



# Laem Chabang Port Construction Project

## Reasons for taking up this project

The Laem Chabang port construction project is a port construction project started in 1987, based on the JICA's Master Plan (MP), which was presented in 1985 and which makes up the core of the Eastern Seaboard Development Plan (targeting the 3 provinces which face the Gulf of Siam, namely Chachoengsao, Chonburi, and Rayong) facing the Gulf of Siam in the Kingdom of Thailand (hereinafter: Thailand). At the time in Laem Chabang, which lacked infrastructure, the harbor was newly outfitted in keeping with industrial park development, and roads, railroads, industrial waters, and other such infrastructure outfitting was conducted simultaneously. Currently it has become Thailand's largest port handling containers, fulfilling a vital role in Thailand's economic development, and the project is highly praised in both Japan and Thailand.

The Japan Society of Civil Engineers takes up the Laem Chabang port construction project, because

- 1) The Laem Chabang is directly operated and managed by the Port Authority of Thailand (PAT), but technological support from Japan played a large role in the background.
- 2) This was the first large-scale port construction operation for PAT, and PAT is currently managing 5 ports other than Laem Chabang port, so the support and know-how received from Japan in the Laem Chabang port lives on.
- 3) The port construction was premised upon large ships entering the port, which was a port that had been made high-tech, and currently it is the largest port handling containers in Thailand.
- 4) After the L/A signing (the 11th international yen loan), the Thailand government temporarily froze Eastern Seaboard and Development Plan-related projects in 1985. Japan played an important role in the decision to re-open the project.

# 1 Project Background

In Thailand, following the progress of industrialization starting in the 1970s, the concentration of industry to the capital city of Bangkok and the accompanying economic disparity with local areas became large issues. In 1977 a large natural gas field was discovered in the Gulf of Siam, and this was taken advantage of for the goal of creating industrial locations in appropriate regions located in a 80-200km range to the south-east of the capital city of Bangkok in order to correct the overconcentration of economic activity in Bangkok and promote the decentralization of regions of industry. At the same time, the transition of the chief export products from primary products to industrial goods was made possible by the use of the gas field.

In the 2nd half of the 1970s, a basic concept for the Eastern Seaboard and Development Plan was formulated, and in 1982 a Master Plan was solidified. 2 locations were planned for port construction, one of which was an industrial port (Map Ta Phut port) planned in the Map Ta Phut district in Rayong Province, which was adjacent to the natural gas pipeline and which aimed to be the first large-scale chemical industrial park in Thailand. The industrial port was a port to which industrial-use raw materials, oil, natural gas, and other energy resources would be carried into, and from which industrial goods would be sent



Photo: Current Laem Chabang Port

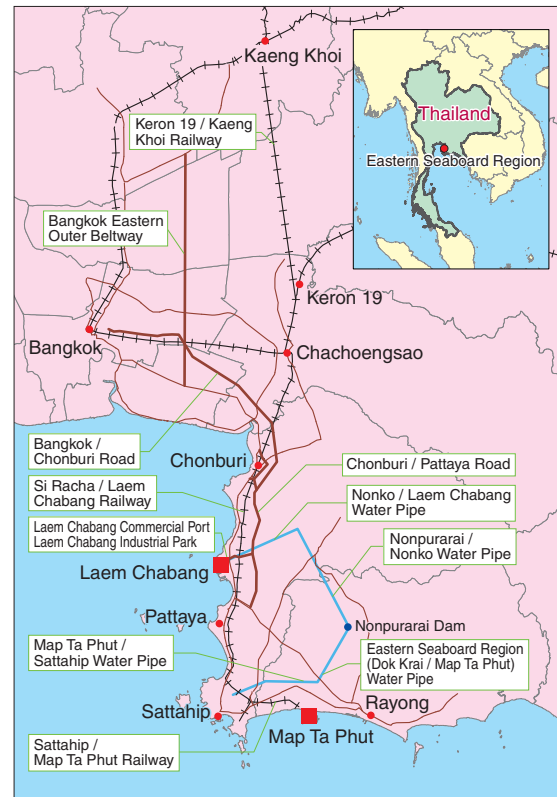


Figure 1: Eastern Seaboard and Development Plan and Laem Chabang Port

out. The other location was Laem Chabang port, which is the main subject of this paper.

Laem Chabang port was designed as a commercial port, which would handle the import and export of industrial goods and raw materials in the Eastern Seaboard region. Furthermore, it was expected to play the role of supplementing and substituting for the existing Khlong Toei (Bangkok) port. Khlong Toei port was the port of the Chao Phraya River, at a place on the river about 30km upstream from Bangkok, and since opening in 1951 it had developed as the largest port construction in Thailand, but due to the water being shallow and the channels being narrow, it was impossible for large container ships to enter the port. The construction of a new deep sea port to accommodate increasing sizes of container ships was necessary.

## 2 Project Chronology

### 2.1 Project Formation Stage

Formation Stage

1973	Discovery of natural gas field in Gulf of Siam
December 1980	The Thai government establishes a committee (CDBIES, chaired by Prime Minister Prem) for the industrialization of the Eastern Seaboard Region
January 1981	Prime Minister Suzuki visits Thailand and announces intention to cooperate in the “Eastern Seaboard and Development Plan”
March 1981	Completion of the Eastern Seaboard region heavy industry development strategy (Anat Report)
April 1981	The Thai government approves the Eastern Seaboard and Development Plan in a cabinet meeting
June 1981	CDBIES is reorganized into the “Eastern Seaboard Development Committee” (ESDC, chaired by Prime Minister Prem)
September 1981	Laying of the natural gas pipeline from Gulf of Siam to Map Ta Phut is completed
October 1981	The Eastern Seaboard and Development Plan is adopted as the “5th 5-Year Plan”
November 1982	Construction of Map Ta Phut industrial port and Laem Chabang commercial port is decided
September 1983	Eastern Seaboard and Development Plan (E/S) and L/A signing (10th international yen loan)
September 1984	Laem Chabang commercial port construction project (1) and L/A signing (11th international yen loan)
February 1985	Laem Chabang port, completion of M/P and F/S of JICA
November 1985	Eastern Seaboard and Development Plan is frozen due to the Thai government's review of its foreign borrowing plan

In the latter half of the 1970s the Dutch port consultant company NEDECO proposed the new construction of a port in the Eastern Seaboard Region. NEDECO judged that the Khlong Toei (Bangkok) port, which was a river port, would eventually reach its limit, and suggested the construction of a port in Si Racha, located to the north of Laem Chabang, as an alternate port. The Thai government applied to the world bank for capital assistance based on this proposal, but the world bank didn't grant it, citing concerns that it was an excessive investment. Instead, they advised the expansion and utilization of the Sattahip port, located to the south of Laem Chabang, and they had the Maunsell company of Australia execute the F/S.

While the Thai government and the world

bank were exchanging opinions like this, then Prime Minister Suzuki visited Thailand in 1981 to announce Japan's intention to cooperate, and subsequently the working out of practical details relating to the funding and technical assistance was begun. Japanese experts in deep sea ports were also dispatched to Thailand one after another. Under the advice of the Japanese experts, in October 1981 it was decided to incorporate the Eastern Seaboard and Development Plan into the 5th 5-Year Plan. Then in November 1982, the construction of the Laem Chabang and Map Ta Phut ports was decided.

However, at this time Thailand was being pressed by budget austerities such as having to receive Structural Adjustment Facility from the world bank in 1982 and 1983 due to negative account balance and expanding

foreign debt. At the same time they had twice devalued the baht, and Thailand's economic prospects were largely pessimistic. For these reasons, prudent opinions on such a large-scale development project as the Eastern Seaboard and Development Plan exceeded the expansionary fiscal policy faction, and in November 1985 the Eastern Seaboard and Development Plan operations

were frozen while a committee of 3 cabinet ministers was established to review the plan. Furthermore, at this time the world bank deemed investment in the Map Ta Phut port and Laem Chabang port to be uneconomical, and suggested to the Thai government that they drastically postpone both projects and expand the Bangkok port and utilize the Sattahip port as an alternative.

## 2.2 Project Execution Phase

### Execution Phase

October 1986	Decision by Thai government to re-open operations in the Laem Chabang district
November 1986	Laem Chabang commercial port construction project (2) and L/A signing (12th international yen loan)
December 1987	Start of construction work on the Laem Chabang commercial port
February 1990	Laem Chabang commercial port construction project (3) and L/A signing (15th international yen loan)
December 1990	Completion of multipurpose berth
January 1991	Start of commercial operations at Laem Chabang commercial port
October 1991	Completion of construction work on the Laem Chabang commercial port

Subsequently in December 1985 a policy plan was approved through review at a cabinet meeting after some twists and turns. As a result of this, the world bank's proposal was not adopted and it was approved to maintain the framework of the Eastern Seaboard and Development Plan including the Map Ta Phut port and Laem Chabang port. Subsequently, with an increase of direct investment from Japan, which had received a rise in the value

of yen after the 1985 Plaza agreement, the environment surrounding the development plan in the Laem Chabang district improved and in October 1986 the project execution in Laem Chabang district was approved.

In October 1986, the Laem Chabang port project execution received the green light, while the approval of the project execution of the Map Ta Phut port was somewhat delayed until January 1988.

## 2.3 Future of the Laem Chabang Port Construction

In order to respond to the container demand which will continue to increase in the future, a master plan has been established regarding the development of the Laem Chabang port separated into 3 phases leading up to 2025.

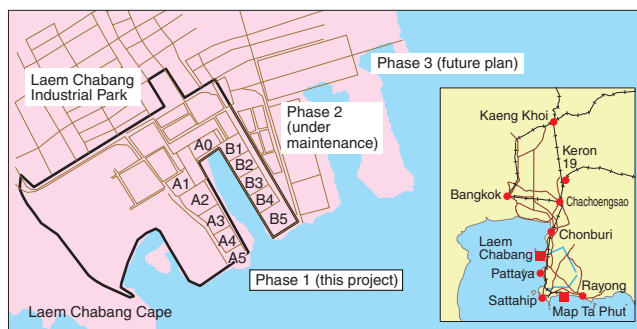
The part covered by the international yen loan and the partial extension part by PAT combined make up Phase 1. Phase

2 was completed in 2010 and is currently being used, while construction of Phase 3 is currently underway.

PAT has created partnerships with ports in Japan. For example, in October 2012 it joined a partnership with the Nagoya Port Authority, it exchanged declarations of becoming a sister port with Kitakyushu port in July 1991, and it sends and receives trainees.

Figure 2: Laem Chabang Port Layout Chart

- A0: Terminal for coastal shipping and operation and management boats
- A1: Coastal shipping terminal
- A2: Multipurpose terminal
- A3: Misc. cargo terminal
- A4: Sugar/syrup terminal
- A5: Coal terminal
- B1-B5: Container terminal



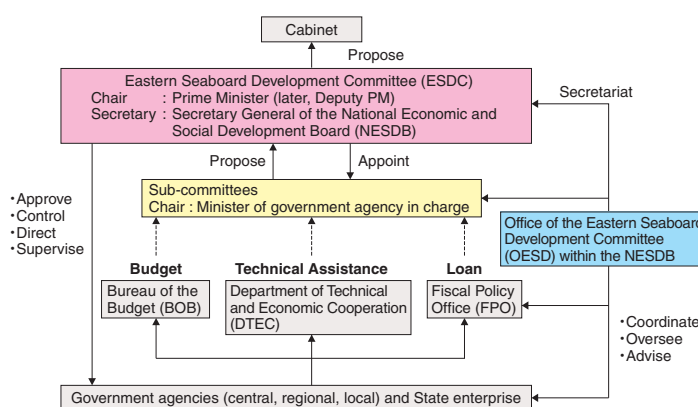
### 3 Project Features

#### 3.1 Organization of Thailand

National scale development plans in Thailand were begun with the design of the 1st national economic and social development plan (1961-1966), which was based upon the advice of the world bank in 1957. The “National Economic and Social Development Board” (NESDB) was organized to be in charge of this. The JICA (Japan International Cooperation Agency) defines the NESBD as “an organization which drafts national development plans which are national midterm plans as well as determining the order of precedence of public projects demanded by various government ministries and agencies in accordance with the national development plan and selecting the projects to be implemented”. NESDB is the highest organization even within the Eastern Seaboard and Development Plan.

The Office of the Eastern Seaboard Development (OESD) is an organization ranked below this NESDB, drafting the overall implementation plans and managing financial

affairs including industrial parks, railroads, highways, etc. The establishment of OESD was in 1986, and it was required to centrally manage the progress of all Eastern Seaboard projects, but as shown in Figure 3, it actually also provided coordination advice for each section in the planning stage, while the decision-making was conducted by the NESDB. Consultants dispatched from GTZ (German Organization for Technical Cooperation)\*1 and various consultants including JICA were stationed in this OESD and conducted consulting duties for each



Source: Author – drawn upon provisions from the Regulations of the Office of the Prime Minister Governing the Eastern Seaboard Development (1985) and information provided by NESDB, TICA, BOB, FPO, PDMO, and MOI to the GRIPS team

Figure 3: Outline of Regulation and Decision-making Mechanism in Eastern Seaboard Development (Source: Works cited 5)

\*1 German Organization for Technical Cooperation GTZ was merged with Volunteer Personnel Dispatch Organization DED and Human Resource Development and Training Organization InWent in January 2011 and has now changed into Deutsche Gesellschaft für Inter-natio-nale Zusam-men-arbeit (GIZ).

organization as necessary.

PAT is an organization which conducts the actual administration duties and is unrelated to the decision-making, etc., for the projects. PAT itself was established under the Port Authority of Thailand Law B.E. 2494 in 1951, and the policy to privatize it

was set forth in a 2000 revision to the law. It currently has jurisdiction over 5 ports including Chiang Sean port, Chiang Khong port, and Ranong port in addition to Khlong Toei, and Laem Chabang. It is undeniable that the know-how of the Laem Chabang port construction project is alive there.

## 3.2 Support from Japan Conducted from the Local Point of View

After Prime Minister Suzuki's announcement of the intention to cooperation in the "Eastern Seaboard and Development Plan" in 1981, in May an economic cooperation integrated mission was dispatched with Mr. Saburo Okita as its leader, and practical discussions regarding funds and technological cooperation were started. From that time, Japanese experts on port construction have been successively dispatched. Their principle activities were the confirmation of technological feasibility of ports, and at that time Japan was among the world's top level regarding the construction of deep sea ports of sea depths of 15m or deeper.

In May 1982, the JICA started the F/S of the "Eastern Seaboard Industrial Port Development Plan" targeting Map Ta Phut. However, before that, the first chairman of the Overseas Coastal Area Development Institute of Japan (OCDI), Mr. Yoshio Takeuchi, proposed that the Laem Chabang and Map Ta Phut ports should be opened simultaneously. Mr. Takeuchi is the former Ministry of Transport Port and Harbor Authority Director, and he hypothesized that eventually a project relating to Laem Chabang would emerge from the JICA and thought that Japan, a developed nation in ports, should cooperate with this, and the OCDI had independently implemented a preliminary survey. Specifically it was in danger of harbor siltation due to drift sand, in the difficulty of excavating the sea bottom

bedrock, and the influence of the strong wind and waves due to it facing the open sea. As a result of a survey by Japanese engineers, the conclusion was reached that it was possible to overcome these problems.

When Thailand's Cabinet Minister Amon of Transportation and Communications visited Japan, OCDI introduced Kashima port in Ibaraki Prefecture to Cabinet Minister Amon. The party evaluated Japan's port construction technology and requested Japan's cooperation, and the fact that Kashima port and Laem Chabang port were constructed under extremely similar site conditions would seem not to be a coincidence. Considering these facts, in November 1982 the Thai government decided to construct both the ports in Laem Chabang and Map Ta Phut.

For the ports' construction work, Hyundai of Korea and Daiho Corp. of Japan conducted a joint venture. Using Thailand's technology of the time, construction of deep sea ports of water depths of 15m was difficult, and all elements of technological guidance and execution management were brought in from Japan for implementation. In parts other than the execution management, Pacific Consultants International (PCI) played a large role in addition to the ports in the construction of railroads and roads. The contractors Italian-Thai Development Plc (ITD) conducted operation development in a joint with PCI, and it seems that in the Laem Chabang port construction process there

was technological advancement as Marine Constructor.

Additionally, as for individual engineers, not only were port experts from the former Ministry of Transport Port and Harbor Authority dispatched to the OESD (of the aforementioned NESDB), but also industrial park experts from the Ministry of Economy, Trade, and Industry, and telecommunications experts from NTT. With the delegation of power from OESD to PAT, the destination to which experts were dispatched also changed to PAT.

Presently, several issues have been pointed out regarding the management and operation of the Laem Chabang port by PAT. At first, the establishment of a new government-affiliated public enterprise separate from PAT and the complete

privatization of terminal operations was the expectation on the Thai government side, but PAT opposed this. And so an advisor for port management and operation issues has been dispatched from Japan to PAT (Works cited 7).

Also, although it is not the main body of the port, Lat Krabang Inland Container Depot, which is an inland container depot (ICD) in the Lat Krabang industrial park located about 30km east from Bangkok City, has been constructed and connected with Laem Chabang port by a railroad (put into service from April 1996). The main construction body of the railroad is the State Railway of Thailand (SRT), but being based on the proposal of the JICA, it is maintained together with the Laem Chabang port.

### C o l u m n

#### “I Was Able to Paint a Picture Frankly and Freely”

In a time when there were no gantry cranes and a place where there was nothing at all, we were able to execute a project from scratch which we wouldn't have been able to in Japan. The opening words were the speech delivered by a person dispatched as a specialist from a general contractor, and those words suggested that this project wasn't a simple technological cooperation led by Japan.

Also, many experts gathered at NESDB and OESD from various countries, but I still profoundly remember the words that “the ones who went to eat with the local people were the Japanese”.

## 4 Learned Lessons

There are several points which led to the successful completion of the Laem Chabang port construction.

First of all, it is an important point that the way the Thai government handled things was appropriate. Because the Prem administration of the time made economic development their top priority issue, “Developmentalist Technocrats” (technical bureaucrats who possess highly specialized knowledge and contribute to policy making) were able to take initiative. Top-down discretion is essential in these kinds of large-scale projects. In the interviews we had with

involved persons on this occasion as well, there were responses that “It was impressive that there was excellent personnel with doctorates from MIT in the core NESDB and OESD who were called the right hand of the Prime Minister.”

Next, the fact that Japan's support was conducted from the local point of view can be raised. In contrast to the negative and short-sighted advice from the world bank focusing on technical difficulties and financial conditions, it was important that the experts on the Japanese side made proposals with long-term vision anticipating

economic growth through the combination of the technical success in deep sea port construction and industrial parks. As a result, in 2012 the number of containers handled by Laem Chabang reached 5.9 million TEU. It is ranked 23rd in the world, and indeed 98% of Thailand's import and export cargo uses the Laem Chabang port. The original goal of the project to supplement and substitute for Khlong Toei port can be said to have been thoroughly achieved.

Ministry of Land, Infrastructure, Transport and Tourism Port and Harbor Authority touts this work, saying that “in order to construct an environment which facilitates easier international development,

our country's port-related industries work toward the international standardization of our country's port-related technologies and standards while promoting the diffusion of our country's port-related technologies”, and giving the Laem Chabang as an example. The success of the Laem Chabang port is a successful example of Japan providing aid from the same viewpoint as the partner country in terms of what is right for the region and country in question. And we conclude by noting that the technological advice from Japan was evaluated extremely highly among those involved on the Thailand side at the time.

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Interview was conducted for this paper with the following person, and it was drafted by the Infrastructure International Cooperation and Contribution Archives WG of Japan Society of Civil Engineers. We wish to thank Mr. Sato here.

### Biography

#### Shigemi Sato

Penta-Ocean Construction Co. Ltd. Yokohama Sales Branch, Advisor  
1970 Started working for the government in Yokohama city  
Employed at Port and Harbor Authority, Town Planning Bureau, Economic Affairs Bureau, etc. In charge of Minamihonmoku wharf, Minato Mirai 21, attraction of

enterprises, etc.  
2014 Joined Penta-Ocean Construction Co. Ltd.  
In this project, he was dispatched to the Thailand NESDB (National Economic and Social Development Board) from 1986 to 1988 to be in charge of the Eastern Seaboard and Development Plan.