The impact of the Kra Canal project on the growth of Thailand's economy

by Uwe Henke v. Parpart

Historically, the successful industrialization of what are now advanced-sector economies has without exception been based on the execution of large-scale infrastructure projects. Appropriate infrastructure creates the opportunity and first impulse for industrial development and is a decisive productivity-producing economic factor. Two examples are the internal waterways and railroad projects in the United States and Germany, without which the successful development of these countries would have been unthinkable. And it was the so-called spin-offs from these infrastructure projects and their driving force which propelled the U.S. and German economies into leading positions by the end of the 19th century. More recently, the "spin-off" effect of such "non-productive" large-scale ventures as the U.S. "Apollo Project" has allowed American technology and industry to maintain their leading role.

In an accompanying article, we discuss the feasibility, specifications, and financing possibilities for the construction of a canal through the Isthmus of Kra. But when considering the desirability and the need for a project of the very large dimensions of this one, it is insufficient or even misleading to proceed only from the indispensable but relatively narrow "accounting perspective" developed there. The impact of the project on the development of the national economy of Thailand and on relevant regional Asian economies, as well as broader strategic considerations, must be taken into account. We confine our attention here to the Thai economy, adding a few brief remarks on broader issues.

The outlines of the crisis

A recent study of the Thai economy by the Fusion Energy Foundation (FEF) produced the following conclusions: Over the past 20 years the Thai economy has realized impressive growth rates averaging 7.8% in GNP terms per annum. However, unlike the cases of the economies of Korea, Taiwan, or Singapore, this growth effected disappointingly small structural changes. The unfavorable, essentially colonial-style structure of production and export of agricultural commodities and raw materials in exchange for manufactured goods remained largely unaffected. Long-standing demographic imbalances—singular population concentration in Bangkok, in particular—have been exacerbated rather than alleviated. In the current depressed world economic conjuncture, the critical vulnerability of this deficient structure of the Thai economy manifests itself in stagnation, pressure on the national currency, and crisis of financial institutions.

Table 1
Thai labor force by category of occupation
(percentage of total)

	Agriculture	Industry	Services
1947	85	3	12
1960	84	4	12
1965	82	5	13
1970	80	6	14
1975	78	7.5	14.5
1980	76	9	15

Sources: 1947 Census; *World Tables* 3rd Edition (World Bank).

Table 2
Korean labor force by category of occupation
(percentage of total)

	Agriculture	Industry	Services
1960	66	9	25
1965	58.5	12.5	29
1970	50	17	33
1975	42	22.5	35.5
1980	34	29	37

Source: *World Tables* 3rd Edition (World Bank).

The current stagnation, however, is due not only to external factors; it is a powerful signal that economic growth within the existing structural framework has run its course. Resumption of reliably sustained economic expansion will be possible only as the result of concerted public and private efforts to effect fundamental structural change through combined infrastructure, basic industry, and high-quality manpower development. Modernization of agriculture and decentralization (creation of new population centers and centers of economic activity) must be principal included features and goals of such efforts.

Current structural deficiencies

Contrary to physiocratic notions widespread, in particular, in International Monetary Fund and World Bank circles, the history of successful industrial capitalist development in Western Europe, North America, and Japan demonstrates that it is *not* the resource base that determines the wealth of a nation, but rather the quality, development, and distribution of the manpower and labor force. Consequently even a first rough-cut analysis of the past performance, present level of development, and future growth potential of a nation's economy must proceed from labor-force analysis rather than from analytically questionable and unreliable GNP-type measures.

A look at the historical evolution of the distribution of the Thai labor force over principal categories of economic activity yields the picture shown in **Table 1.**

The 33 years of economic development have produced only a relatively minor shift from agricultural into industrial employment. This picture is further dimmed by the fact that in 1981 the capital goods (machinery and transport equipment) and industrial chemicals sectors critical for successful independent economic development jointly accounted for only 18% of total industrial output. A comparison with the Korean (ROK) economy will be instructive.

Table 2 shows a 32% shift out of agricultural into primarily industrial employment, compared to only a 9% shift of the Thai economy in the same time span. Moreover, the Korean industrial production structure is more healthy and self-reliant, capital goods and chemicals production accounting for 29% of value-added output, compared to Thailand's 18%. Five additional crucial comparative level-of-development indicators—degree of modernization of agriculture, level and rate of urbanization, per capita energy production and consumption, export/import structure, and level of scientific and engineering manpower—were employed in the FEF study of the Thai economy. These indicators, along with the already mentioned labor force and industrial structure indicators, have been found by FEF study teams to provide a consistently highly reliable measure of degree of development and growth potential for a wide range of developing sector economies in Latin America and Asia analyzed during the past several years. Let us now look at each of the five additional indicators in turn.

Table 3

How much has Thai agriculture modernized?

		Fertilizer consumption (Kg/ha of arable land)	Rice yield (Kg/ha)
Thailand	**1970**	7.6	
	1981	17.7	1,952
Korea	**1970**	246.6	
	1981	351.3	5,841

Source: *World Tables* 3rd Edition (World Bank)

Fertilizer consumption, an accurate measure of degree of modernization of agriculture, has doubled in Thailand during the last decade (**Table 3**). Still, by modern agricultural standards, it remains extremely low. Progress in this area would easily allow Thailand to triple rice production on the same amount of land presently under cultivation.

Table 4

Progress made in commercial energy consumption

(Kg of coal equivalent)

		Total	Per cap.	Per Km²	Growth rate Total	Growth rate Per cap.
Thailand	**1960**	$1,703 \times 10^6$	63	3,314		
					12.3%	9.3%
	1980	$17,371 \times 10^6$	370	33,781		
Korea	**1960**	$5,202 \times 10^6$	208	52,832		
					13%	10.6%
	1980	$59,703 \times 10^6$	1,563	606,288		

Source: World Tables 3rd Edition (World Bank).

Table 5

Electricity production: a decade of growth

(millions of KWh)

		Total	Growth rate
Thailand	**1969**	3,728	
			14.5%
	1978	12,644	
Korea	**1969**	8,150	
			16.2%
	1978	31,510	

Source: *Statistical Yearbook Asia/Pacific*, ESCAP 1979

Despite some economists' recent claims about a "decoupling" of energy and economic growth, if growth is measured in productive output (agriculture, industry, mining) rather than misleading GNP terms, then there is no question not only of a close correlation, but indeed a causal connection between energy and economic growth. In addition, and perhaps even more importantly, there is a direct causal link between per capita energy consumption and the productivity of agricultural and industrial labor. This holds in particular for the highest quality and most versatile energy form—electricity. It is clear from **Tables 4 and 5** that Thailand in the past two decades has made significant progress in this regard. Still, the absolute values remain quite low and a most ominous sign is the fact that the energy-consumption growth rate since 1975 has dropped to less than half of what it was between 1960 and 1975. Highly desirable productivity gains in agriculture, for example, will not be possible unless this recent trend is reversed, since the necessary production inputs (fertilizers, etc.) are based on highly energy-intensive production processes.

Table 6, comparing value added for Thailand and Korea, is interpolated at this point to verify the point made above, i.e., that there exists a close correlation between per capita energy consumption and average productivity. For a tightly fitting correlation, energy consumption for transport and infrastructure would have to be taken into account. Still, the general point can be readily understood by comparing the 4:1 per capita energy consumption ratio to the most relevant 3.6:1 per capita value added ratio in manufacture. The figures for energy flux per area and value added per area also demonstrate a direct scaling of the two quantities.

The relatively slow growth of Thai industry relative to agriculture is not surprisingly mirrored by an equally slow pace for urbanization and by the fact that in Thailand there has been virtually no diversification of urban structure and almost the entire urban growth has been in the already overloaded Bangkok area (**Table 7**). There exists an obvious and urgent need for decentralization of urban development.

Indicated in **Table 8** is one of the weakest and most dangerously inadequate features of Thailand's development. Indigenously, the country is even now producing few—if any—Ph.D.s in natural science, but instead has an overabundance of lawyers and social scientists. Without drastic immediate changes in this regard, there is simply no way for Thailand to build a modern, self-reliant nation as it behooves the 12th largest country in the world in population terms to do.

We conclude with **Tables 9 and 10,** because in a sense they summarize the more detailed account provided so far. The export structure in particular tells the story. In 1960, 98% of Thailand's exports were in agricultural goods and raw materials. By 1981, this figure had been reduced to 73%—only a very modest change in fundamental structural terms. In the same time span, Korea, on the other hand, went from 86% in agricultural and raw materials exports down to 10%, a structure comparable to most average advanced-sector nations. The challenge for Thailand is obvious.

As already mentioned above, it is the firm conclusion of this writer and the FEF study team that the Thai economy has come to a watershed point. Resumption of vigorous growth in the existing structural framework will not be possible. Any attempt to do so will fail—with serious social and political consequences. The point can be made more precise by reference to the evolution (or devolution) of some of the Latin American economies. We choose the example of Peru, because the FEF recently conducted a detailed study of the Peruvian economy, under contract from the National Society of Industry (SNI) of Lima.

In 1960, the Peruvian economy, while starting with different absolute values, exhibited a broadly similar "colonial-

Table 6

Value added reflects energy consumption

(U.S. dollars)

	Total	Total per cap.	Agric. per cap.	Industry per cap.	Total/Km²
Thailand					
1979	27.24 bn	594	157	117	53,000
Korea					
1979	60.66 bn	1,613	328	430	594,000

Table 7

Pace of urbanization is slow

	Urban population (% of total)		Average annual growth rate (%)
Thailand			
1960	13	1960-70	3.6
1982	17	1970-82	4.3
Korea			
1960	28	1960-70	6.5
1982	61	1970-82	5.0

Source: *World Development Report 1984*, World Bank.

Table 8

Scientists and technicians

(1975 figures)

	Total	Scientists & engineers	Sci. & eng. in research	Nat. sci. in research	Soc. sci. in research
Thailand	67,632	20,288	6,097	547	3,209
Korea	1,449,372	460,037	6,314	1,652	568

Source: *Statistical Yearbook Asia/Pacific*, ESCAP 1979.

Table 9

Export structure

(% of total exports)

	Fuels, minerals, metals	Other primary commodities	Textiles	Machinery	Other mftrs.
Thailand					
1960	7	91	NA	0	2
1981	8	65	10	5	12
Korea					
1960	30	56	8	NA	6
1981	2	8	30	22	38

Source: *World Development Report 1984*, World Bank

Table 10

Import structure

(% of total imports)

	Food	Fuels	Other primary commodities	Machinery	Other mftrs
Thailand					
1960	10	11	11	25	43
1981	4	30	8	26	32
Korea					
1960	10	7	25	12	46
1981	12	30	15	23	20

Source: *World Development Report*, 1984 World Bank.

style" structure to Thailand, with regard to labor force distribution and export/import structure. In the subsequent two decades, labor force distribution evolved as shown in **Table 11.**

The desirable 13% shift out of agricultural employment, rather than going into industry, went entirely into the tertiary (non-productive) service sector. To put it caustically, the economy made the transition from pre-industrial to post-industrial society without the intervening complication of industrialization. The watershed point toward modern industrial development (as in the case of Korea) had been reached by the late sixties, but the wrong economic policy choices (strongly influenced by foreign intervention) instead led to the present almost entirely bleak situation. It is urgent that Thailand avoid traveling down that same road. But the proper economic policy signals implied by the foregoing comparative analysis must be set now. New strategic economic policy impulses aimed at basic structural change rather than tactical measures within the existing framework are required.

The role of the Kra Canal

We have discussed elsewhere the broader strategic significance of a canal through the Isthmus of Thailand for the world economy and world trade. (See Uwe Henke v. Parpart, "Canal is cornerstone of Asian development," *EIR* Sept. 13, 1983; and Richard Freeman, "World trade requires construction of Thailand's Kra Canal," *EIR* Oct. 18, 1983.) These concluding remarks are intended as a brief outline of the Kra Canal's possible impact on the Thai economy, in light of the preceding analysis.

Our evaluation of the canal's impact on the Thai economy proceeds from two points of principle:

1) Successful industrialization, as noted above, has never occurred without the execution of large-scale infrastructure development projects.

2) A look at the world map—in particular a Pacific-centered projection—demonstrates the decisive strategic location of Thailand, and should therefore put to rest the controversy over the competing ambitions of Singapore. Why should a large nation of 50 million people (and 70 to 80 million by the end of this century) abrogate its potential role and economic opportunities in favor of the miniscule city-state (2.5 million inhabitants) of Singapore?

Table 11

Labor force of Peru by category of occupation

(% of total)

	Agriculture	Industry	Services
1960	53	19	28
1980	40	18	42

We will concentrate on drawing out the implications of the first point:

- While Korea—for lack of opportunity—engaged in no infrastructure project comparable to the scale of the Kra Canal, total infrastructure spending (energy, transport, urban development) between 1960 and 1975 was massive, being to a large extent responsible for Korea's present indebtedness of close to $30 billion. However, the productivity-producing impact of such infrastructure spending was such that between 1970 and 1982, Korea's debt service as a percentage of exports of goods and services *dropped* from 19.4% to 13.1%. In comparison, Thailand's total public external debt in 1982 was only $6 billion, but debt service as a percentage of exports *increased* from 3.4% in 1970 to 8.4% in 1982. Therein lies the obvious lesson that it is not the total amount of money you borrow that counts, but rather what you do with it. And there is a second point as well: Thailand, even under conservative estimates for its future export potential, is in the position to incur the additional indebtedness implied by the Kra Canal project if that project can be demonstrated to have the potential of reversing the present unfavorable trend in the country's debt-service ratio.
- We demonstrate below that canal passage revenues alone will, in a reasonable period of time, given the size of

the project, offset construction and related financing costs. Any revenue flow to the Thai government from associated port and industrial development would be a net benefit. The sum total of such benefit is difficult to estimate but would almost certainly amount to several billions of dollars per annum within less than five years of project completion.

- While under construction, one conservative estimate is that the canal project would create between 3 and 5 million new and relatively high-skill jobs *directly* and up to 8 million new jobs proliferating through various branches of industry.
- The type of new jobs and industries created and stimulated by canal construction are precisely of the right kind to repair the above-analyzed structural deficiencies of the Thai economy. Stimulation will be primarily in the heavy-industry and machinery production sectors. The energy requirements of the canal zone will also at long last get the nuclear-energy industry in Thailand on its feet. Nuclear energy is certainly the most plausible answer to meeting the energy requirements in the canal zone and the southern region of Thailand in general.

The Thai economy: an historical insight

The Fusion Energy Foundation chose to analyze the Thai economy in comparison to the Korean for two reasons. First, these are Asian countries of roughly the same dimension, and at their take-off point for economic development in the late 1950s they exhibited broadly similar economic characteristics, though Thailand was more agriculturally oriented. Second, while both countries showed strong economic growth as measured in GNP terms throughout the 1960s and '70s, Korea succeeded in transforming its economy to a point where it is now on the verge of becoming a modern industrialized nation (the first one to do so since Japan), whereas Thailand did not.

To a historical observer looking not only at relatively short-term developments, this must come as something of a surprise. Thailand has had the advantage—based largely on the enlightened and courageous political leadership of Kings Rama IV and Rama V during the 19th century—to be one of only two nations outside Europe (the other being Japan) never to have been subjected to debilitating colonial rule. That condition was attained and secured precisely because Kings Mongkut and Chulalongkorn in the critical 1850-1910 period realized—as did the leaders of the Meiji Restoration in Japan—that only aggressive modernization would allow the country to build its strength and preserve its independence. Why then did Thailand in the post-World War II period fail to turn those nation-building impulses to its advantage and build a modern industri

Many external reasons for this could be cited, first and foremost a wholly unimaginative and later disastrous U.S. Pacific and Southeast Asia policy. Still, Japan and Korea succeeded where Thailand did not, and external factors alone do not explain that lack of success. We can identify three principal culprits, who misguided Thailand's economic development at critical points: 1) the International Bank for Reconstruction and Development (World Bank); 2) significant factions of the economics faculty of Thammasat University; 3) Dr. Puey Ungphakorn and his creation, the National Economic Development Board (NE[S]DB). To quote from a laudatory collection of articles by and about Puey, *A Siamese For All Seasons*:

> In 1957 the World Bank, at his [Puey's] instigation, was asked to send a study team to Thailand to prepare a general development program. Its recommendations resulted in creation by the government in 1959 of the National Economic Development Board (NEDB) as the agency responsible for drafting the First Six-Year Plan (1961-66).

Puey, a London School of Economics product, became a member of the Executive Committee of the NEDB, Governor of the Bank of Thailand, and Dean of the Faculty of Economics, Thammasat University. He was largely responsible for the drafting and execution of the First Six-Year Plan, based on World Bank recommendations. And he found (or helped create?) the political circumstances for

Thailand does not have to stick with the IMF's anti-industrial program. Shown is the July-August 1984 cover story of the magazine of the Fusion Energy Foundation.

- The canal zone with its port and industrial facilities will become one of the badly needed alternative development centers to the Bangkok region. Comparison figures from the Europort development of Rotterdam in the Netherlands, from the expansion of the ports of Yokohama, Kobe, and Singapore demonstrate that sizeable percentages of a country's total labor force will be attracted to port and industrial development associated with it.
- It would be most desirable to locate in the canal zone certain high-technology industries not presently installed in concentrated form anywhere in the world. We reference here Dr. Willard F. Libby's concept of a nuclear industrial zone ("Thailand's Kra Canal: Site for the World's First Nuclear Industrial Zone," *Orbis*, Spring 1975). Such a development should provide the necessary and desirable impetus for scientific manpower development in Thailand that is presently sorely lacking.

We conclude with a plea for no lawyers and social scientists in the canal zone (no anthropologists in particular!).

the plan's successful implementation. As the World Bank's report (*A Public Development Program for Thailand*, Baltimore, 1959) proudly proclaims in its preface:

> The last members of the Mission left Thailand early in July 1958. Since that date much has happened in Thailand of relevance to the problems discussed in the Mission's report—especially after October 1958 when the Revolutionary Party under Field Marshal Sarit Thanarat assumed governing responsibilities. *Indeed, in some ways the Governent appears to have taken action on the lines recommended by the Mission* [emphasis added].

So, what were their recommendations? We single out one for special attention:

> There is, clearly, little care for a "forced draft" program of industrialization based on Government investment and operations in industry. . . .
>
> This may mean that for some time to come ambitious schemes for starting iron and steel mills, fertilizer plants and other heavy industries will have to be shelved.

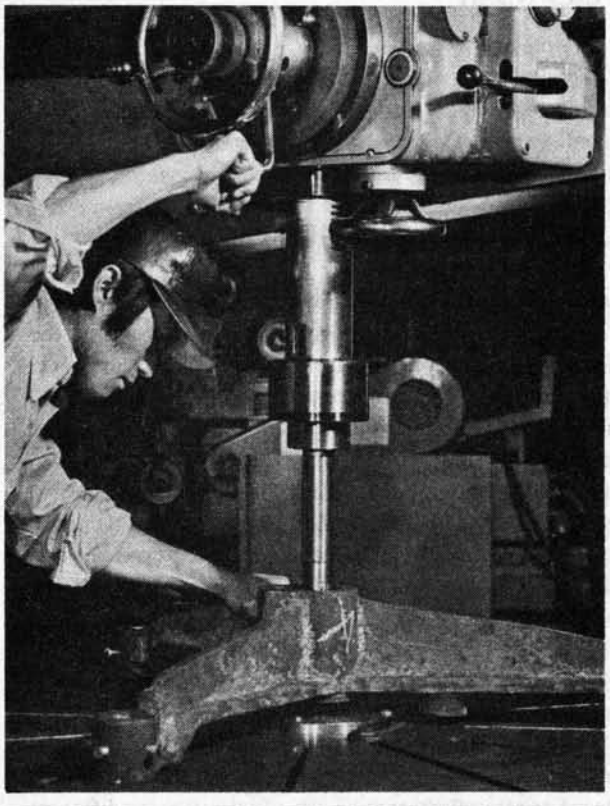
The financial details of the World Bank Mission's (and First Six-Year Plan's) "Proposed Expenditures on Public Development" further elaborate this policy. Under the rubric of Capital Expenditure for Industry, we find the following proposed time sequence of expenditures (in millions of baht):

1959	1960	1961	1962	1963
100	30	40	50	60

The government of Korea adopted exactly the opposite of the Puey/World Bank policy. Unfortunately, Puey's decisive influence over Thai Government economic policy was permitted to continue until Oct. 6, 1976, when he was finally forced into (well-deserved) exile in his favorite nation, Great Britain.

Here was a typical British economist who misguided the fate of the Thai nation. Had he lived in the 19th century and had Kings Mongkat and Chulalongkorn been foolish enough to give him free reign, Dr. Puey would have become the principal administrator of the British Colony of Siam.

It is not known to this writer what role if any Puey played in the 1973 "student uprising" which toppled the Thanom Kittikachorn government. But the Thanom government had agreed in principle that the Kra Canal should be built, and preliminary studies had been completed. Puey and the majority of the NESDB were well known for their opposition to the project.



Korea, which rejected the policies of the IMF and World Bank, now has a skilled labor force and 23 times the number of scientists and engineers that Thailand does.