called Thap Muoi canal. During the years from 1897 to 1945, many canals were dug in Dong Thap Muoi. Specifically, Cai Bac canal was dug in 1897; Ba Dien canal was dug in 1898; canal 12 was dug in 1904; Cai Tom canal was dug in 1900; Nam Ngan canal was dug in 1900, etc. Thus, the French colonialists focused on digging canals to drain water quickly, pushing sour - alum into the big river; at the same time develop waterway traffic, exploit and transport goods, transporting people by longboats. This canal system has become an effective exploitation tool, bringing great benefits to the French colonists in the Southwest region.

5. Comments on digging and dredging canals in the Southwest of the French colonial period (in place of conclusion)

From the above research and analysis, the following conclusions were drawn:

Firstly, the canal system in Southwest Vietnam was mainly invested and constructed by the French colonial government. Therefore, priority is given to canal digging and dredging in fertile lands with favorable infrastructure. This is considered the period of experimental digging and dredging, leading to low professionalism and specialization. Because the work of dredging canals was designed and directed by the Fleet Admirals. Mechanical engineering had been used but was still limited. The colonial government mainly exploited the traditional manual digging method with low labor costs.

Second, since the canal digging and dredging programs were put up for bidding, the scale and speed of canal digging increased rapidly. The canal digging in Cochinchina always has a huge amount of work, accompanied by many incentives and high profits. So, to get a bid, participating companies must ensure the work schedule specified in the contract through a team of skilled engineers and mechanized machinery and equipment.

Third, the canal digging was not only privatized to the French. The colonial government also encouraged Vietnamese landowners and farmers to participate in order to reduce the burden on the budget. The French colonial government allowed Vietnamese farmers and landowners to invest their own human and material resources to dig a system of small canals, such as Mr. Nguyen Vinh Xuong, Nguyen Ngoc De, Cao Van Thang, Cao Van Hon, Pham Thi Chinh, Nguyen Van Deo, Nguyen Van Sau, in Binh My (Chau Doc) (*Amélioration du canal Latéral*, G/53088, National Archives Center II); Mr. Tran Van Hung in Phu Hoi village (Chau Doc); Mr. Le Van Nam in An Binh village (An Phu, Chau Doc); Mr. Nguyen Khac Thuan in Bao Thinh (Ben Tre); Especially in the Dong Thap Muoi region, Mr. Tran Ba Loc himself invested in digging a fairly large-scale canal system, bringing benefits to the whole region, which remains its value to this day.

Fourth, the canal in the southwestern region of the French colonial period had advantages in terms of scale and technique. In terms of scale, the canal is increased in depth, surface width and bottom width, the canals have superior straightness and length; Technically, most are designed so that the width of the canal is always larger than the width of the bottom. This has created hydrodynamics to push floodwater and alum to the big river faster, and at the same time, avoid landslides on the two banks of the canal. However, the canal system in this period still had limitations, namely: most of them are concentrated in fertile lands, near big cities; the purpose of digging canals is to increase the rice area, but not focusing on improving the saline - acidic - alkaline soil as in the Dong Thap Muoi region, the Long Xuyen quadrangle, etc.; there has been no serious and long-term investment in the irrigation system in the whole Mekong Delta region; The system of culverts, dams to prevent floods and prevent saltwater, etc. have not been focused on investment. Therefore, the issue of "water treatment" has not been adequately invested compared to what "the French have brought from the potential rich plains of Southwest Cochinchina".

Fifth, by the method of "French science and technology, human resources of the natives", from 1867 to the 40s of the twentieth century, the French colonialists mobilized millions of people, with tens of millions of working days, to participate in dredging old canals and digging new canals in most provinces in Southwest Vietnam. This canal system includes main canal and sub-canal with the number increasing rapidly each year. In that dense canal system, stand out many canals typical for the French colonialists' canal digging in Southwest Cochinchina, which are: Governor Loc canal, Cho Gao canal, Thap Muoi canal, Xa No canal, Rach Gia - Ha Tien canal, Tri Ton canal, Quan Lo - Phung Hiep canal, etc. Along with financial advantages, modern mechanical engineering and a team of engineers specialized in irrigation, a system of canals throughout the southwestern provinces of Cochinchina was formed by the French. This canal system had overcome the limitations of the old canal system, which was curved, limited in depth and width, etc. The new canal system had many outstanding advantages such as straighter, increased depth and width, thus having a great irrigation role and bringing very high economic value to the colonial government.

REFERENCES

Aumiphine Jean Pierre (1994). *French economic and financial presence in Indochina (1959 - 1939).* Dinh Xuan Lam (translated). Vietnam Historical Science Association.

A. A. Pouyanne (1926). *Les Travaux Publics de L'Indochine*. Imprimerie.

Amélioration du canal Latéral, G/53088. National Archives Center II.

Nguyen The Anh (1970). *Vietnam under French domination*. Sai Gon Holy Fire Publishing House.

Dossier relatif aux travaux des dragues et à l'amélioration du réseau fluvial en Cochinchine années 1866 - 1895, G/5229. National Archives Center II.

Dossier relatif aux travaux de dragages en Cochinchine année 1896-1906, G/1573 - 5231. National Archives Center II.

Dossier relatif aux travaux de dragages en Cochinchine année 1910-1938, G/5234. National Archives Center II.

Documents hydrauliques en agriculture, G/H6/16 - 17. National Archives Center II.

GouCoch, 3228. National Archives Center II.

Gouvernement générale de l'Indochine (1911). *Voies d'eu de la*.

E. Carle (1924). *Étude générale riz de Cochinchine, Sai Gon - Imprimerie Nouvelle Albert Portail 1924.* National Library of Vietnam.

Travaux du canal à Cochinchine 1945, H61 - 38. National Archives Center II.

Nguyen Dinh Tu (2016). *French colonial rule in Cochinchina land 1859-1954*. Ho Chi Minh City General Publishing House.

Son Nam (2008). *Old Saigon - Impression of 300 years and access to the Mekong Delta*. Ho Chi Minh City Young Publishing House.

Son Nam (1997). *Old Gia Dinh Land.* Ho Chi Minh City Young Publishing House.

Son Nam (2009). *History of Southern Reclamation*. Ho Chi Minh City Youth Publishing House.

TÓM TẮT

TÌNH HÌNH ĐÀO, VÉT KÊNH RẠCH Ở TÂY NAM KỲ THỜI THUỘC PHÁP (1867-1945)

Nguyễn Ngọc Huyền
Trường Trung học phổ thông Phước Kiển, Huyện Nhà Bè,
Thành phố Hồ Chí Minh, Việt Nam
Ngày nhận bài 22/11/2022, ngày nhận đăng 10/02/2023

Xã hội Việt Nam thời thuộc Pháp (1867-1945) được đánh dấu bằng sự kiện thực dân Pháp chiếm 3 tỉnh miền Tây Nam Kỳ, biến vùng đất này nói riêng và Nam Kỳ lục tỉnh nói chung thành xứ thuộc địa của Pháp. Lúc bấy giờ, Tây Nam Kỳ là vùng đất còn nhiều hoang hóa, sông rạch chằng chịt, không thuận tiện cho việc khai thác và bóc lột. Tuy nhiên, nếu được đầu tư thì Tây Nam Kỳ sẽ mang lại nguồn lợi rất lớn về lúa gạo, thủy hải sản... Chính vì vậy, thực dân Pháp đã mạnh dạn đầu tư vào công tác thủy nông, thủy lợi ở Tây Nam Kỳ bằng nhiều hình thức khác nhau như: nạo vét các kênh rạch cũ, đào mới một số kênh lớn… nhằm phục vụ mục đích kinh tế, chính trị, quân sự cho chính quốc. Do vậy, bức tranh về hệ thống thủy lợi, thủy nông, kênh rạch ở Tây Nam Kỳ có nhiều thay đổi trong thời kỳ thuộc Pháp, cư dân đi lại dễ dàng hơn, thông thương giữa các vùng trở nên thuận lợi, góp phần làm chuyển biến kinh tế, xã hội vùng Tây Nam Kỳ trên nhiều lĩnh vực. Trong phạm vi bài viết này chúng tôi chủ yếu đề cập đến một số nội dung liên quan đến tình hình đào, vét kênh rạch ở Tây Nam Kỳ thời thuộc Pháp; trên cơ sở đó rút ra một số nhận xét về đặc điểm của hệ thống kênh rạch ở Tây Nam Kỳ giai đoạn này.

Từ khóa: Tây Nam Kỳ; thực dân Pháp; chính quyền thực dân, đào vét kênh rạch.