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## Project potential comparison between the Land Bridge Project and the Thai Canal Project

The Land Bridge project is a project to create a road to connect the Andaman coast to the Thai coast or creating what we call a "Land Bridge" to connect transportation by sea from one side to the other.

Practically, the benefits will not be different from the country's main roads in the present except that the objectives and usage of the land bridge will be in transport between the two coasts of Thailand only. And in oil transportation

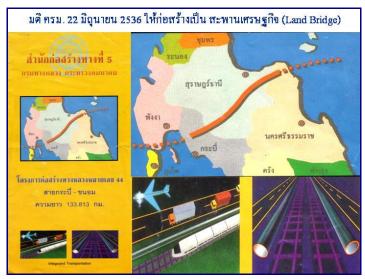


Image 1 Road Project, Krabi - Khanom route

by creating an oil line from one side to the other. Practically there will have to be a large oil reservoir to keep the oil for sales, and there must be a large deep-sea port to service ships from both sides. The land route will be similar to the sea route, if there is transportation from one side to the other by using trailer trucks, a large number of containers will be transported all the time and there will be a need for a large storage house with lots of space. There will have to be large cranes to lift large containers from the ships to the trailer trucks and to lift containers from trucks onto ships at the other side of the ocean. There will have to be a deep-sea port at both sides of the ocean to service large cargo ships. The cost of construction will be more than the Land Bridge project itself (not less than the construction cost of Port Lham Chabang). The costs for the Land bridge project do not come from only the road construction cost but from the port construction at both sides of the ocean too.

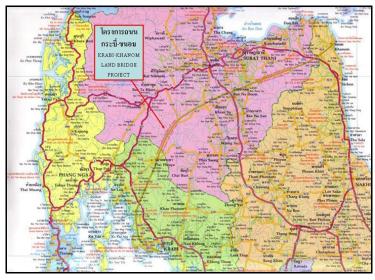


Image 2 Map Project, Krabi - Khanom route

Can the Land bridge project objectives respond to the needs of the sea vessels that will use its service? There must be a circumspect systematic study.

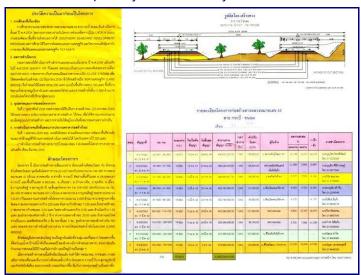


Image 3 Road Project Plan, Krabi – Khanom route

## Benefits and Potential comparison between the Land bridge project and the Thai Canal project

To make the comparison clear, let us assume that the Land bridge project is finalized and there are ports at both the Andaman coast and the Thai coast and there is a ship containing 5,000 containers docking at the Andaman side. 5,000 containers transporting to the Thai coast will take 1 trailer truck 5,000 trips to the Thai coast side and 5,000 trips back to a total of 10,000 trips. If the cost of one trip is 7,000 baht, the total transportation cost will be 70 million baht. If we add the crane operating cost, ship daily rental cost, ship docking cost along with other service costs, the total cost will be more than 100 million baht. It is clear that the Land bridge project or economic bridge creates more risk to the cargo, wastes more time and costs more to use. This simple evaluation shows that the sea transport company owners won't use the facilities of the project.

The Land bridge project to transport oil by pipes must be considered also. By the types of ships that will travel to use the services, because each type of ship has different daily costs such as a cargo ship that contains 5,000 containers (5,000 TEU) has a daily rental cost of 3 million baht. The ship wouldn't travel to fuel up and travel to another place to transfer cargo because the operational cost of the ship is higher than the fuel cost difference.

For the project to build an oil refinery at the Andaman coast to refine oil. And transport the oil by pipes to the Thai coast to sell it to sea vessels docking for service. Theoretically, an oil refinery at the Andaman coast can refine oil at a cheap price because Oil tankers can save distance from traveling to oil refineries on the other side (not going around the Strait of Malacca) saving some costs. But the oil refinery will have costs in oil transportation to the other side. There will have to be an oil reservoir to keep the oil for sales along with a deep-sea port for ships to dock.

So if Thailand is thinking to compete in selling oil with Singapore by using the Land bridge project along with an oil refinery. I don't know if it's a friend's deception plan?

At present, Singapore has a large oil refinery placing 3<sup>rd</sup> in the world, selling more than 56,000 tons of oil everyday (1 month of Singapore's oil sales is equal to 1 year of Thailand's oil sales) the customers buying the oil are the 600 cargo ships docking there everyday. During the cargo transportation, the oil refinery will transport the refined oil through pipes to the piers to refuel the ships docking. It's a one-stop service for the ships to save costs and time.

Singapore is one of the major petroleum refining centers of Asia, with total crude oil refining capacity of nearly 1.3 million barrels per day (bbl/d). The three main refineries include: Exxon Mobil's 580,000-bbl/d refinery; Royal Dutch/Shell's 430,000-bbl/d refinery on Pulau Bukom island; and the Singapore Refining Corporation's (SRC) 285,000-bbl/d refinery

Recognizing that Singapore's future growth depends on overcoming resource limitations and a small domestic market, the Singaporean government has vigorously encouraged local firms to regionalize their operations and to invest abroad. The Singaporean government has also undertaken efforts to attract additional foreign investors to Singapore. Prime Minister Goh Chok Tong has identified China, India, and the fellow Association of Southeast Asian Nations (ASEAN) as priority countries in Singapore's regionalization drive. During his 2003 visit to Washington, Prime Minister Tong signed a Free Trade Agreement and a Memorandum of Intent of Cooperation in Environmental Matters. During a brief stop in Singapore by President Bush late last year, the United States and Singapore announced a cooperation agreement to enhance joint action in tackling security threats by terrorist groups and the spread of weapons of mass destruction. Singapore is today the biggest U.S. customer in Southeast Asia. Total U.S. investments in Singapore stand now at \$61.4 billion, and U.S. exports to the country

stand at \$16.6 billion. More than 1,300 American companies have a presence or regional business headquarters in Singapore.

Sources for this report include: CIA World Fact book; Dow Jones News Wire; Economic Survey of Singapore 2003; Economist Intelligence Unit; Global Insight Asia Economic Outlook; Government of Australia Singapore Statistical Fact Sheet; International Monetary Fund; Oil & Gas Journal; Petroleum Economist; Reuters News Wire; The Straits Times (Singapore); U.S. Department of State; U.S. Energy Information Administration.

So the Thai government must consider the matter thoroughly whether the Land Bridge project along with the oil refinery to sell oil is feasible practically or not. In the present, PTT's (Petroleum Thai) oil refinery refines more oil than used in the country and has to sell some of the oil to foreign countries.

If the Land bridge project is feasible economically, using land transportation to replace sea transportation, the main canals of the world wouldn't have been created such as the Panama Canal or Suez Canal and other canals around the world.

Both the Land Bridge project and the Thai canal project create benefits but if compared to each other the difference of both projects are very high.

In summary, if we build the Land bridge with the oil refinery to compete in oil sales with Singapore, I don't know any ship that will use the service, but if we build the canal with the oil refinery, Singapore will have a hard competition.

The Land bridge project from Krabi - Khanom has already been approved by the government on 22nd June 1993. I think that it should be quickened and completed soon because it will help a part of the economy and when the Thai Canal project is started, there will have to be a road to join both the Andaman coast and Thai coast anyway. There may have to be several routes joining both coasts too.

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