An Analysis on the Land Reclamation Process of Tien Hai District, Thai Binh Province, Vietnam in 19th century

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19世紀ベトナム紅河デルタ沿岸低地における干拓過程
——タイビン省ティエンハイ県の事例から——

チャン・アイン・トゥアン

紅河デルタはメコンデルタとならぶベトナムの二大穀倉地帯となっている乾積デルタで、農業活動が中心となっている。紅河デルタは人口密度がきわめて稠密で多くの過剰人口をかかえている。その沿岸部のニンピン省、ナムディン省、タイビン省などは海面干拓の適地となっている。これらの地域では古くから干拓が過剰人口問題を解決するひとつの手段となってきた。

本論文の目的は、1）19世紀グエン朝の土地政策を観覧し、2）干拓計画やその技術を評価し、3）事例としてタイビン省ティエンハイ県の干拓過程の特色を詳述することである。以下がその結果である。

ティエンハイ県では18,979 マウ（mau）の干拓地、71の村が2,350人の労働力によって生まれた。自然要素としての広大な干潟、社会的には卓越した個人による組織力、技術的には築堤技術や施工の手法、経済的には国家的な財政やインフラ援助などがうまく複合して成し遂げられた。さらに干拓請負人のモチベーションを促進したことも成功の一要因であった。

1828年から19世紀末までに小さな干拓計画がいくつもこの地域で頻発した。とりわけ、重要なのは、ティエンハイ県南部に位置するドンタン（Dong Thanh）行政村の例である。干拓地の灌漑施設の建設とその管理運用が重要である。その後も干拓は継続し、ベトナム語で "Dan thuy nhap dien" という、潮汐の差を利用して干拓様式は、灌漑に海水が入り込まないような工夫がされたものである。そこ
1 Introduction

Land reclamation is one of the most important activities in order to expand arable land in Vietnam. Right from the prehistory, when the state model was simply at its initial form, land management policies had mentioned. Only by managing land, especially cultivated land, could the dominant class have collected agricultural products to satisfy their demands. At that time, historical documents had emphasized some main land use types such as "Ruong Hau, Ruong Lac" (kinds of land that depended on tide, based on the height disparity between raising and falling tide to irrigate fields) (Nguyen Duc Kha, 2003). However, land reclamation as well as land management activities were developed faster under Nguyen dynasty in 19th century.

The Red River Delta (henceforth RRD) is one of the two biggest deltas in Vietnam. Almost agricultural as well as economic activities are in these deltas. The RRD has long coastal lines in which there are several places, which are suitable for land reclamation, namely: Ninh Binh, Nam Dinh and Thai Binh provinces. On the other hand, the RRD is known as typical surplus population delta not only in Vietnam but also in the South East Asia. Moreover, agriculture has been one of the most important economic sectors in Vietnam. Therefore, the farmer's demand of cultivated land has been very high. Thus, land reclamation is useful solution in order to solve this problem throughout the history of the RRD.

The objectives of the paper are to: (i) review the land management policies of Nguyen dynasty in 19th century; (ii) evaluate the method of land reclamation program; (iii) analyze the characteristics of this process in Tien Hai District.

In order to trace toward these objectives, we address some specific problems in the followings: What kind of land reclamation method, which was applied in Tien Hai District in 1828? How did the local people manage the process? What were the main characteristics of the model of personnel management and irrigation management? What were the main results of this program?
2 An overview of Land Reclamation Policies in early 19th century

The Nguyen dynasty\textsuperscript{1)} had unified the country after a long time of civil war, which led to a weak economy and unstable society. Therefore, the most important thing that the Nguyen dynasty had to do was to work out land policies, improve land management in order to rapidly recover agricultural production and stabilize the condition of local people livings.

In 1803, the Nguyen dynasty decided to make land registers in the whole country, which lasted for more than 30 years. Land register was a book describing clearly from general to particular items of the village areas belonged to administration system, its geographical position, the total of cultivated and fallow land, land classification, etc.

In the first half of the 19\textsuperscript{th} century, there were three main forces participated in the reclamation process including soldiers, prisoners and farmers. In general, there were six major forms of reclamation as the followings:

- First, the government granted wild land and rice seeds to communes that had not got fields or lacked cultivated lands. People living in those communes were forced to reclaim and cultivate bare land. They had to refund the government amount of harvested products that were equivalent to the borrowed portion from the government. This form applied to Gia Dinh Province. However, this form only existed in a short period and applied in a small area.

- Second, the government recruited poor people and granted money, agricultural tools, rice seeds and then sent them to Gia Dinh, Ha Tien, Chau Doc, An Giang, Con Lon Island to reclaim bare land. Since 1803, this form had applied mainly in the south of Vietnam (Table 2.1).

\footnote{Nguyen dynasty (1802-1945) was the last feudal government in Vietnam. The dynasty was very famous in land reclamation policies as well as land management in Vietnam.}
Table 2.1. Land reclamation methods in the 19th century

<table>
<thead>
<tr>
<th>Year</th>
<th>Form of Reclamation</th>
<th>Place</th>
<th>Form of ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>1820</td>
<td>I</td>
<td>Gia Dinh</td>
<td>Possession</td>
</tr>
<tr>
<td>1803</td>
<td>I</td>
<td>Gia Dinh</td>
<td>Possession</td>
</tr>
<tr>
<td>1807</td>
<td>T</td>
<td>Exiled places</td>
<td>Possession</td>
</tr>
<tr>
<td>1817</td>
<td>T</td>
<td>Binh Hoa Town</td>
<td>Possession</td>
</tr>
<tr>
<td>1821</td>
<td>T</td>
<td>Ha Tien, Chau Doc</td>
<td>Possession</td>
</tr>
<tr>
<td>1828-1829</td>
<td>V</td>
<td>Nam Dinh, Ninh Binh, Thai Binh</td>
<td>Possession</td>
</tr>
<tr>
<td>1830</td>
<td>T</td>
<td>Exiled places</td>
<td>Individual ownership</td>
</tr>
<tr>
<td>1831</td>
<td>VI</td>
<td>Nationwide</td>
<td>Individual ownership</td>
</tr>
<tr>
<td>1833</td>
<td>II</td>
<td>Nationwide</td>
<td>Possession</td>
</tr>
<tr>
<td>1835</td>
<td>II</td>
<td>Ha Tien</td>
<td>Possession</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>The West Town</td>
<td>Possession</td>
</tr>
<tr>
<td></td>
<td>I</td>
<td>From Binh Dinh to Binh Thuan</td>
<td>Possession</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>Hai Duong</td>
<td>Individual ownership</td>
</tr>
<tr>
<td>1836</td>
<td>III</td>
<td>Quang Tri</td>
<td>Possession</td>
</tr>
<tr>
<td>1837</td>
<td>III</td>
<td>Bien Hoa</td>
<td>Possession</td>
</tr>
<tr>
<td>1838</td>
<td>IV</td>
<td>The capital city</td>
<td>Possession</td>
</tr>
<tr>
<td>1840</td>
<td>II</td>
<td>Con Lon Island</td>
<td>Possession</td>
</tr>
<tr>
<td></td>
<td>T</td>
<td>The South of Vietnam</td>
<td>State ownership</td>
</tr>
<tr>
<td>1842</td>
<td>T</td>
<td>An Giang</td>
<td>Possession</td>
</tr>
<tr>
<td>1843</td>
<td>II</td>
<td>An Giang</td>
<td>Possession</td>
</tr>
<tr>
<td>1850</td>
<td>T</td>
<td>Nationwide</td>
<td>Possession</td>
</tr>
<tr>
<td>1852</td>
<td>T</td>
<td>An Giang</td>
<td>Individual ownership</td>
</tr>
<tr>
<td>1853</td>
<td>V</td>
<td>The South of Vietnam</td>
<td>State ownership</td>
</tr>
<tr>
<td>1854</td>
<td>T</td>
<td>Ha Tien</td>
<td>Possession</td>
</tr>
<tr>
<td>1855</td>
<td>V</td>
<td>Khan Hoa</td>
<td>Individual ownership</td>
</tr>
</tbody>
</table>

Note: I-VI: Six methods of land reclamation in Nguyen dynasty
T: Prisoners were mainly labor force of the particular method.

- Third, the government granted money and tools to volunteer people to reclaim their residences. After harvesting, they had to return what they borrowed from the government. This form applied in Quang Tri in 1836 and Bien Hoa in 1837. Therefore, it did not take effect overall country.

- Fourth, the government hired farmers to reclaim. When bare land became cultivated land, they had the right to cultivate in six years with tax-free. This form applied in the Hue capital in 1833, bringing a preference towards the capital citizens, and its particularity.

- Fifth, the government allowed individuals who were able to recruit poor and landless people, and then organized those people into units with the tools and financial aid of the government. Those people would go anywhere the government requested to reclaim and build up villages under the guidance of the enrollee. In 1828, Nguyen Cong Tru first implemented this method in
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Tien Hai District, Thai Binh Province; then in other regions (Ninh Binh-1829, six southern provinces-1853, and Khanh Hoa Province-1855).

- Sixth, this last form was very simple but highly effective. The government allowed all people in the country to submit their applications to reclaim any places. Three years after having reclaimed, the government would survey land and allow those people to register their land area and pay land tax in following three years. This policy took effect in 1831.

Generally, in the 19th century, the Nguyen dynasty promulgated 25 policies related to reclamation process (Table 2.2), mainly applied to three subjects: soldiers, common people and prisoners. Some resolutions only affected certain regions, but most of them had great influences nationwide. The Nguyen dynasty with its exertion had changed several existing relationship of land ownership, and shaped new methods to widen cultivated areas, strengthening the state sovereignty.

Table 2.2. Policies of land reclamation of the Nguyen dynasty

<table>
<thead>
<tr>
<th>Forms of Reclamation</th>
<th>Promulgated resolutions</th>
<th>State and village ownership</th>
<th>Private ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Resolutions</td>
<td>Percentage</td>
<td>Number of Resolutions</td>
</tr>
<tr>
<td>T</td>
<td>9</td>
<td>7</td>
<td>87.8</td>
</tr>
<tr>
<td>I</td>
<td>1</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>II</td>
<td>8</td>
<td>7</td>
<td>87.5</td>
</tr>
<tr>
<td>III</td>
<td>2</td>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>IV</td>
<td>1</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>V</td>
<td>3</td>
<td>1</td>
<td>33.4</td>
</tr>
<tr>
<td>VI</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

3 Tien Hai’s Land Reclamation Process in 1828

3.1 Social Situation of Tien Hai Region in the Early 19th Century

Tien Hai District situates from 20°25’ to 20°48’ N, and 106°46’ - 106°62’ E. The district locates in the Southeast of Thai Binh Province. Tien Hai district has three sides bounded by rivers and the sea (Figure 3.1): in the North, Tien Hai locates on East bank of Tra Ly River, which flows into the South China Sea through Tra Ly Estuary. In the South, Tien Hai is surrounded by the Red River, which runs into Ba Lat Estuary. The Eastern part of Tien Hai is adjoining to the South China Sea, stretching through 23 kilometers of tidal flats and coastline from Tra Ly Estuary to Ba Lat Estuary. Tien Hai District shares its boundary with Kien Xuong.
District in the west side. From the east to the west, the distance between Tien Hai town and Lan Estuary is 15 kilometers.

![Map of Thai Binh Province](image)

**Figure 3.1.** Location of Tien Hai District in Thai Binh Province

Toward the end of 18th century, there were number of armed movements against the feudal government. In 1802, Vietnam was national unity under Nguyen dynasty. Although the policies of the Nguyen dynasty were to maintain the communal land system, and allocated land to individual laborer in order to cultivate aiming at alleviating poverty. However, due to corruption and political intrigues of the mandarin and landlords, the land was occupied by the upper classes. The process of pauperization accelerated, farmers had no land to cultivate. There were some peasant-armed movements in the coastal area against the Nguyen dynasty, notably Phan Ba Vanh movement, which spread from Ninh Binh, Nam Dinh, Thai Binh province to Do Son (Haiphong city). It took quite a while and effort for the government to suppress the movement.

Prior to the territorial expansion of Nguyen Cong Tru, in Tien Chau\(^2\) alluvial ground,

\(^2\) Tien Chau was the original name of alluvial area, before the establishment of Tien Hai District.
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Population was sparse, mainly as the result of the migration from "old" adjunct villages such as Dai Hoang, Tieu Hoang, Diem Dien to clear off the land and establish few villages.

Pre-1828, the regional economy was rather low level, essentially farming and fishing. Farmer planted rice in hollow lands toward the south, the productivity was low due to the saline land, obstructing the cultivation; they planted sedge at sand dunes. On the other hand, the population lived on fishing and salt producing. In general, most of the economic activities were spontaneous at household scale.

3.2 Land Reclamation Process in Tien Hai District in 1828

• Main purposes of land reclamation process

Tien Chau had an area of immense and fertile land but it was not used whereas the local people did not have enough fields for farming and lived in poverty condition. The main purposes of the land reclamation process were: (i) to stabilize the social situation of the coastal area - one of localities had conflict between feudal government and local farmers; (ii) to expand agricultural land for landless farmers and to get more benefit for government by tax collecting.

• The land reclamation process

"Doanh dien" was the fifth land reclamation form in Nguyen dynasty. This method aimed at expanding the agricultural land by poor and landless farmers, and the government operated and financed the process. The government’s engagement showed in the two forms: (i) providing financial support for laborers; (ii) setting up the Land Exploitation Department (Doanh dien su) to manage and organize the land reclamation process.

- Personnel organization: Nguyen Cong Tru mobilized the local people of the "old" villages such as La Cao, An Khang, Dai Hoang, Tieu Hoang, Thu Dien, Phuong Cong, Bac Trach (Chan Dinh District - the West of Long Hau river); An Ha, An Tu, Dong Hao, Doan Trung, Nam Dong, Thanh Chau (Giao Thuy District); Thuong Tam, Dong Minh, Phuc Khe and Than Huong (Thanh Quan District). They were important reclamation force with the experiences gained from the previous processes.

In order to take more useful in management, Nguyen Cong Tru proposed the methods of

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recruiting and grouping people as follows: "Rich people were responsible for the land which was able to be exploited, recruiting of 50 laborers\(^4\) made a Ly unit working for the village head, recruiting of 30 laborers made an Ap unit working for the ap's leader. Similarly, recruiting of 15 laborers made a Trai and recruiting of 10 laborers made a Giap" (Pham Thi Net, 2001).

The people who first took responsibility for establishing one village were "Nguyen chieu mo". The "Nguyen chieu mo" was responsible for grouping laborers, receiving the area that they were about to reclaim, receiving money, provided equipment, and supplying for every laborer in his team. Labor force was managed hierarchically by a "Pyramid-shaped" method. This method was obviously proved effective for the land reclamation process and it made the feudal government easier to manage and assign duties to every. The "Nguyen chieu mo" was in charge of personnel management in his team, if one laborer left the job, "Nguyen chieu mo" had immediately to find another one to replace.

- **Financial support:** In this process, Nguyen dynasty directly provided financial support (Table 3.1). Nevertheless, the money was really much bigger than the government's support. To solve this problem, Nguyen Cong Tru had collected the money from the rich men by encouraging them to group laborers and then appointed them as leader to manage the new village. They were called as Ly truong, Ap truong, Trai truong and Giap truong, which depended on the size of new villages. This model not only encouraged more and more laborers to join the process but also raised the funds for the expansion. Hence, the policy was mutual benefit for the government and local people.

<table>
<thead>
<tr>
<th>Village</th>
<th>No. of laborers</th>
<th>Buying buffalos (Quan)*</th>
<th>Buying farming tools (Quan)</th>
<th>House-building support (Quan)</th>
<th>Total (Quan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lang</td>
<td>50</td>
<td>300</td>
<td>40</td>
<td>100</td>
<td>440</td>
</tr>
<tr>
<td>Ap</td>
<td>30</td>
<td>180</td>
<td>24</td>
<td>60</td>
<td>264</td>
</tr>
<tr>
<td>Trai</td>
<td>15</td>
<td>90</td>
<td>12</td>
<td>30</td>
<td>132</td>
</tr>
<tr>
<td>Giap</td>
<td>10</td>
<td>80</td>
<td>8</td>
<td>20</td>
<td>88</td>
</tr>
</tbody>
</table>

**Source:** Doan Dinh Thi, 2000, p. 133.

* "Quan" was currency unit, which was used in Nguyen dynasty

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4) "Đinh" in Vietnamese means laborer, who was from 18 to 60 year old. Before 1945, only the number of "Đinh" was stored in official documents.
Every five people owned a buffalo, a harrow, a plough, a hoe and a sickle. All of the equipments were provided directly to laborers by the government. On the other hand, the government also supplied food for each laborer in the first 6 months. After 3 years cultivation without tax, the laborers would pay taxes as private land.

- **The land utilization process after successful land reclamation**

- **The administrative system of Tien Hai District in 1828**

Tien Hai District established in September 1828 with the total laborer of 2,350. The total reclaimed land was 18,970 "mau". Tien Hai District divided into 7 communes: Tan An, Tan Co, Tan Dinh, Tan Boi, Tan Phong, Tan Hung, Tan Thanh. The center of Tien Hai District located in Phong Lai. Since 1848, the center moved to Hoang Tan or Tien Hai town nowadays (Figure 3.2).

![Map of Tien Hai District in 1828](image)

**Figure 3.2.** Map of Tien Hai District in 1828

**Source:** Nguyen Van Da, 1969 (edited by author)

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5) "Mau" was historical measurement unit. One mau is equal 4,894 m²

6) In terms of place name, "Tan" in Vietnamese means new. Thus, these names of commune began with "Tan", which showed the results of land reclamation process in Tien Hai District.
In this system, under commune level, there were several types of village, such as *Ly*, *Ap*, *Trai* and *Giap*. Based on the number of laborer at the beginning of land reclamation process, the size and location of villages were designed by Nguyen Cong Tru and the Land Exploitation Department (Figure 3.3).

**Figure 3.3.** Model of administrative system of Tien Hai District in 1828

- **Villages planning**: In terms of topographic condition, Tien Hai had two types of villages: fixed-area and unlimited-area villages.

  + **Fixed-area villages** located on the western bank of Long Hau River. These villages belonged to four communes such as Tan Boi, Tan Dinh, Tan An and Tan Co. In fact, the members of these villages migrated mainly from hinterland villages. They were usually landless farmers. In addition, they had close relationship with former villages. Thus, they got help from well-experienced original villagers and convenient support of foods and other necessities; therefore, the process of reclaiming land was finished the soonest. Moreover, fixed-area villages had less sour and salty land, near the fresh water source, they had good conditions for intensive farming.

  + **Unlimited-area villages** located on the eastern bank of Long Hau River and on the south bank of Lan River. The typical characteristic of these villages were that they could carried out the land reclamation process. The agricultural land could enlarge, and they could grow aquaculture production and fishing as well. These villages were designed as follows the west-east direction. The boundaries between villages were canal and small road (Figure 3.4). The width of villages
ranged from 6 dac (360 m) to 10 dac (600 m). It depends on the total number of laborers.

- **The policy of distributing land**: After reclamation, land in Tien Hai district consisted of two types: public land (*Cong dien cong tho*) and private land (*Tu tho cu, Tu tho uong*).

+ *"Cong dien cong tho" policy*: According to the land use policies of Nguyen dynasty, public land was divided into several categories as the followings: for example within 100 mau, there were 70 mau for agricultural purpose; 30 mau for constructing infrastructure as communal house, pagoda, roads. All laborers in a new village would receive the same area of agricultural land, and they would cultivate in 3 years. After that, agricultural land was redistributed to all laborers, according to the number of laborer in village. In case of the laborer had no any son, or sons were not over 18 years old, the agricultural land could reduce apart.

+ Private land: every laborer would receive 1 mau of land for building farmstead (*Tu tho cu*). Furthermore, "*Nguyen chieu mo"* - head of village would receive 9 sao as seedling field.
Private land could inherit.

- **Managing and operating the dyke and Irrigation system**

  During the land reclamation process, there were two important tasks such as building up the system of river and sea dyke and managing the irrigation system.

  - **Building up the dyke system**: Based on the number of laborers of its division, each village had to build up a certain part of the dyke. For instance, Xuan Hoa village was responsible for building up 17 dac (1 dac = 60 m), every laborer in Huong Tan village was assigned to build up 1 dac, Thu Chinh village 20 dac, Nang Tinh village 24 dac.

    The area of land reclamation included the dyke system as the followings:
    - The dyke of the Tra Ly River ranging from Hoang Tan village to Tra Ly estuary on the right, from Phu Khe village to Dan Town on the left with the length of 11 km
    - Lan River’s dyke was built with the dike foot of 8 meters wide, dike surface of 4 meters wide and the height of 3 meters.
    - The dike on Ca River, Long Hau River and Co Ngua River was smaller size. In some villages, people had to heap two dikes parallel in case of water breaking the first dike.

    In fact, in a short period of 6 months - the time Minh Mang King set to Nguyen Cong Tru and local people in Tien Chau to get the first results of the process of land reclamation, obviously, the duties and the amount of work were really enormous and difficult. Despite numerous difficulties, the method of dyke heaping by connecting ranges of sand dune, together with distributing specific part of dyke to each village. Learning from previous generation’s experiences in building Tieu Hoang and Ma Giam dykes, Nguyen Cong Tru took the power of the local villagers because they had already got used to the work of setting dike and encroaching the sea. This policy was one of the reasons for success and quickly completion of the dyke system in Tien Chau.

    In flooding season, salty water flew along Tra Ly River, Lan River and Ca River penetrating deeply into the land, Nguyen Cong Tru saw that it was really necessary and urgent to build dikes on these rivers. Ca River was the smallest of three thus the first dike was built here (according to historical document, the dike was heaped on the right bank of the river) to stop salty water penetrating. The dike was in fact both oceanic dike and river dike. Two lines of dike on Tra Ly and Lan rivers played an important role in preventing flood in the area.

  - **Management of irrigation system**: As results of land reclamation, Tien Hai District had
a densely network of rivers and canals. Some big rivers are as follows: Long Hau River was actually a natural river linking to Tra Ly River on south-north direction, merging with Kien Giang River from Kien Xuong then flowing easterly and finally meeting Lan River near Lan estuary.

Nguyen Cong Tru made a very intelligent decision to use the river as a main water-transporting channel for the whole district. This would be reflected on village model and suitably and scientifically distributed irrigation system later.

Coastal villages have features of one end linked with Long Hau River, the other end spreading to the sea. Trenches for irrigation were dug, taking water mainly from Long Hau River, spreading along villages to the sea. As the result, land holdings, hamlets and farms were detached among another by canals. Types of canals as follow: between two land holdings, the canal was wide enough for a boat traveling, between two hamlets; it was 3 meters wide and 3 meters deep. The canals were both the border and the waterway for transporting rice, fertilizers. At the same time, supplying water for irrigation and washing the acidity and salt. Crossing the system of canals, there sometimes were small trenches for irrigation work making up a chessboard-shaped canal and trench system. There were 14 canals in the Eastern villages.

One of the important projects together with hydraulic system was the system of culverts lying under dikes. Nguyen Cong Tru directed building two big and important culverts: Dinh Cu culvert on Long Hau River and Ca River culvert, they took water from Tra Ly River into the irrigation system. Besides, there were internal culverts and other trenches along field edges.

The network of canals and trenches within villages used for irrigation, as natural border among villages and route for boats and other small water vehicles traveling through. Two banks of the canals used as roads. This was the useful and scientific way of planning the system of villages and land holdings.

Nguyen Cong Tru carried out the process of "Dan thuy nhap dien7)" in Tien Hai as follows:
- When tide rises, culverts under Tra Ly dyke were opened for water flowing into Long Hau and Ca rivers and then to canals in fields. When water level in canals rises higher than field surface,

7) "Dan thuy nhap dien" was the method get water into fields.
gate of trenches opened for water flowing to fields. This model was known as "Tu chay\(^8\)" model, which did not only require much labor but also was highly effective in irrigation (Figure 3.5).

![Figure 3.5. The model of operating irrigation system](image)

- When the tide fell, all culverts closed in order to keep the water inside the paddy fields. When draining away the water, just waiting for the tide going down completely, the water level inside the culverts was higher than that of the river, culverts were opened again, water from each piece of fields following ditches out to the trenches and then into the channels. If people wanted to keep water inside fields, they just closed all the ditches.

One of the most important points for operating this model is the time to open and close the culverts. It needed officers, who had many experiences in operation process. According to the tidal calendar in Tien Hai District, there were 132 days in a year, which could open the culverts to get water into the fields.

On the other hand, in some areas, fields need remove salt, especially in areas of newly land reclamation. In a crop, the process of removing salt would carry out of three times, especially in winter-spring crop: (i) the first time was after harvesting. Land was ploughing; and the salt appeared on the surface of fields. Therefore, it needed fresh water to remove salt from the

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8) "Tu chay" means self-flowing model. It based on mainly the changes of water level between tide raising and falling.
fields; (ii) the second time implemented in period of weeding and rice transplanting; (iii) the third time carried out when rice grew up.

### 3.3 Political Boundary Changes and the Land Reclamation Processes after 1828

After 1828, land reclamation process in Tien Hai had been undertaking with different characteristics as compared to period of 1828: the reclamation in 1828 took place in only 6 months under the management of Nguyen Cong Tru who was responsible and had supreme power for the process. The feudal government supported with finances, foods, and agricultural tools. While the process after 1828 in Tien Hai performed in many different ways aiming at exploiting small lands by local groups.

Small scales reclamation took place in many regions of the district but the area where the reclamation displayed the most strongly in late 19th century in Tien Hai was southern area of the district belonging Dong Thanh Canton. The total reclaimed area was 4,762 mau creating 8 new villages (Table 3.2).

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of village</th>
<th>Area (mau)</th>
<th>No. of laborers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Quan Man</td>
<td>1,049</td>
<td>98</td>
</tr>
<tr>
<td>2</td>
<td>Noi Lang</td>
<td>355</td>
<td>46</td>
</tr>
<tr>
<td>3</td>
<td>Ngu Khu</td>
<td>1,378</td>
<td>94</td>
</tr>
<tr>
<td>4</td>
<td>Phuong Vien</td>
<td>258</td>
<td>120</td>
</tr>
<tr>
<td>5</td>
<td>Bat Cap</td>
<td>351</td>
<td>106</td>
</tr>
<tr>
<td>6</td>
<td>Dai Dong</td>
<td>284</td>
<td>117</td>
</tr>
<tr>
<td>7</td>
<td>Dong Phu</td>
<td>711</td>
<td>199</td>
</tr>
<tr>
<td>8</td>
<td>Chau Nhai</td>
<td>382</td>
<td>218</td>
</tr>
</tbody>
</table>

*Source: Pham Thi Net, 2001*

It can be said that the area of Tien Hai was expanding larger and larger thanks for land reclamation. Only area reclaimed by 8 villages of Dong Thanh Commune was equal to total area of two communes established in 1828.

After administrative renovation process under Minh Menh King in 1831 - 1832, the Nguyen dynasty changed the country’s administrative system dividing the country into 31 central-level units; renaming Nam Dinh town in to Nam Dinh Province including 4 districts. Tien Hai at that time belonged Chan Dinh District.

When Thai Binh Province established on 21 March 1890, Tien Hai District belonged Kien
Figure 3.6. Tien Hai District at the end of 19th century
Source: Pham Thi Net, 2001 (edited by author)
Xuong District (Figure 3.6). After many times of changing administrative border, many cantons and villages were merged into Tien Hai District, while some others were separated and merged to neighboring districts. As of 1928, after 100-year establishment, Tien Hai District consisted of 79 villages, which belonged to 8 communes.

On 1st April of 1946, realizing the government policy, Thai Binh Provincial People's Committee held the first meeting session and released a resolution on administration of eliminating canton unit and renaming prefect to district. According to the resolution, Tien Hai became one of 12 districts of Thai Binh Province, consisting 11 communes. In addition, the administrative units were maintained during the period of 1946 -1954.

In 1955, based on division of district into 3 areas: East, West and South; communes belonging any the regions will take the first name indicating the region. Then, Tien Hai District had 30 communes, in which the East area had 10 communes; the South had 12 communes and the West - 8 communes. As of 1969, the government issued a decision on separating 5 communes of Kien Xuong District and merging to Tien Hai District. On 13th December 1986, Council of Ministers (now as Government) promulgated a decision on dividing Dong Tra commune into two communes of Dong Hai and Dong Tra; dividing Nam Hung commune into 2 communes of Nam Hung and Nam Phu. So far, there has been no change of administrative units of Tien Hai District with 34 communes and 1 township.

4 Conclusions

The process of land reclamation under the form of "Doan dien" in Tien Hai District in 1828 was an indispensable result of a socio-economic development. This originated from the real demands of the locals that need expanding cultivated areas, especially for the poor. In addition, it was a result of choosing right place of reclamation of Nguyen Cong Tru - Tien Chau Beach was the largest area at that time. On the other hand, the reclamation was implemented with an aim of stabilizing the complicated political and social situation in the locality where many uprisings by peasants taken place. Due to the purposes, the reclamation process attracted thousands of poor people and those who did not have own fields from every corner of the country. On the other hand, thanks to a scientific arrangement and organization which was participated by local people who were well experienced and played role as leaders in the process of sea encroachment and immigrants, the reclamation process in 1828 got success.
The result was that Tien Hai District established with total area of 18,979 mau including 71 villages with total number of laborers of 2,350. The success was proof for a good combination of natural elements (area of alluvium ground), society (appropriate personnel organizations, technology (dyke building techniques and village arrangement) and economy (taking use of State assistance of finance and infrastructure). Besides, rights of participants were paid attention so it was a motivation for promoting the reclamation process.

From late 1828 to the end of 19th century, land reclamation had played an important role and actively taken part in by local people. Many reclamation processes were taken place spontaneously and on small scale in most of Tien Hai's communes and villages, in which notably was the movement by Dong Thanh Commune in the south of Tien Hai District.

Furthermore, construction and operation irrigation works played a vital role in the reclamation process as well as agricultural production later. Model “Dan thuy nhap dien” was a model depending on tides and a unique model of local people. The model's operation depended on water levels of tides to channel fresh water to fields aiming at providing water for agricultural production and removing salt for newly reclaimed areas. Defining the exactly time to open culverts under the dykes and duration of watering field was very important and much depended in experiences of managers.

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Institute of History) (Vietnamese).
