The Kra Canal plan: a 'Great Project' for Thailand and for world trade

by Steven Bardwell

Among the many rumors that accompanied Japanese Prime Minister Nakasone's recent tour through Southeast Asia and his subsequent prominent role in the May 29 Williamsburg Summit meeting, was one that has raised hopes throughout Asia of a resurrection of serious Japanese commitment to Asian industrial development. According to several sources, Prime Minister Nakasone discussed his interest in the $500 billion infrastructure construction plan called the Global Infrastructure Fund (GIF) by its Mitsubishi Research Institute originators.

In this plan, a new international financial institution would be established expressly for the extension of long-term, low-interest credit for large-scale water control, transport, and power facilities throughout the world. The GIF includes specific mention of scores of large projects, including a second Panama Canal, a massive Mekong Delta irrigation and hydroelectric power complex, reconstruction of the central African Congo River basin, a Canadian water diversion project (studied in the United States during the 1960s under the name of the North American Water and Power Alliance), and a dam for ocean current control across the Bering Straits.

Among the most advanced of these projects, and most feasible in the near term, is a proposal for a canal through the Isthmus of Kra, on the peninsula of Thailand, connecting the Andaman Sea and the Gulf of Thailand. Like most of the GIF projects, the original conception for the proposal is centuries old and has sparked renewed interest over the past several decades whenever industrial development has been seriously considered.

All the large projects discussed in the GIF go far beyond the traditional ideas of infrastructure. These projects do not merely provide new transport routes, more efficient commerce and agriculture facilities, or the basis for new cities; they more fundamentally change the geometry of the area they service. By changing the direction or quantity of communication potential, they make the same sort of impact that the establishment of trans-oceanic trade routes have had throughout man's history, or the construction of vast railroad systems (like the transcontinental systems of the United States and the Soviet Union) in the past 100 years.

As the most enthusiastic supporter of the Kra Canal project, Chow Chowkwanyun, the current head of the Thai National Oil Company, said in a recent interview, "The Kra Canal [would] make money, but its real importance, as the French engineers pointed out about all waterways, is that it [would] create history. The Kra Canal by itself would offer only marginal economic prospects. However, when combined with the two deep-water ports which provide regional transhipment facilities and the industrial zone, the project as a whole will make both money and history."

In his introduction to the preliminary feasibility studies commissioned by the Thai government in 1973, Chow summarized the importance of the project in a preface that could describe any of the great projects in the GIF plan: "This is a Thai national project, constructed on Thai soil and subject to Thai sovereignty. It will contribute greatly to the security and economic development of Thailand. But not only will it bring important benefits to Thailand, it will also accelerate the economic growth of the entire South and Southeast Asian region. Ultimately, it will help all peoples and all nations. While it is a Thai national project, it is of international scope and dimensions. It is truly a key element in the global transportation infrastructure. I commend it to the young, to the engineers, and to the statesmen of the world."

The scope of the project

The most modern plans for the canal, ports, and industrial zone were drawn up in preliminary form by the group that Chow directed in 1973. The accompanying map shows the route they selected, so-called route 5a, and the associated port facilities on both the Gulf of Thailand and Andaman Sea sides of the waterway. Along with these facilities, the original plans call for a major city to be built, starting from the housing and urban infrastructure required for the construction workforce on the project.

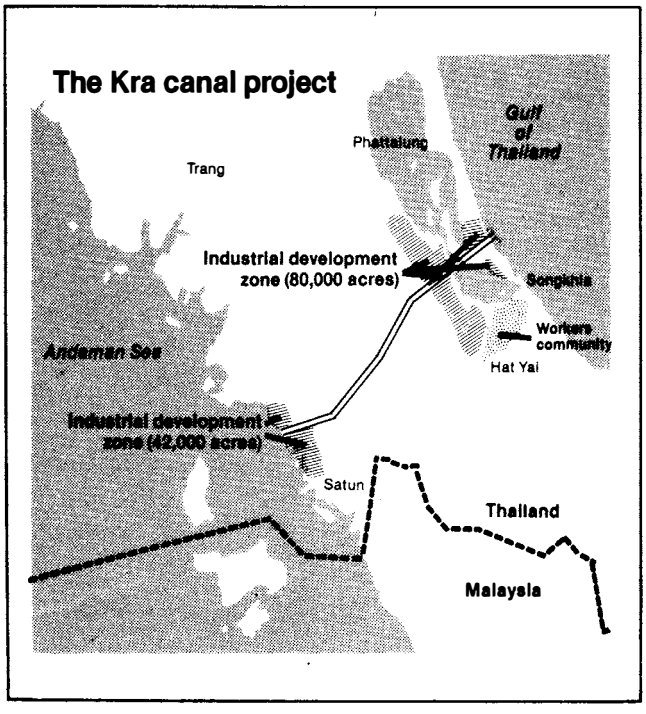
The waterway itself would consist of a 103-kilometer-long canal, requiring the excavation of 4 billion cubic meters of earth. This is a sizable amount of earth moving; by com-

parison the Panama Canal required the excavation of only .25 billion cubic meters. However, the indicated route 5a has the great advantage that by digging the canal slightly longer than alternate routes, no locks will be required. By having the complete waterway at sea level, it becomes feasible to construct a canal wide enough (1,250 feet) to handle two-way traffic at ocean-going speeds, or alternately, deep enough to handle 500,000 ton super-tankers (110 feet deep).

The construction of such a waterway would have several dramatic consequences for shipping. First, one of the most congested passages in the world, the Straits of Malacca, which handles almost 100,000 ships per year through its 6-mile-wide channel and is marked along its 500-mile course by sunken ships, would be relieved. The Southeast Asian region, containing the shipping facilities for one-third of the world's population, is now grossly insufficient. The two deep-water ports and transport infrastructure accompanying the canal would remedy that situation. Finally, the average distance for shipping through the Southeast Asian region would be decreased by more than 900 miles, and many weeks cut from the time required for transhipment of goods in the area's now-inadequate port facilities.

The Kra Canal and nuclear energy

In a project as massive as that proposed by the Chow team, new technologies must play a seminal role. The construction of the waterway and industrial complex is *possible* using conventional technologies, their report points out, but the true logic of the project only becomes clear when nuclear technologies are used. The Thai government commissioned several studies of the technological problem of the waterway construction and found that the use of conventional earth-moving techniques would result in a cost of about $6 billion (in 1972 U.S. dollars) and require 12 years for completion. The alternative of using peaceful nuclear explosives to move earth would shorten the construction time by four years and reduce the cost by $2 billion.



A detailed study of the applicability of peaceful nuclear energy (PNE) devices to the Kra Canal project was performed by the Lawrence Livermore Laboratory in the United States under the Project Plowshare and the Atoms for Peace Program. Their studies showed that all geological, weather, and safety considerations were almost ideally met by proposed route 5a. Interestingly, the large difference in the two proposed canal configurations (1,600 feet by 110 feet, allowing two-way transport) and the smaller one-way canal (650 feet by 110 feet) when dug with conventional technologies, largely disappears with the use of nuclear excavation. The doubling of the channel size adds only 14 months to the excavation time for the larger canal.

The designers of the Kra Canal also envisioned that nuclear energy would play a key role in the industrial complex associated with the waterway. Their studies mandated the use of nuclear energy for electricity production, desalination, and industrial energy in the city and industrial sites surrounding the waterway.

Prospects for implementation

The Kra Canal proposal, since its first conception in 1793, has been a politically sensitive topic. For more than 150 years the British colonial interests in Southeast Asia actively campaigned against the canal, on scientific, economic, and political grounds. The British interest in the region, especially after 1853 when the British took formal control of Burma, had been to use Thailand as a buffer state between their empire and the French colonies to the east, with the result that the British intervened at least three times in the next 100 years to prevent the "French plot" to construct the canal. In 1946, the British imposed a formal agreement on the Thai government forbidding it "to cut any canal across the territory of Thailand to connect the Indian Ocean and the Gulf of Thailand without first obtaining the consent of the government of the United Kingdom." This agreement served to protect the strategic position of the British colony of Singapore, and the massive drug, financial, and political influence that went with the control over all shipping in the Southeast Asian area.

The Kra Canal would end that monopoly in a dramatic way. In the past 20 years, the political controversy has continued; the blatant imposition of colonial policy by the British has been replaced by the financial and political pressures that Thailand has been under to slow down its growth and industrial-nuclear policies. Many observers expect that the glimmerings of motion by the Japanese around the Kra Canal project as part of the GIF portend new life for these projects, and the possible beginning of massive investment with the highest technology in Asia.