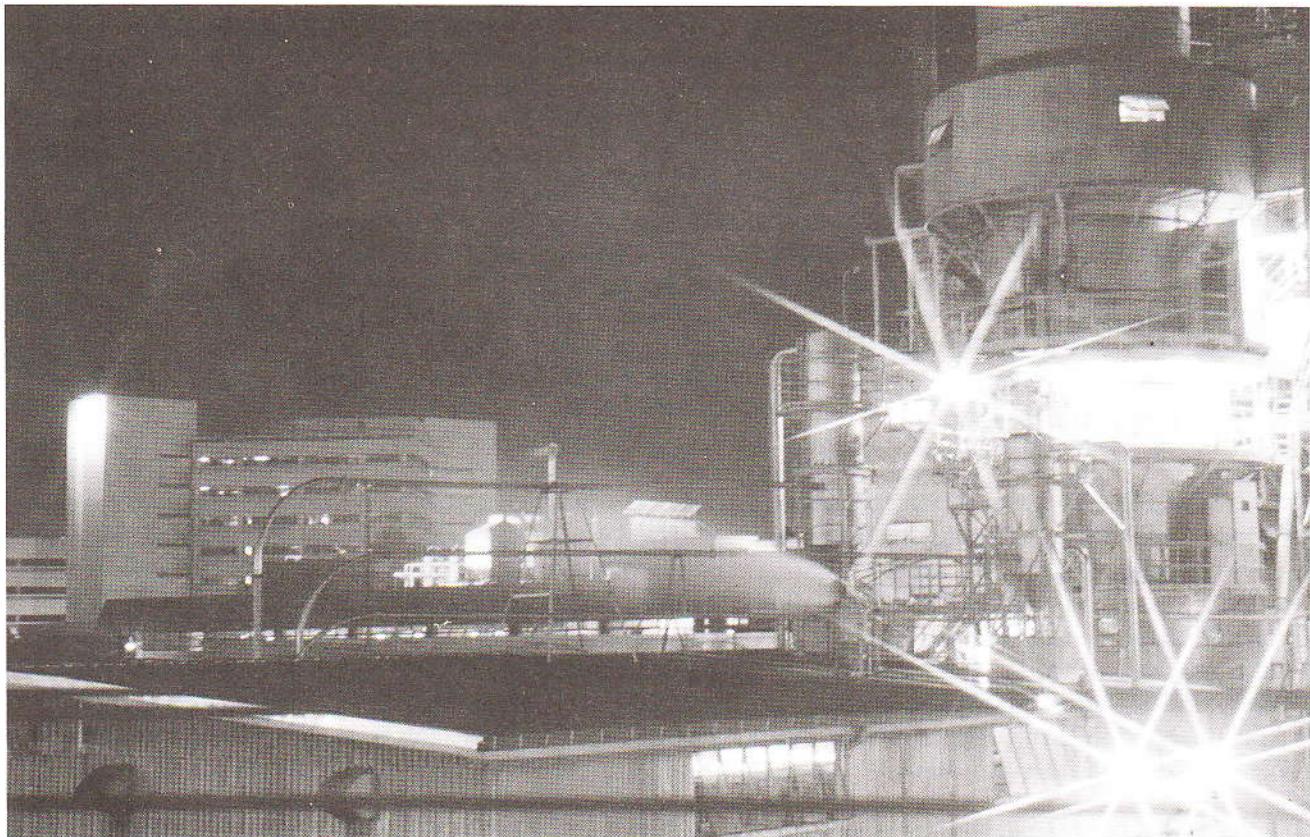


TDRI

*Quarterly
Review*

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Photo on front cover: A multinational detergent factory in Bangkok. Photograph by Khun Kitti Jaengwattana.

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Oil Pricing: Should There Be a New Direction?

Tienchai Chongpeerapien

One of the critical issues facing General Chatichai Choonhavan's Government is the Oil Price Stabilizing Fund ("the Oil Fund") reserve that is being rapidly depleted and which will soon run out. This could mean that the government might have to increase the retail price of domestic oil. However, the government will probably consider any move to adjust the oil price carefully as, historically, the public's reaction against oil price increases is very strong.

In Thailand, the government strictly controls oil prices at every oil transaction stage: (1) weekly, the government announces the ex-refinery and imported oil product prices; and (2) the government also determines taxes, the Oil Fund levy, and oil company marketing margins. The sum of the supply price, taxes, the Oil Fund levy, and the margin makes up the controlled ex-Bangkok retail price. Then, a (controlled) transportation allowance is added to the Bangkok price to obtain the upcountry retail oil price.

Since the controlled retail price, taxes, and the marketing margin are infrequently changed, the Oil Fund levy acts as a balancing factor, absorbing the impact of weekly supply-price changes, and according to the existing oil-pricing structure, a "neutral" stage is reached when the average netback price of imported crude is about \$18 per barrel. At this price level, there would be no movement in the Oil Fund reserve because the amount of the Oil Fund levied on certain products (like gasoline) is exactly matched by the subsidy (or negative levy) given to some oil products (like diesel and cooking-LPG). However, if the average (CIF) price of imported crude exceeds \$18 per barrel, which is currently the case, the amount of subsidy exceeds the levy, draining the Oil Fund Reserve.

As of the end of October, 1989, the monthly Oil Fund levy (imposed on gasoline, automotive-LPG, and bitumen) was 138 million baht, while the subsidized amount (given to diesel, kerosene, cooking-LPG, and fuel oil) was 614 million baht. This resulted in a net monthly Oil Fund Reserve outflow of 476 million baht, and the amount left at the end of October was estimated at approximately 800 million baht. Thus, at the current outflow rate, the Reserve will run out in December 1989.

What has the Government done about oil pricing? When General Chatichai's Government took office in August 1988, the world energy situation was favorable; the world oil price had been gradually falling from \$17-18 per barrel (in late 1987) toward a \$10 per barrel level (in October 1988). As a result, the Oil Fund inflow over that period was relatively healthy, as most oil products did not require subsidization in order to maintain existing (1987) levels. In fact, the net inflow to the Oil Fund was 586 million baht a month in October 1988, and the total Reserve was about 5 billion baht. So, the Chatichai Government decided to pass the "benefits" on to consumers in November 1988 with a general oil-price reduction.

However, as it turned out, the world oil price began to strengthen in December, as the OPEC countries agreed on production quotas. By March 1989, the price went back to its previous \$16-17 per barrel. As a result, of course, several local oil products required subsidization in order to maintain their prices at October 1988 levels. Then the Oil Fund registered a net monthly outflow of 0.5 and 1.1 billion baht in April and June, respectively. At this outflow rate, the June Oil Fund reserve (of 3.7 billion baht) would be depleted in approximately four months.

Thus, it came as no surprise in July that the government policy was to maintain the domestic oil price level. To slow down the Oil Fund outflow, the government reduced the excise tax level by 3 to 10 percent. This measure was achieved easily because the two items are adjustable components in the retail oil price. In other words, the government decided to subsidize the oil price from both its General Revenue Fund and from the Oil Fund. The tax reduction cost the government 200 million baht a month in lost revenue.

Further, the July tax cut was clearly insufficient to slow down the drain on the Oil Fund. As it turned out, the huge Oil Fund outflow was not only a result of the stronger world oil price, but also a function of the extraordinarily high growth in domestic oil consumption, which increased 18 percent during the first half of 1989. And this growth in consumption was partly a product of

* Taxes and the Oil Fund are governed by two different Acts. While taxes go to the General Revenue Fund, the Oil Fund levy goes to an Oil Fund Reserve to be used strictly to subsidize the oil price. Thus, it is common in Thailand for an oil product to be taxed on the one hand while being simultaneously subsidized on the other.

the government policy to maintain the domestic oil price in the face of rising world price levels.

Pressed by the huge Oil Fund outflow, the government made a second-time excise tax cut by 12-13 percent in September. And this resulted in an additional government revenue loss of 440 million baht per month. However, despite the two tax cuts, the Oil Fund continues to drain quickly and will probably be depleted by year-end. Then what will the government do?

Several previous governments had faced the same situation and had adopted various measures to prolong price increases or to minimize the impact of an oil price adjustment on consumers. Table 1 highlights some of the measures adopted by governments since the Second Oil Crisis. General Kriangsak Chomnan's Government first allowed gasoline consumers to shoulder the price increase when it raised the oil price in 1978. Due to continuing world oil price rises, the government subsequently raised domestic oil prices across the board. Since the Oil Fund reserve at that time was not firmly established and since the government showed a budgetary deficit throughout this period, the Kriangsak Government raised the price five times – each time including a tax increase.

In early 1980, shortly after the last oil price adjustment, the Kriangsak (4) Government was pressured to resign and was replaced by General Prem Tinsulanonda's Government. To combat the continuing world oil price hike, the Prem Government adopted two oil pricing measures. First, the government levied a higher price increase on gasoline and automotive-LPG than on diesel, kerosene, fuel oil and cooking-LPG. Price gaps between gasoline, diesel and kerosene began to widen and by 1982, the price of premium gasoline was 82 and 120 per cent higher than for diesel and kerosene, respectively. Prices were also differentiated between LPG for cooking and non-cooking uses. Second, the government used the Oil Fund Reserve – the proceeds of which came from gasoline levies – to partially subsidize the price of diesel, kerosene, fuel oil and cooking-LPG. However, the subsidized amount from the Oil Fund was much greater than the levy collected, and the Reserve quickly ran out in late 1980. Nonetheless, the government continued to subsidize oil prices by allowing the Reserve deficit to be as high as 4 billion baht by the end of 1981. Much of the deficit consisted of money the Government owed the oil companies through withholding their subsidy payment. The rest of the deficit was financed by borrowing from government banks.

The early Prem Government's oil pricing policy later led to severe consumption distortion and oil product adulteration. When the world oil price began to soften in 1983, the later Prem Government implemented policy measures that gradually reduced the distortion. Taxes were imposed on fuel oil and LPG, and the price gap between substitute fuels – like gasoline and diesel – was narrowed. These measures continued to be

carried out by the Chatichai Government after it took office in August, 1988.

By most accounts, the oil pricing situation facing the current Chatichai Government is relatively "mild" compared to the situation its predecessors had encountered. Although there is an impending need for the Chatichai Government to act on the oil price, the circumstances surrounding the oil situation now are significantly different than those during the previous oil crises. Following is a summary of the differing circumstances:

(1) The current world oil price situation is much less volatile than it was during the last oil crisis. Oil price increases are now relatively modest, and there have been periods in recent months where the prices declined. More importantly, however, predictions are that the world oil price will grow steadily at a moderate rate in the short- to medium-term, and the supply is expected to be readily available. On the other hand, the oil price outlook during the Kriangsak and the early Prem Governments was very poor, and the availability of the oil supply was highly uncertain.

(2) The country's economic performance during the Chatichai Government is much stronger than it was during the economic recession of the Second Oil Crisis. The average income of consumers has significantly increased since that time.

(3) The current 5 to 6 percent inflation rate is relatively modest compared to the 13 to 19 percent rate experienced during the late Kriangsak and the early Prem Governments. Furthermore, the current inflationary pressure is caused by excessive spending in the economy, which has been booming.

(4) The Chatichai Government is experiencing a 60-billion-baht government budgetary surplus, whereas the Kriangsak and early Prem Governments had a deficit ranging from 21 to 25 billion baht throughout the crisis period.

(5) The Chatichai Government is not pressed to subsidize economic fuels like fuel oil, since only 10 percent of total EGAT power generation has come from fuel oil. On the contrary, during the Second Oil Crisis, about 80 percent of energy generation came from fuel oil, and the government needed to subsidize fuel oil in order to prevent a price rise in electricity.

(6) Oil trading has become highly competitive in recent years, both in Bangkok and in the upcountry regions. Coupled with a significantly improved road network in rural areas, oil availability has become widespread. Most villages are now accessible by roads; as a result, most villages in the country are well supplied with oil from both formal and informal retail outlets. Improved oil transportation methods have led to a significant cost reduction of transportation in rural areas, resulting in increased price competitions in oil trading in most parts of the country.

Given these relatively favorable conditions, the Chatichai Government should be able to effectively

Table 1 HISTORICAL CONTROLLED RETAIL PRICE ADJUSTMENT (1979-Present)

Governments	Oil Price Adjustment	Date	Oil Fund Reserve (B million)	Annual Inflation Rate (%)	Oil Pricing Measures Attempted
Kriangsak (1)	Increase	March 9, 1978	NA	7.9	- Increase gasoline price only - Across-the-board oil price increase - Marketing margin cut - Tax level increase
Kriangsak (2)	Increase	Mar. 22, 1979	NA		- Fuel oil price increase only - Maintain tax level
Kriangsak (3)	Increase	July 4, 1979	NA	9.9	- Across-the-board oil price increase
Kriangsak (4)	Increase	Feb. 10, 1980	NA	19.7	- Tax level increase
Prem (1)	Decrease	Mar. 19, 1980	NA	19.7	- Cut diesel, Kero and LPG prices - Maintain gasoline, fuel oil prices - Abolish LPG taxes
Prem (2)	Increase	Jan. 21, 1981	-1600		- Increase gasoline and fuel oil price at a much faster rate than diesel, kero and LPG prices.
Prem (3)	Increase	Dec. 2, 1981	-4300	12.7	- Slightly increase tax level - Subsidize all oil products except gasoline - Allow huge oil fund reserve deficit
Prem (4)	Decrease	Mar. 29, 1983	-2400		- Narrow the price gap between gasoline and diesel
	Decrease	Dec. 1, 1983		3.75	- Tax fuel oil and LPG
	Decrease	Feb. 21, 1986	1460		- Abolish two-tier pricing for LPG
	Decrease	Apr. 29, 1986	1640		- Continue to subsidize cooking LPG
Prem (5)	Decrease	July 1, 1986	3887	1.85	
Chatichai	Decrease	Nov. 25, 1988	5182	3.85	- Continue improving oil pricing structure
Chatichai		1989	6440 (Feb.) 800 (Oct.)	5-6	- Cutting taxes to maintain domestic oil price level amidst rapidly depleting oil fund reserve

handle the current oil pricing problems. It is possible that the government will continue to maintain the existing price level, and the tool that it will probably first use is a further tax cut. Currently, the taxes are 3.33, 2.32 and 0.2 baht per litre for gasoline, diesel and fuel oil, respectively. A 0.3 baht per liter tax cut for gasoline and diesel would slow down the Oil Fund drain by 300 million baht a month, and a 0.5 baht per liter tax cut would stop the Oil Fund drain, given the October level world oil price. As mentioned earlier, cutting the tax is equivalent to subsidizing oil consumers by using the government's General Revenue Fund.

Second, the government might decide to hold the existing tax level and allow the Oil Fund Reserve to go into deficit. The deficit could be financed by the oil companies (by withholding their subsidy payment, as was partly done during the Prem Government), or it could also be financed by borrowing the money from government banks. Third, the government could cut the oil companies' marketing margin (when this was attempted by the Kriangsak (1) Government and which lasted about one week). Considering the substantial budgetary surplus, the government is not likely to pursue the

second and the third options. Fourth, the government could change the reference for the domestic ex-refining price from "averaged" Singapore posting to "minimum" Singapore posting, which could partially slow down the Oil Fund drain. (In effect, local refineries would have to share the oil pricing burden with the government). Finally, the government could take steps to "float" the oil price.

Although the first four measures are popular politically, they are economically undesirable. Keeping the oil price below its opportunity cost will only encourage the uneconomic utilization of oil – over 90 percent of which is imported. Furthermore, after decades of the government interference with the oil price, the public's perception is that the government determines the price. Thus, it has become the government's duty to maintain the oil price in order to protect the interest of oil consumers. The public perceives that it is the Thai government – not OPEC or any other oil producers – who would be held responsible for a domestic oil price increase. Subsidizing the oil price from tax revenues would only strengthen the public's perception.

(Continued on page 7)

The Current Electricity Demand in Thailand

Tienchai Chongpeerapien *

Since 1987 electricity demand in Thailand has grown at a high rate of over 13 percent annually. Peak demand, which was 4181 MW in 1986, grew 13.2 percent in 1987 and 15 percent in 1988. By 1989, the demand grew 14.4 percent, reaching its present level of 6250 MW. In other words, peak electricity demand in Thailand has been growing by an annual average amount of 684 MW since 1987. Compared to the existing EGAT's 7434 MW "available" generating capacity, the "reserved" capacity is currently about 16 percent. However, this "reserved" capacity will be continuously eroded in the coming months because there will be no significant generating capacity addition while demand will be continuously rising at a monthly average of about 65 MW. By April 1990, the reserved capacity will fall to a critically low level of less than 10 percent, because the new generating capacity will not come onstream until the latter part of the year. Meanwhile, the government should seriously consider energy conservation measures that might slow down electricity demand growth. Thus far, the government has formulated a Time of Day (TOD) electricity tariff, which is designed to encourage large industrial

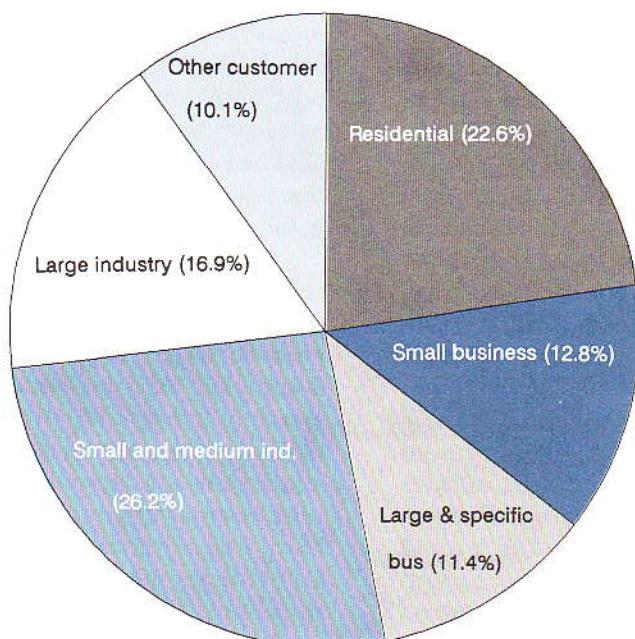
customers (requiring higher than 2000 KW of electricity) to switch their operation to non-peak hours.

Beginning on January 1, 1990, those consumers who operate during peak hours (18.30-21.30) will have their demand charge raised from the current flat rate of 170 baht/KW/month to 180 baht/KW/month. Those industrial consumers who operate during partial-peak hours (8.00-18.30) will be charged 90 baht/KW/month for the demand. There will be no demand charge for those who utilize electricity during the off-peak hours (21.30-8.00). The energy charge, however, will remain the same—at 1.22 baht/KWh for all of the large industrial customers.

According to some estimates, the TOD scheme will probably reduce peak demand by no more than 200 MW. However, the scheme is a step forward in the government's energy conservation effort. But, since industrial customers are only one part of the whole electricity consumption picture, there is still a great deal to be done in the area of electricity conservation.

Figure 1 highlights electricity consumption by various economic sectors in the Metropoliton Electricity

Figure 1 1989 electricity sales by types of customer



* Dr. Tienchai Chongpeerapien is coordinator of the 1989 Load Forecast Working Group.

Authority (MEA) and the Provincial Electricity Authority (PEA) areas. The largest sector includes small- and medium-sized industrial customers who accounted for 26.2 percent of the total sales in 1989. Furthermore, this sector also had the highest growth rate in 1989—19.3 percent, compared to the overall growth rate of 14.4 percent. The sector also has equal amount of electricity sales in the MEA and the PEA areas—about 3900 GWh in 1989.

The amount of electricity sales to these industries is expected to be large since there are as many as 10,487 of these small and medium industrial customers. Moreover, their number has been growing very rapidly in recent years.

The second largest sector is the residential sector, which consumed 6789 GWh of electricity and accounted for 22.6 percent of the total electricity sales in 1989. The sector's demand increased 10.4 percent in 1989, partly as a result of strong residential consumption in the PEA area, which grew 13.5 percent. Potentially, the residential demand in the PEA area could grow at a high rate well into the future, since the average consumption per household is now relatively low but could very well be increased in the future. Since there are nearly six million PEA customers, compared to nearly one million in the MEA area, a higher future income of the provincial population could have a strong impact on PEA residential electricity demand in the coming years.

The third largest sector is composed of large industrial consumers whose power requirement is 2000 KW or higher. This is the group of consumers targeted for the government's previously discussed TOD scheme. Currently, the sector consumes 16.9 percent of total electricity sales, which amounted to 5064 GWh in 1989. The sector also has the second highest growth rate of electricity consumption—17.0 percent this year.

Small business (mainly shop houses) and large business (those requiring a 30 KW or higher power demand)

accounted for 12.8 and 11.4 percent of the 1989 sales. Large and specific (BOI-promoted hotels) businesses had a strong growth rate of 16 percent in 1989, which came mainly as a result of the strong expansion of hotel and business office construction in both MEA and PEA areas.

In view of the strong growth of electricity demand in most economic sectors, the government should also aim to promote energy conservation in these sectors in addition to its industrial energy conservation effort. Currently, most large office buildings are designed to appeal to customers architecturally, with little or no consideration for electricity conservation. Furthermore, the significant growth in the use of air conditioners in households, particularly in the MEA area, is alarming. The MEA residential surveys show that the percentage of households owning air-conditioners rose from 12 percent in 1986 to 28 percent in 1987. Although the two surveys had significantly different sample sizes (900 for the former and 7,000 for the latter) the 1987 level of air conditioner saturation in households is astonishing. Furthermore, the surveys also show that the saturation level has been increasing for other types of high-energy-consumption appliances as well.

The government should take steps now to encourage electricity conservation in commercial buildings and households. Although Thailand is located in a tropical zone, weather insulation in buildings to conserve energy will be increasingly needed as the requirement for space cooling grows in the future. Granting tax incentives for building insulation and energy-saving equipment and establishing an energy efficiency rating for household appliances are some measures that the government should consider enacting. The government cannot afford to delay in taking appropriate measures to counteract the threat of rapidly increasing electricity demands.

Oil Pricing: Should There Be a New Direction?

(Continued from page 5)

It is more desirable that the government begins to take steps to allow some fluctuation in the domestic oil price. The proposed "semi-float" oil pricing scheme—in which the price is allowed to fluctuate within a narrow band—should be seriously considered. The scheme maintains the Oil Fund Reserve, but allows it to be "triggered in" only if the oil price fluctuates beyond the band. The domestic oil price would become more responsive to world price fluctuations, and oil would be utilized more efficiently. Furthermore, the small price movements would not be harmful to the inflation level. In fact, an oil price increase will probably help to alleviate inflationary pressure in the country which has been caused by excessive demand.

In summary, the current economic situation and the projected world oil price are conducive with the proposed oil pricing scheme. The government should take the first step toward the development of a more desirable oil pricing policy. The public's perception that the government should control the oil price through subsidization must be changed. It is the government's responsibility to allow some fluctuation in the price of domestic oil. Keeping the oil prices artificially low no longer serves the interests of the country's economy and in the long term, could harm the overall economic situation.

The Role of Demand in Provincial Industry*

Somluckrat W. Grandstaff

Background and Scope

Domestic demand was the most important source of growth for Thailand's industrial sector in recent years. However, more than 75 percent of all industrial production (measured in manufacturing value added) has taken place in the Bangkok Metropolitan Region (BMR). It is obvious that products from the BMR have met much of the provincial population's demand for domestic industrial products. Meanwhile, population pressure on agricultural land in the provinces has forced many to seek employment in cities—particularly in the BMR, which has not been able to generate enough employment for the influx of rural labor despite its scope and complexity of economic activities. There is increasing interest among international development organizations and among Thai government agencies to encourage industrial expansion into the provinces to provide more employment for the country's growing labor force. Most of the effort has been focused on providing supply incentives such as tax privileges to attract industrial enterprises to the provinces; however, the response has been disappointing. The principle of wealth maximization states that, if the effective demand for an investor's product is known to be inadequate or uncertain, no amount of incentive will be sufficient for an investor to establish the industry in the provinces.

This paper addresses the issue of provincial industrialization from the aspect of demand. Its purpose is to analyze the current and potential situation concerning effective demand for provincial industry products, then to identify ways to increase and sustain the existing demand, if it is currently limited. Four primary demand sources for provincial industry products were analyzed: (1) household consumers; (2) producers; (3) the domestic government; and (4) foreign markets. The analysis focused more strongly on the role of domestic demand rather than foreign demand, since the government's intended influence through manipulation of policy measures on domestic demand are expected to be more controllable and thus more effective in initiating the process of provincial industrialization.

Findings

Existing information and analysis in the present study concur that the demand for rural/provincial industry products faces limited markets and, in a few cases, product inferiority. The more serious issue, however, is market limitation due to low purchasing power caused by widespread poverty in provincial rural households. The expenditure elasticity analysis—based on data from the Household Socioeconomic Surveys—reveals that the values of expenditure elasticity of demand for industrial products are generally positive and are often greater than unity (Table 1). The change in the direction of expenditure elasticities of demand by twelve major categories of commodities purchased by provincial households is also consistent with studies carried out in other countries (Table 2).

Further review of studies on factor intensity of industrial products purchased by households of different income levels indicates that as household income begins to rise, the very poor households tend to buy more of the more labor intensive items, most of which are produced locally. The higher income households tend to increase their purchase of the more capital and foreign exchange intensive products as their income rises. Though small in size and number, provincial industries themselves have been the primary source, compared with industrial buyers from the GBR, who constitute an intermediate demand for provincial industry products. Government purchase and direct export of provincial products have been limited.

A survey run by the Rural Industries and Employment Project shows that about 50 percent of all provincial industries—primarily small operations with fewer than 20 employees and/or less than 3 million baht of invested capital—are currently selling 80-100 percent of their output within their own provinces. However, total sales by this group represent only a small portion of the overall markets. Moreover, when this group's product list is compared to the Ministry of Industry records on registered industries (arranged by products and by province) one discovers that many of the products with

* A summary of the report, "The Role of Demand in Provincial Industry" under the Rural Industries and Employment Project, Thailand Development Research Institute. See main report for full accreditation/references.

Table 1 Industrial products purchased by provincial households with positive value of expenditure elasticity of demand for all regions and all areas in the regions for the periods 1975 and 1986

	North				Northeast				Central				South			
	Region	Mun	SanD	Villag	Region	Mun	SanD	Villag	Region	Mun	SanD	Villag	Region	Mun	SanD	Villag
T-Shirt, Men	1.65	1.28	1.34	1.78	1.74	1.92	1.88	1.68	1.53	1.13	2.48	1.32	2.11	1.88	2.49	2.08
Sneakers, Men	1.47	1.24	1.37	1.51	1.36	1.42	2.40	1.22	1.34	2.13	1.51	1.20	1.40	1.35	1.75	1.34
Slippers, Leather	3.60	4.40	1.95	3.81	3.63	2.64	8.86	3.19	3.22	2.66	3.05	3.42	2.77	1.60	3.66	3.68
Slippers, Rubber	1.40	1.45	0.88	1.44	1.13	0.47	1.70	1.07	0.21	0.28	1.46	0.04	1.96	1.46	0.48	2.09
Slippers, Leather	1.48	1.82	1.31	1.42	1.34	0.18	1.72	1.69	1.84	1.27	1.99	1.95	1.55	0.77	1.95	1.80
Building Materials	4.08	0.70	2.08	4.83	5.97	5.88	6.57	5.71	5.01	6.73	9.05	4.61	3.27	3.13	3.44	3.18
Gas, Cooking	2.93	1.83	4.25	5.30	2.77	1.87	3.31	4.32	3.70	1.85	3.65	5.43	2.19	1.44	2.73	2.94
Matches, Candles	0.84	0.14	0.41	0.97	1.17	0.42	1.07	1.24	1.15	0.18	0.98	1.32	1.47	0.70	0.65	1.63
Towels, Wash Cloth	1.60	0.74	1.78	1.76	1.38	0.96	0.91	1.43	1.74	2.15	0.58	2.12	1.47	1.05	1.28	1.58
Detergent	1.16	0.96	1.03	1.21	1.14	0.64	0.78	1.29	1.35	1.00	1.42	1.41	1.19	1.11	1.02	1.25
Mop, Broom	1.52	0.93	1.58	1.59	1.28	0.94	0.87	1.50	0.88	0.94	0.78	0.93	0.62	0.09	0.65	0.84
Insecticide	1.64	1.90	1.39	1.50	0.74	2.38	0.02	0.31	1.34	1.31	1.13	1.40	2.41	2.68	2.49	2.18
Cleaning Supply	4.71	4.77	n.a.	3.67	1.37	3.81	n.a.	3.92	3.72	3.64	6.78	2.20	4.74	4.30	n.a.	n.a.
Hair Cut	1.10	0.81	1.07	1.16	1.03	0.78	0.99	1.10	1.33	1.31	1.12	1.40	0.61	0.96	0.90	0.48
Hair Perm	0.86	1.27	1.34	0.73	0.68	0.65	0.69	0.75	0.57	0.86	0.85	0.46	1.61	1.02	1.44	1.91
Hair Set	1.35	0.88	1.25	2.75	0.31	0.23	1.52	0.78	1.99	1.88	2.07	1.74	1.69	1.35	1.63	2.28
Bath Soap	0.99	0.73	0.94	1.05	1.29	0.56	1.09	1.41	1.07	0.91	1.04	1.12	1.03	0.87	0.67	1.12
Shampoo	1.76	1.61	2.00	1.77	2.23	1.35	2.09	2.38	2.08	1.91	2.03	2.15	2.09	1.83	2.01	2.16
Face Powder	1.35	1.43	1.79	1.28	1.35	0.73	1.01	1.50	1.35	1.69	1.30	1.32	1.32	1.57	1.24	1.26
Lipstick	1.99	2.75	3.56	1.34	0.60	0.68	0.17	0.91	2.05	2.33	0.16	2.33	1.25	2.10	0.89	0.56
Other Cosmetics	0.58	0.75	0.39	0.53	0.59	1.38	1.89	0.20	0.79	1.64	0.72	0.53	0.56	0.88	1.05	0.19
Brushes	0.74	0.93	0.75	0.70	0.60	1.13	0.45	0.54	0.73	0.83	1.67	0.43	0.69	0.51	0.23	1.29
Razor, Blade	1.32	1.19	1.21	1.38	1.54	1.24	0.54	1.82	1.05	0.61	2.04	0.83	0.56	0.65	0.16	0.62
Toilet Paper/Tissu	2.74	2.41	2.42	3.42	0.75	0.58	1.57	1.51	2.78	1.55	2.68	3.94	3.13	2.65	3.82	4.24
Sanitary Napkins	1.68	0.74	1.60	2.09	1.40	0.74	1.46	1.98	1.61	0.90	1.29	1.87	1.35	0.79	1.36	1.58
Tyres/Batteries	3.82	3.77	3.35	3.96	2.39	3.20	2.54	2.24	3.68	2.64	3.51	4.11	3.03	2.46	2.75	3.26
Children Toy	1.33	1.21	1.68	1.31	0.42	2.29	0.21	0.28	1.42	2.10	0.00	1.89	1.97	1.01	0.92	2.79
Record & Tapes	2.99	4.02	1.94	2.94	5.15	5.00	4.59	n.a.	3.96	2.73	2.72	6.97	2.37	1.24	n.a.	n.a.
Music Instrument	6.34	4.11	n.a.	7.72	11.84	11.15	11.42	n.a.	4.36	6.33	4.64	3.93	3.19	n.a.	2.00	1.93
Newspaper	1.04	0.76	0.32	1.89	0.28	0.59	0.49	0.30	1.58	1.00	1.10	2.25	1.18	1.26	0.91	1.36
Magazines	1.28	0.88	0.75	2.20	0.92	0.89	1.85	0.87	1.56	1.18	0.88	2.10	0.84	1.07	0.07	0.98
Books	1.87	1.67	2.28	1.95	1.68	0.27	2.05	4.35	2.88	2.13	3.82	2.81	1.32	1.28	2.00	1.25
Tuition	2.02	0.95	1.32	3.14	4.26	1.72	6.14	5.90	2.41	1.05	1.92	3.90	2.27	3.15	2.30	1.68
School Equipment	1.42	0.91	0.06	1.94	1.87	1.03	2.42	1.97	1.90	0.87	1.74	2.30	1.08	0.67	0.69	1.32
Text Book	0.92	0.54	0.62	1.06	1.54	0.85	0.83	1.90	1.32	0.47	1.23	1.58	1.22	0.63	1.05	1.43

Source: Derived from Socio-economic Survey Reports, NSO.

positive and/or larger than unity expenditure elasticities of demand are currently being produced in the BMR. This implies that if these products can be manufactured in the provinces at the same or lower costs, they would have little difficulty finding buyers.

While the average household income has increased in all areas in all regions over the last two decades, the differences in relative income have also increased (Table 3). When provincial households were disaggregated into those in cities, sanitary districts and villages, the last group—which is the largest in number—is shown to have the lowest average income (Table 3). In addition to differential natural resources endowments, analysis of secondary sources reveals that many policies—agricultural product pricing policies, certain aspects of fiscal policies, and even the formal educational systems—were found to have unfavorable effects on the income level of households in rural villages, whose primary occupation is agriculture. The low income of rural households thus limits their demand for both agricultural inputs and consumption goods. To turn the potential demand implied by the high values of expenditure elasticity of demand

and marginal budget shares (as detailed in the main report) into real purchasing power, the income of the majority poor households in the provinces must be increased.

A review of government purchases of supplies and equipment for use in its provincial offices, as well as related regulations, procedures, patterns and magnitude of the purchases, confirms the government's potential role in providing the initial boost in demand for provincial industry products by switching *some* of its purchases to provincial sources. It must be noted, however, that government purchases from provincial industries will not increase the aggregate demand. In fact, the overall efficiency may suffer unless household demand catches up to sustain the initial growth in the provincial industries. Also, the size and structure of the budget suggests that the process, if adopted, will be started on a small scale and increased incrementally. Moreover, effective implementation could be extremely difficult, given the expected resistance by personnel and other known bureaucratic constraints.

Foreign demand—especially for products by small industries in the provinces—is expected to play a lesser role in the beginning of the provincial industrialization process, but it will make a more significant contribution later, increasingly becoming the most important source of demand to sustain provincial industries.

Implications and Recommendations

Given its size, the potential demand that the provincial rural population can provide for provincial industry products is significant, even when the expenditure elasticity of an item is less than unity, but is positive. The extent to which a product has become “inferior” because of modern, mass-produced, cheaper substitutes reflects the development path and is an indicator of what not to invest in. The central issues are product development and information about new products and/or technology. If provincial industry products (with the exception of a few large-scale, multi-million-baht ventures with mostly imported technologies) are inferior to the same items produced in and imported from the BMR, then, measures to assist provincial manufacturers in technological improvement—ranging from providing accurate and timely information to product testing—should be the method to increase or at least maintain the demand for these industries. Otherwise, the increased income in rural households may simply lead to even more imports from the BMR.

Supply incentives are generally more appropriate when dealing with import substitutions or exports, whose demand is already confirmed and where the cost factors decide the ability to compete in the existing markets. However, in the initial stage of provincial industrialization, when the ability to influence effective demand is critical, domestic demand needs to be created and increased. Raising rural household real income takes longer time, but it is the only way to effectively increase

Table 2 Direction of change in expenditure elasticity, between the periods 1975/76-1981 and 1981-1986, by 12 major categories, by region (+ for increase, - for decrease)

	C	NE	N	S
Food and Beverages	-	-	-	-
Perpared Food	-	-	-	-
Alcoholic Beverages	+	-	-	-
Tobacco Products	-	-	-	-
Apparel	-	-	-	-
Housing	+	+	+	+
Medical Care	+	-	+	+
Personnal Care	+	+	+	+
Transport & Communication	+	+	+	+
Recreation & Reading	-	+	+	-
Education	+	+	+	+
Miscellaneous	+	-	+	-

Note: Central region excluding Bangkok
 Souce: Derived from Household Socio-economic survey Reports, NSO.

Table 3 Inter-regional and intra-regional income discrepancy indicators

	BKK	C	NE	N	S	WK
Household Income per Capita, by Region (Baht/year)						
1968/69	3,993	2,790	1,580	1,830	2,056	2,490
1975/76	7,246	5,195	3,030	3,686	4,048	4,206
1981	17,063	10,228	5,910	8,447	8,880	9,008
1986	21,382	11,446	6,257	9,557	10,448	10,272
Inter-regional Discrepancy Index of HH Income per Capita (BKK = 100)						
1968/69	100	70	40	46	51	62
1975/76	100	72	42	51	56	58
1981	100	60	35	50	52	53
1986	100	54	29	45	49	48
Intra-regional Disparity of HH Income per Capita (Municipal = 100)						
1975/76						
Municipal Area	100	100	100	100	100	100
Sanitary Distric	87	72	73	52	62	66
Village	64	56	39	36	45	42
1981						
Municipal Area	100	100	100	100	100	100
Sanitary Distric	81	68	52	50	55	54
Village	60	60	34	38	40	40
1986						
Municipal Area	100	100	100	100	100	n.a.
Sanitary Distric	86	69	51	47	57	n.a.
Village	71	48	25	37	38	n.a.

Source: Derived from Household Socio-economic Survey Reports, NSO.

and sustain demand for provincial industry products, especially since, “...in most agrarian low and middle income countries, increases in farmers’ incomes are the most likely cause of expanding markets for small-scale industries” (Elkan 1989).

Provincial industrialization and raising rural household income should not be exclusive of overall economic efficiency. Given the drastic economic differences between the BMR and the provinces, a reduction in income disparity becomes socially desirable for long-term stability. The real issue at hand is not whether the government should engage in improving income distribution at all, but rather one of choosing an optimal “efficiency-equity” trade-off.

Given the tendency for rural households to purchase more of labor intensive products as their income increases and of local buyers being the most important source for products of small- to medium-size provincial industries it is possible to achieve provincial industrialization without requiring a large capital investment per enterprise. These industries also tend to be labor intensive. Therefore, a promotion of small-scale industries in provincial areas will, “...maximize employment and by so doing maximize the dissemination of increased income, and the geographical dissemination of income-earning opportunities” (Elkan 1989), thereby reducing the need for labor to migrate into the BMR.

Taking into account both the currently attractive environment for foreign investment in Thailand and the need to increase employment in the provincial areas, the following policy measures are recommended:

(Continued on page 23)

World Economic Overview: An NIE Perspective

Narongchai Akrasanee

Speech presented at the "International Automatic Industry Forum," San Francisco, December 1 - 3, 1989.

The Current Economic Development of NIEs

Generally, NIEs (Newly Industrialized Economies) refer to the economies of the Republic of Korea, Taiwan, Hong Kong, and Singapore. But in this paper "NIEs" also include Thailand and Malaysia.

The year 1989 will see a general slowdown in the growth of NIEs, although growth rates will remain higher than in most other countries. At the same time, their inflation rates will tend to be higher than they were in 1988, and export and import growth will slow down.

The NIEs have enjoyed many years of high economic growth, with little disruption. In 1988 three countries achieved double-digit growth between 11 and 12 percent: the Republic of Korea, 12.2 percent; Singapore, 11.0 percent; and Thailand, 11.0 percent.

This strong NIE growth performance has been due to high export growth. Exports of three of the six NIEs grew more than 30 percent in 1988. Hong Kong, Singapore and Thailand, and Korea and Malaysia also experienced double-digit export growth that year. However, Taiwan's export growth registered only 5.7 percent due to the NT dollar's appreciation and the high wage costs that followed so many years of rapid export growth and economic expansion.

NIE reliance on exports as the engine of economic growth is well known. The ratios of (merchandise) exports to NIE GNPs ranged from about 30 percent for Thailand—to between 40 and 60 percent for the Republic of Korea, Taiwan, and Malaysia—to more than 100 percent for Singapore and Hong Kong. Thus, as export growth slowed down in 1989, economic growth rates suffered—in most cases depending on the extent of the slowdown in export growth. In fact, Korea's exports declined in 1989; its growth rate fell from 12.2 percent in 1988 to 7.2 percent in 1989. Hong Kong and Singapore registered a steep drop in their export growth rates and in their economic growth rates. Thailand and Malaysia had slightly lower export growth, and their 1989 economic growth rates were also slightly lower. Nevertheless, in 1989 Thailand was able to achieve double-digit growth again—which had not been expected—because export growth was still strong. Export growth in

1989 in Taiwan did not change very much, and neither did its economic growth rate.

This focus on NIE economic and export growth is not intended to show that the economic growth of NIEs depends solely on export growth. However, my intention is to point out that export growth is of vital importance to NIEs. And the world economic outlook of importance to the NIEs concerns how it will affect NIE exports.

World Economic Outlook and NIE Economic Performance

NIE export performance is strongly influenced by problems relating to global imbalances. Indeed, as long as these imbalances remain large, NIEs cannot expect to achieve the levels of export performance they experienced in the 1970s and 1980s. There are signs of improvement over the medium- and long-term, but in the next few years a series of adjustments are expected to take place, which should result in lower world export growth and hence lower NIE economic growth. Of the several imbalances in the world economy, those relevant to NIE export performance are:

- (1) macroeconomic savings and investment balances;
- (2) trade imbalances;
- (3) disparities in the level of economic development, including poverty and foreign debt problems; and
- (4) differences in economic doctrines.

The first two types (imbalance of savings investment, and trade) are interrelated, and the major players are the United States, Canada, Australia, and New Zealand on the deficit side, and Japan, West Germany, and most NIEs (particularly Taiwan and the Republic of Korea) on the surplus side. Most members of the European Community are also on the deficit side. To cite some examples, the United States has been running a current account deficit of more than \$100 billion a year for several years now. In contrast, Japan and West Germany have had a current account surplus of more than

\$100 billion each, also for several years in a row. And the current account surpluses as of Taiwan and the Republic of Korea in 1988 together totaled \$24.5 billion, about 20 percent of the United States' current account deficit for the same year.

The current account balance is the combined result of savings and investment behavior and the performance of trade in goods and services. Deficit countries, such as the United States and Canada, have had relatively low saving rates, with exports growing more slowly than imports for many years. By contrast, in Japan, West Germany, and NIEs, savings and export growth rates were much higher than investment and imports.

With the major exceptions of Japan and West Germany, most other OECD countries are deficit prone, and the deficit situations have compelled them to apply fiscal and monetary restraints in order to reduce the deficit. At the same time, they have tended to interfere in trade, applying both market-opening measures and retaliatory measures against the "unfair" trade practices of exporting countries. Their exchange rates have also been adjusted downward to encourage exports and discourage imports. The outcome of these measures has been a slowing down of world economic growth and the growth of world trade, both of which have had adverse effects on the export and economic growth performance of the NIEs.

As the deficit countries have had to restrain their growth and imports, the surplus countries of West Germany, Japan, and most of the NIEs have had to encourage domestic demand and to liberalize trade. Their exchange rates have also been adjusted upward. These measures have had surplus-reducing effects on the countries applying the measures. The measures also stimulate growth, offsetting the growth shortfall due to the slowdown of export growth.

Economic imbalances in the form of disparities in the level of economic development (manifested by debts and poverty in mainly Latin America and African countries) means that there are limited export opportunities for NIEs in these countries. At present, the Third World Debt is estimated at \$1.2 trillion. Furthermore, as the problems of debt and poverty in Latin America and Africa are the result of fundamental problems in the functioning of individual economic systems, there is very little that the world economic community can do to alleviate them. The debt and poverty problems and the efforts to solve these problems have acted as full factors on world economic growth and hence on world exports, including NIE exports.

The economic doctrines of different countries are another global economic issue which is a form of economic imbalance. Basically, countries can be

divided into two camps: market economies, and socialist economies. To date, the socialist countries have been virtually outside the world market, mainly because they lack convertible currencies. Although China has recently opened its economy to foreign trade, generally the socialist economic system has left a sizable hole in the market potential world trade and, hence, NIE exports up to now. Indeed, current developments in Eastern Europe and in the Soviet Union, which reflect more political liberalization, could result in a more liberal socialist economic regime. And although a more liberal economic regime will not produce trade opportunities overnight, it will certainly create long-run trade opportunities for the OECD countries and NIEs.

The global issues of interest to NIEs are those which affect trade opportunities. Macroeconomic and trade imbalances have slowed down their export growth. NIEs also are responsible for correcting the imbalances, mainly by means of trade liberalization and domestic demand expansion, both of which have been carried out—especially by the Republic of Korea and Taiwan. The effect of the adjustment process was slower NIE economic growth in 1989 compared to 1988. And the forecast for 1990 (because of the ongoing adjustment process) is for another year of slower growth rates by NIE standards, differing much from 1989. However, because domestic demand expansion is keeping up, growth rates will still be high by world standards.

For the period beyond 1990, NIEs are concerned about whether the adjustments to correct imbalances will be prolonged and whether they could produce more trade interference and hinder GATT efforts to liberalize trade. The moves by the European Community toward a Single Market by the end of 1992 and by the United States to enter into a number of Free Trade Agreements (FTAs)—such as those with Israel and Canada—are seen as measures by these countries to interfere with foreign trade. And this growing trade interference, in conjunction with prolonged debt and poverty problems, does not bode well for the export-oriented economies of the NIEs.

Conclusion

In conclusion, I would like to say that in the short run, as NIEs try to accommodate and to participate in the global macroeconomic and trade adjustments process, the effect will be their slower economic growth. Further, in the medium and long run, although NIEs are concerned about growing trade interference and prolonged debt and poverty problems, they are optimistic about export potential following the opening up of Socialist economies.

The 1989 TDRI Year-End Conference

Thailand in the International Economic Community

This year's Year-End Conference papers will examine prospects for the Thai economy in relation to changing economic policies and the world economy. The content has been divided into two main themes: the first projects Thailand's future role in the changing global economy; the second focuses on the management of Thailand's external sector in coping with the changing world economic environment. Conclusions and implications emanating from research will be drawn to form Thailand's external economic development policy toward the year 2010. The objectives are to maintain a competitive edge in trade in the various economic sectors, to attract foreign investment, and to manage the external sector in response to changing world trading systems. The policy areas considered are: the extent of trade liberalization in goods and services; agricultural and industrial strategies; technology and intellectual property right policies; taxation policy; investment policy; and various cooperative arrangements with trading partners.

Summary of Major Issues, Research Findings and Strategy Options

This summary report is a compilation of the 1989 TDRI Research Project, "Thailand in the International Economic Community." It summarizes major issues, research findings and strategy options as presented in individual reports.

In its introduction, the report says: "The 1980s will be recorded in Thai economic history as a decade of drastic economic change. ...As a consequence, the economy has become much more internationalized, with profound and wide-ranging effects on the economic activity and well-being of the Thai people."

Four major topic areas are discussed:

1. The Recent Development of the Thai Economy;
2. The Dynamics of the External Sector;
3. The Impact of the External Sector on the Thai Economy; and
4. Policy and Strategy Options for the External Sector.

The following is the executive summary of "Prospects and Perils in the Global Economy" and abstracts of the six other project papers to be presented at the Year-End Conference.

THAILAND: PROSPECTS AND PERILS IN THE GLOBAL ECONOMY

I. Thailand has an enviable long-run and recent economic record. It has had rapid growth, improvement in social indicators, and good macro management, with low inflation and external debt. The last five years have seen especially rapid growth in manufactured exports. Nevertheless, questions have arisen about the sustainability of future export-led growth. These questions are given added urgency by increasing income and regional inequality in Thailand, crowding and congestion in Bangkok, and rising protectionism abroad.

II.1 Why Have Thai Exports Grown So Quickly?

Thailand's export growth has been accelerating over the last 20 years in spite of a slowdown in growth rates of the rich nations. In general, the Thai export growth to any particular country is not plausibly correlated with its GDP growth.

There has been little change in the broad geographic distribution of Thai exports since 1980. About 60 percent of exports go to the OECD, 8 percent to 9 percent to Singapore, and the balance mostly to other LDCs. Geographic diversification cannot explain the recent rapid growth since 1983.

Changes in the real baht exchange rate explain only a minor portion of export growth. Even when the baht was becoming less competitive, exports grew over 8 percent per year, and rapid export growth has continued since 1987 when the baht stopped its real depreciation.

The principal explanation of recent Thai growth lies in the international economic restructuring caused by the success of the "Four Tigers" and Japan, the revaluation of the yen, and the rising labor costs in these countries—all of which have led to the rapid transfer of labor intensive industries to Thailand and the other ASEAN "junior NICs." Favorable economic policies, adequate infrastructure, and supplies of trainable and low-cost labor also have been important in attracting this investment. Failure to maintain these favorable conditions would lead to a sharp slowdown in this economic transformation.

II.2 Is This Growth Sustainable?

Declining labor force growth in the senior NICs and the rich nations in the 1990s, and the lack of a large or mobile workforce in agriculture, will speed up the spinning off of labor intensive industries to the junior NICs.

Fears of market saturation of LDC manufactured exports are unfounded for all LDCs as a group, and especially for Thailand alone. All LDC manufactured

exports are only 5 percent of rich nations manufactured production. Thailand accounts for only 2 percent of total LDC manufactured exports. The rapid growth of the senior NICs throughout the 1980s, with world recession, protectionism, and loss of GSP, suggests that their growth will not be seriously limited by demand if costs stay low.

Thailand will remain small relative to the senior NICs. Its *level* of 1988 manufactured exports was less than the *increase* in Korea's or Taiwan's exports in 1987. Its manufactured exports could grow at 15 percent per year for a decade and still be no larger than Korea's current levels. This smallness suggests that it can continue to find market niches for rapid export growth.

Thai exports are well diversified by product type. The largest item is tourism, with 16 percent of export earnings. The next top 20 products account for only 54 percent of total export earnings. Among these, only clothing and textiles are over 10 percent of exports. This diversity helps insure against external shocks.

Thailand has shifted its export product composition rapidly, from reliance on primary products (two-thirds just a decade ago to only one-third today) to manufactured exports, now over 60 percent of total exports. This is the same type of flexibility exhibited by Taiwan, and bodes well for future adjustment.

II.3 Specific Market Prospects

The USSR and Eastern Europe now account for about 0.5 percent of Thai exports. Both their total hard currency imports and imports from nonoil LDCs are small. These might grow if restructuring increases efficiency quickly; but declining oil exports, aging technologies in key export products, and limited borrowing capacity make significant medium-term gains unlikely. Priorities for imports do not favor light consumer goods, and India and Vietnam could be preferred suppliers.

East and Southeast Asia, excluding Japan, now takes a quarter of Thai exports; but this share has fallen slightly in the 1980s, despite rapid income growth in many of these nations. Most imports from Thailand are raw materials, and most of these nations are competitors in labor-intensive exports. The socialist nations of Southeast Asia—including Myanmar (Burma)—are likely to increase purchases and enter into investment, service, and entrepot relationships. But their initial share (one half of 1 percent) of Thai exports is low, and they will not soon be major customers.

The Middle East will remain a solid market, with slow to moderate growth. It now takes 6 percent of Thai exports. But the small populations and successful import substitution in agriculture will limit Thai export growth, even if oil prices allow increased imports. Thai worker immigration is one important link to this region that could increase.

Other LDC regions are relatively unimportant and unlikely to become major customers, except for sporadic purchases of food and raw materials.

Growth projections for the rich countries have not been very reliable, but now center in a range of 2 percent to 3 percent per year—the same values seen in the last fifteen years. Protectionism is rising in the United States and Europe but is subject to negotiation and various coping measures. Japan and some of the senior NICs should be liberalizing their import restrictions.

III. Major Perils in the World Economy

1. A major, prolonged *world-wide depression* would have severe implications for Thailand. The probability of this is small because: a) the US deficit is inherently manageable at a relatively low cost; b) the greater economic interdependence among nations supports the lessons learned from the 1930s about the high costs of trade wars; and c) better economic management and “safety net” measures make a 1930s-style collapse unlikely. A major, sustained inflation is also unlikely, but a repeat of the early 1980s is possible. However, this degree of world recession can be handled easily by Thailand, as it was by the senior NICs.
2. Rich country *protectionism* is a serious problem for LDCs, despite GATT-negotiated tariff cuts. Quotas and “voluntary” export restraints on labor-intensive LDC exports have slowed exports, and the benefits under the GSP are only a limited offset. Section 301 of the US Trade Law, which targets import restrictions of foreign nations, “Europe 1992” and the integration of Eastern Europe into the EC raise further concerns about export prospects. Lesser fears of a US-centered trade bloc also exist. These moves do pose a real challenge to Thailand’s export growth, but not a severe one if proper policies are adopted. First, the senior NICs have managed rapid export growth in this “hostile environment,” and Thailand could do the same. Second, several aspects of the MFA favor Thailand by restricting exports of competitors. Third, liberalization in Japan and the senior NICs will speed the shift of labor intensive manufacturing to nations like Thailand. Finally, further opening up of Thailand’s domestic markets will serve not only to speed up the process of export led growth, but will also, by improving Thailand’s image as a responsible member of the world community, enable it to negotiate important concessions from major trading partners.
3. There is concern about the volatility and long-term trends of primary *commodity prices*. For exports, the macroeconomic effects of short-term fluctuations are not large because of the declining importance of primary exports and production in the economy and because of diversification in the com-

modities exported, as well as low covariance of their prices. In the longer run, Thailand has either improved productivity and maintained profitable production of products with declining prices, or switched from these into more promising products. Neither short-term fluctuations (which can frequently be managed using futures markets), nor long-term trends should be a major obstacle to continued growth.

The outlook for oil prices is uncertain. While oil imports relative to total Thai exports have fallen (38 percent in 1982 vs. 9 percent in 1988), the risk exists of another large increase, especially since petroleum consumption is growing rapidly. Attempts to estimate future oil prices have not been successful, and there is a wide range of estimates for the year 2000. However, if prices did increase sharply, there very probably would be a later reversal; cycles of this sort have been observed for over a century. A doubling of oil price (assuming zero demand response to higher prices) would cost Thailand 2.6 percent of GDP. When Korea lost 6 percent of her GDP in the early 1980s, growth stopped for only one year before resuming its rapid growth. Since Thailand is less energy intensive and since world markets would respond more quickly, any future adjustments should be less painful. Taxation of petroleum use and increased use of other fuels or more efficient equipment could lower the growth of oil use in Thailand.

4. Another concern is that rapid *technological change*, for example, in the form of computer integrated manufacturing, will reduce demand for labor intensive exports. In such an event, there are likely to be several years to adjust, a variety of ways to upgrade productivity or change products, and opportunities for Thailand to adopt improved technology, if it invests in the skills and materials needed to stay abreast of these changes. The same adjustments will be needed simply to remain competitive with existing technologies. However, the lack of adequate secondary education—enrollment ratios more than 25 years behind Taiwan and well below Indonesia or the Philippines today—are a serious impediment to Thailand's ability to adjust to and take advantage of technical change.
5. The opposite concern is increased competition from countries with *lower labor costs* than Thailand. At one level, this concern is misplaced. The most successful exporters are still the senior NICs, with much higher labor costs than any of the junior NICs; Thailand has benefitted more from the recent export boom than lower-labor-cost nations. Evidently, the infrastructure, skills, and policy environment also matter, not just wage costs. In addition, the extent of LDC penetration of rich country markets is still low—even for garments and textiles, where all

LDC exports are worth less than 20 percent of rich country consumption. However, if Thailand fails to provide large numbers of skilled people, inputs at world prices, and adequate infrastructure, its costs will rise sharply. In this sense, the concern about low-cost competitors is realistic. Sustained export led growth will require continuing investment for Thailand to remain competitive.

6. Thailand has made extensive use of *foreign financing* for investment in excess of domestic savings. In the 1979-83 period, the current account deficit was 7 percent of GDP. This has dropped to only 2 percent (after deducting the positive errors and omissions) in the last five years, but is apt to be closer to 5 percent in 1989. Much of this inflow is for export-oriented private investment. This is likely to generate sufficient income to cover servicing costs as well as net foreign exchange. Thailand's low current debt-service ratio (under 15 percent), realistic exchange rate, high investment ratio (30 percent), and conservative fiscal and monetary policies suggest that it should be able to continue attracting capital on favorable terms without undue risk, at least as long as these policies continue.
7. In less aggregate terms, foreign investment is an important vehicle for technology and marketing skills. The large jump in BoI approvals—from \$1.3 billion in 1986 to nearly \$8 billion in 1988—has not yet shown up in investment startups, which have remained at about \$750 million in the last three years. However, this should soon increase sharply, but not so far as the value implied by approvals.
8. *Exchange rate volatility* is another concern to both private and public decision makers. Forecasters have not accurately predicted the magnitude, or even direction, of the swings of major currencies. Careful attention to the currency structure of the public debt is necessary, given that most export earnings are in dollars and much debt is in yen. Similarly, the baht should be managed so as to maintain Thai competitiveness, but not devalued so much as to cause uncertainty among savers. The increased riskiness of individual projects can best be handled by improving financial markets, so that the costs of spreading ownership are low. It appears that Thai investors have not been overly discouraged by recent currency fluctuations, suggesting that they have managed to reduce these risks to an acceptable level.
9. The growth of *environmental issues*, domestically and worldwide, is potentially important for Thai growth. The worries of the rich nations regarding ozone depletion or carbon dioxide should not be of great concern to Thailand unless compensation is offered, since the rich countries are the major sources of these problems. However, domestic issues of erosion, deforestation, and fouling of fishing

grounds are serious. This sort of resource depletion, extending now even into neighboring countries, is likely to slow Thai growth in the medium run. Similarly, the rise of pollution and congestion in Bangkok is a growing threat to both public health and economic growth. Attention to these problems is necessary for Thailand's growth to continue.

IV. Conclusions

The attractiveness of some variant of Thailand's current growth strategy is underlined by considering the unsatisfactory alternatives. An attempt to return to agriculturally-led growth is not feasible. With only 17 percent of GDP, and possible growth of only 3 percent or so, the sector would contribute only about one-half of 1 percent to total GDP growth. It also faces unfavorable demand elasticities at home and abroad. It does not appear that this sector can be an engine of growth or a provider of the numbers and types of jobs now wanted.

The costs of a return to greater reliance on import substituting growth also would be high. Such policies actually increase vulnerability to world economic shocks, even though they reduce the trade ratio. The overvalued exchange rates, inefficient industries, low employment, high capital intensities, and concentration of imports in capital and intermediate goods all lead to poorer performance than export-oriented nations over a wide variety of international conditions.

The overall conclusion is that the international environment will be bumpy and challenging, but not fundamentally hostile to export-led growth, if Thai economic management is alert, skillful, and responsive. The major risk is not insurmountable external shocks, but rather slow, weak, or counterproductive government responses to any that do arise. Even without shocks, inadequate public investment—especially in human capital—or excessive domestic protectionism could slow future progress. These are the major dangers to continued rapid development.

THE MANAGEMENT SYSTEMS OF THE WORLD ECONOMY AND THE RESPONSE OF THAILAND'S EXTERNAL SECTOR

This report deals with Thailand's international economic relations with different countries and groups. The emphasis is on Thailand's external sector, which has continued to increase in its importance to Thailand's economy as a whole. The report aims at elucidating the management systems that are most characteristic of change of the world economic system—unilateral, bilateral, multilateral, regional, and sub-regional systems—and their impact on Thailand's external sector.

The research findings indicate that the world trading system is moving toward a more managed trade sys-

tem and away from a free trade system. The 1988 quantitative assessment indicates that managed trade affected about one-third of Thailand's exports to its three major trading partners. Managed trade accounts for 18 percent of Thailand's overall exports. Therefore, the future performance of Thai exports depends strongly on how Thailand adjusts to the managed trade system.

THAI AGRICULTURE IN THE WORLD ECONOMY

World agricultural trade over the next decade will continue to be depressed by problems of oversupply, and it is unlikely that the present GATT round of trade negotiations will be successful in making a sizable dent in the oversupply. Although prices are not expected to be as low as they were in 1987, they are expected to be only slightly above them on average.

These developments will not affect the trade orientation of Thai agriculture. The crop subsector is expected to continue to produce a net exportable surplus in the aggregate over and above domestic demand. A study of comparative advantage in the fisheries subsector indicates that Thailand enjoys favorable production conditions for much of that sector (except fishmeal) so that it will probably continue to generate surpluses in this area as well. Our own studies also show that within the livestock sector, the Thai poultry industry enjoys substantial comparative advantage. The swine industry does as well, although the margin of advantage is not as decisive. Thailand, however, has no comparative advantage in the dairy industry, which can only be sustained by protection.

Despite some exceptions, Thai agriculture is therefore expected to be producing an exportable surplus, despite the expected fall in prices (relative to levels ruling in 1989). Therein lies some of the problem, for it implies that without an increase in productivity, incomes cannot be expected to rise. Policies designed to shore up their incomes would imply a net outlay from the government, which is unlikely, given past behavior patterns.

Increases in productivity can be generated only by putting more effort into research on new technology. Unfortunately, such research tends to help farmers only in areas that are already productive; therefore, it would enhance inequalities among different regions in the country.

TRADE IN MANUFACTURED GOODS AND MINERAL PRODUCTS

This paper describes the development of the manufacturing and mineral sectors in terms of production, exports, and imports in the 1980s, and makes projections for the long-term future. It also examines changes in trade and industrialization policies during the

period and discusses their impact on exports, employment and industrial location dispersion. Finally, an assessment of export performance using the constant-market-share analysis is done, in order to explain how exports were affected by world demand growth and various domestic policies. From the results of the study, implications are drawn about trade and industrialization policies, particularly for international trade competitiveness enhancement.

TRADE IN SERVICES

The primary objective of the trade in services project is to analyze the external sector's role in Thailand's economic development. Specific objectives are to keep Thailand competitive in trade and in being an attractive place for foreign investment, and to manage the external sector so that it will contribute the most to Thailand's development. To achieve these objectives, the study begins by examining the direction and identifying factors that determine the pattern of trade in services, as well as the regulations and barriers affecting them. Merchandise trade theories have been applied to trade in services in order to determine the pattern of trade and to recommend policies to increase their competitiveness in international markets. The study examines the following service activities: Tourism, Transportation, Banking, Labor Services, Insurance and Telecommunications.

DIRECT FOREIGN INVESTMENT AND CAPITAL FLOW

There have been major changes in the role and the pattern of net foreign capital flows into Thailand during the 1980s. The net flow share in net capital formation substantially declined. The significance of foreign loans – especially long-term loans – has declined throughout the decade, having been replaced by direct and portfolio investment. Within each group of capital formation, foreign involvement increased in the case of direct and portfolio investment, but declined in the case of loans. Foreign direct investment (FDI) in recent years comes mainly from Japan. The next largest sources of FDI were the United States, Taiwan and Hong Kong. The manufacturing sector attracted the largest share of FDI in recent years – especially in industries such as electrical appliances, chemicals, metal-based and non-metallic products and textiles. Among non-manufacturing sectors, construction, trade, services and financial institutions attracted a sizable share of FDI in recent years. About 60 percent of promoted FDI projects approved during 1986-1988 were made in accordance with the product life cycle hypothesis – i.e., to maintain or regain cost advantage. Among the other 40 percent, most were invested to make use of domestic natural resources and

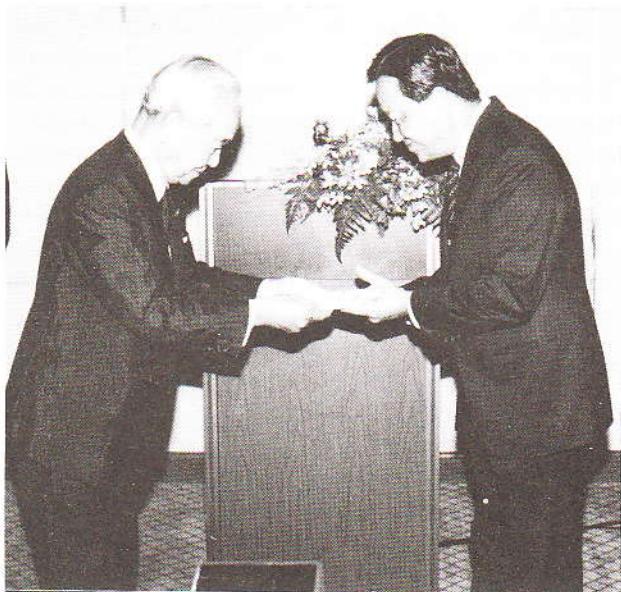
to gain the advantage of domestic demand. Portfolio investment has been important in recent years and came from three major sources – Great Britain, the United States, and recently, Japan. Sectors that found a sizable share of foreign funds were baking, finance and securities, commerce, construction materials and textiles/clothing. The next inflow of foreign portfolio investment was influenced mostly by Thailand's economic prospects and market investment returns. The pattern of foreign loans has changed in concentration, from the public sector to the private sector. There has been little change in loan sources for public foreign borrowings, except for an increase in bilateral sources, mainly from Japan. The net private loan inflows in recent years were found to be influenced by current account deficits and exchange rate risk.

The increasing participation of foreigners in securities transactions is found to contribute positively to the Thai economy. It improves efficiency of capital allocation by reducing the cost of funds and increasing the return on investment. The impact of FDI in recent years is more far reaching. A dramatic shift of FDI from import-substitution industries to export-oriented industries will contribute to the country's exports and will have a significant impact on production efficiency, due to more technology transfer and training. Since most of these promoted FDI projects involve relatively labor-intensive activities, they will greatly contribute to the country's employment. Aside from this contribution, however, some local entrepreneurs are complaining that FDI caused a considerable increase in land prices and shortages of skilled labor in fields such as engineering and science. FDI also had a crowding-out effect on local producers in domestic markets and local sources of materials.

THE IMPACT OF THE EXTERNAL SECTOR ON THE THAI ECONOMY AND ITS DETERMINANTS

This study assesses the impact of Thailand's external sector on its domestic performance. A modified LINK model consisting of 157 behavioral equations and identities was used to analyze the impact of export expansion on structural growth change, import dependence, and external and internal stability. At the same time, CGE was utilized to assess the impact of export growth on income distribution. The study confirmed a favorable effect of export expansion on growth, financial stability and structural change. It has also been found in the study that a unit value of increased export leads to the highest amount of induced imports compared to other final demand components. Finally, the result from CGE suggests that although exports have increased the income of all classes, they have benefited the higher income classes more than the lower income classes. Thus exports are not favorable in terms of income distribution.

A Generous Contribution by the Mitsui Group



On October 2, 1989, Mr. Goro Koyama, Honorary Chairman of the Mitsui Bank, made a presentation of \$US one million as a contribution to the TDRI endowment fund. This generous gift was made jointly by eight companies in the Mitsui Group, namely:

- Mitsui & Co., Ltd.
- Toyota Motor Corp.
- Toshiba Corp.
- Mitsui Real Estate Development Co., Ltd.
- Taisho Marine and Fire Insurance Co., Ltd.
- Toray Industries, Inc.
- Luckytex (Thailand) Ltd.
- Toray Nylon Thai Co., Ltd.
- Mitsui O.S.K. Lines, Ltd.
- The Mitsui Bank, Ltd.

Following is the speech delivered by Mr. Koyama at the presentation ceremony:

"It is a great honor for me to be able to formally present a donation of \$US one million to the Thailand Development Research Institute from eight member companies of the Mitsui Group.

Ever since becoming a trustee of this fine institute, at the gracious invitation of Dr. Snoh and the strong urging of Japan's Foreign Ministry, I have been deeply impressed by the vital role played by this, the largest think tank in Thailand. Whether undertaking research for socioeconomic development or actively providing the government with advice on matters of policy, it is no exaggeration to say that this Institute has made and continues to make significant contributions to Thailand's recent spectacular economic development.

Accordingly, when I was approached by Dr. Phaichitr with a request to lend my efforts to raising funds

for TDRI in Japan, I resolved to pursue private support in a new form, which would also further the long-standing bonds of friendship between our two nations. The result was that eight companies of the Mitsui Group, each of which has a long history of business relations with Thailand, agreed to demonstrate their sincere commitment to Thailand's future by generously contributing funds, which, when pooled together, equaled my target figure of \$US one million.

In presenting this donation on behalf of the concerned Mitsui Group companies, therefore, I would like to say that it is our sincere hope that these funds will not only help to promote the long-term survival of the Institute as it pursues its worthwhile and noble objectives but also further the development and prosperity of Thailand, and as a consequence the development of business throughout the Asian Region.

Thank you."

In response, Dr. Phaichitr said, in part:

"An independent research organization is never truly independent unless and until it has the capacity to carry out non-sponsored research projects as a significant portion of its total research activities. Otherwise, it will remain too dependent on the views and preferences of outside donors and sponsors. This gift from the Mitsui Group will, therefore, not only help to ensure the long-run financial viability of TDRI, but also to enhance its stature as a non-profit and independent policy research institute. It is, therefore, doubly appreciated.

It is also most gratifying that this gift comes from Japan, because the commitment reflects the new spirit of Asian cooperation, a movement in which Japan, in its preeminent economic position, is taking the initiative...

I should like to take this opportunity of expressing my deepest appreciation for the efforts of Mr. Goro Koyama, the Honorary Chairman of the Mitsui Bank, in helping to make this gift possible.

As a member of the TDRI Council of Trustees since the inception of the Institute, Mr. Koyama has always shown a very keen interest in the operations of the Institute and a firm commitment to its welfare. His timely advice and intervention have always been very helpful and his tireless efforts in promoting the causes of the Institute are highly appreciated. This donation is thus only the latest manifestation of that commitment."

The presentation was followed by a luncheon attended by about 40 distinguished guests, including the Japanese Ambassador, members of the TDRI Council of Trustees and Japanese business leaders from Japan and Thailand.

The NRE Program Signs Six-Year Contract with USAID/THAILAND for the MANRES Project

One of the highlights of the NRE's past quarter was the launching of a six-year policy research program between TDRI and USAID for natural resource management in Thailand. The signing of the MANRES (Management of Natural Resources and Environment) contract was the focus of a lively and informative press conference held at the Princess Hotel in Bangkok, on Thursday, October 26. Speeches by Dr. John Eriksson, Director of USAID, and Dr. Phaichitr Uathavilkul, President of TDRI, stressed the need to incorporate natural resource and environmental management planning into Thailand's development strategies, and discussed the contributions MANRES is expected to make toward achieving that goal.

Scheduled to run over a six-year period, research conducted under MANRES will allow the NRE Program to develop long-term strategies for a broad range of priority environmental issues in Thailand, including rural population growth and deforestation, urban congestion, industrialization and urban environment, environmental quality and its relation to energy policy, and the continued development of information systems for natural resource and environmental management. A central thrust of these upcoming strategies will be to explore mechanisms for increasing private-sector involvement in the management of Thailand's natural resources. Other challenging new studies will include the preparation of a second "Natural Resources Profile" to update and expand upon the results of the first volume, and an examination of the impact of global climate change to Thailand.

In his speech, Dr. Eriksson stated:

"This program of prospective policy research on Thailand's most pressing natural resource and environmental problems will be a vital contribution to socioeconomic policy development and planning in the Kingdom over the next decade. ...We at USAID believe that the increasing awareness of natural resource and environmental degradation shown by Thai public and private sector leaders enhances the likelihood that an undertaking like MANRES will be successful."

"TDRI has an unparalleled reputation as the leading policy research institute in Thailand, and indeed, in Southeast Asia. TDRI's Natural Resources and Environment Program, under the direction of Dr. Dhira Phanthumvanit, is undergoing rapid innovation and is moving into areas of policy research that are at the cutting edge of development. Several of our universities and policy institutes in the United States fully recognize TDRI's expanding capabilities in policy research, and they are actively seeking ways to collaborate with TDRI on environmental research themes that range from urban problems of air and water pollution, to regional issues of land use and rural-resource productivity, to global issues of climatic change and loss of biological diversity."

"The cooperative agreement with TDRI under the MANRES Project will build on several earlier and ongoing activities supported by our EPD II Project, jointly managed with DTEC and the NESDB. ...Natural resource and environmental policy issues are of critical importance to Thailand's development in the years ahead, and we believe that TDRI's contribution will have lasting value."



Dr. John Eriksson, USAID/THAILAND Director, speaks on the importance of the MANRES project to Thailand's development. From left to right : Duglas Clark, USAID; Dr. Eriksson; Dr. Phaichitr Uathavilkul, TDRI President; and Dr. Dhira Phanthumvanit, TDRI NRE Program Director.

The Second Annual "Thailand in Transition" Photography Contest: *The Internationalization of Thailand*

The entries into this year's "Thailand in Transition II" photography contest showed Thailand's international flavor (on Kodak slide film) from many perspectives. The first-prize winner, Manit Lapleuchai, captured impressionistic patterns of light in motion in his expressway photograph, "Transportation Paths"; Poh-Pol Nantapa's second prize picture, "Overtime Construction," shows the Bangkok skyline at night; and Niwat Pao-In's third-prize photograph of the Eastern Seaboard's Maptapoot Harbor suggests boundless opportunity—beyond the horizon. Photographers were creative in interpreting this challenging theme: a Thai flag formed by a cast of thousands—white, red and blue against a green backdrop; an azure blue swimming pool; villagers on a tractor; tourists at Wat Phra Keo. There were photographs about trade: red and green containers stacked in even, horizontal rows; a ship waiting to be unloaded. And the photograph of two telephone booths shows communication "access" against an ancient brick wall.

The "Thailand in Transition II" photography contest, again sponsored by TDRI, the Photography and Printing Technology Department of Chulalongkorn University, and Kodak (Thailand) Ltd., gave photographers an opportunity to portray Thailand's place in the international economic community. The contest closed on October 6, and the photographs were judged on October 13 at the Kodak offices on Vibhavdi Rangsit Road. Dr. Phaichitr Uathavikul, TDRI President; Professor Sakda Siriphant, Head of Chulalongkorn's Photographic Science and Printing Technology Department; Mr. Phaichitr Opaswongkarn, President of the Photographic Society of Thailand under Royal Patronage; Dr. Sompongse Limpanondh, D.D.S, President of the Bangkok Photographic Society; and Mr. Bhairot Leenavat, President of the Siam Color Slide Club, acted as judges.

Dr. Snoh Unakul, Chairman of the TDRI Board of Directors and Council of Trustees, presented the winners with their awards at the Kodak Offices on November 2, speaking first on the emerging field of photography in Thailand. Manit Lapleuchai (who won first prize for "Transportation Paths"), received 10,000 baht and a Kodak K80 camera; Poh-Pol Nantapa (who won second prize for "Overtime Construction"), received 5000 baht and a Kodak K40 camera; and Niwat Pao-In (who won third prize with "Maptapoot Harbor"), received 3000 baht and an S-100 Kodak camera. Dr. Snoh also presented certificates of achievement to all photographers and a copy of Kodak's book, *The Joy of Photographing People*, to the eleven photographers whose entries were given "Honorable Mention" awards as follows:

1. Progress in Sports	Prasaat Rakmitr
2. High Tech Community Help	Manit Dejsupa
3. Chao Phya Riverside	Noppadon Ganbua
4. Wat Phra Keo	Noppadon Ganbua
5. Fun Time	Sorrawit Booppha
6. Toward Russia	Niwat Pao-In
7. Communication Today	Manit Lapleuchai
8. Untitled	Sarot Kirtsompong
9. The Longest Bridge	Preecha Siriburanakit
10. Storage	Poh-Pol Nontapa
11. Welding	Sawan Kitsiri

In addition to the awards, Kodak (Thailand) Ltd. is exhibiting the 36 top photographs at the TDRI Year-End Conference at the Ambassador Jomtien on the 16-17 of December and later this year at Chulalongkorn's new Museum of Imaging Technology. Winning photographs will also appear in the **1988 TDRI Annual Report**, with Manit Lapleuchai's winning photograph, "Transportation Paths," on the cover.



Joseph Diliberto, Manager of Photographic Products, Kodak (Thailand) Ltd. presents an award to Manit Lapleuchai while Dr. Snoh Unakul, TDRI Chairman, applauds Khun Manit's achievement. (Dr. Orapin Sopchokchai of TDRI, who acted as Mistress of Ceremonies, is seen at in background.)

Dr. Twatchai Yongkittikul Is Honored

H.M. the King awarded Dr. Twatchai Yongkittikul the "Naphayathipat Kittimasakdi" medal on October 26, 1989. The award was granted in recognition of his work at the Royal Air Force College, where Dr. Twatchai has lectured for more than a decade on the economics of national security.

TDRI Explores Joint Research Possibilities

Over the past quarter Dr. Phaichitr Uathavikul has held separate meetings with both the Rector of Mahidol University, Dr. Nath Bhamarapravati, with Professor Alastair M. North, President of the Asian Institute of Technology, and with senior faculty members of both institutions to discuss areas of potential institutional research cooperation.

TDRI Publications on Sale Nationwide

In October of this year TDRI publications went on sale at the Chulalongkorn University Book Center, the Thammasat University Bookstore and (distributed through the Chulalongkorn Book Center) will soon be appearing in twenty-one other locations throughout the Kingdom. The **TDRI Quarterly**, research monographs, policy studies, **The Thailand Economic Information Kit**, and other publications are prominently displayed in sections specifically devoted to TDRI. Other Bangkok bookstores which should soon have TDRI publications on display are: DK Books; Duangkamsamai; The Bookchest; Odian Store; Bannakit; Bangkok Book Center; Dorkyahh; Chomaksorn; Boorapsarn; DK Bookshelf (The Mall 3); Suksit Siam; Suksapan Panit; and the Kirkrit Book Shop. Bookstores upcountry are: the Suriwongse Book Center; the Chumchon Bookstore; DK Books; The Khon Khaen Book Center; Sitha Bookstore; and the Seng Ho Bookstore.

In-House Seminars

"Poverty Alleviation Programs: An Often Forgotten Dimension." Mr. Minoru O'uchi, JICA expert on assignment to TDRI, gave an in-house seminar on this subject to TDRI staff members and invited participants on August 3. Mr. O'uchi is currently a senior research officer at the Institute of Developing Economies, Tokyo. He is well known for his work in development administration, especially in the area of rural development and is now conducting research at TDRI on export promotion in Thailand.

"The World Energy Situation and Possible Implications for Thailand." Dr. Greg McColl, former head of the Economics Department, University of New South Wales, spoke to TDRI research staff on November 8. Dr. McColl described the development of world energy consumption and production since the early 1970s focusing

on structural changes in energy demand patterns. He pointed out the changing role of OPEC and non-OPEC producers and offered his views on future developments on the world energy scene. In addition, Dr. McColl stated that, in his opinion, some of Thailand's energy policies should be improved—in particular, Thailand's energy pricing structure which, he said, needed to be strengthened in order to promote efficiency. Dr. McColl has extensive experience in international energy and has been a consultant of businesses and government in Australia. He has also worked on the socioeconomic evaluation of the Land-Titling Project in Thailand for three years.

"The Canadian Economy and Its Future Direction." Dr. Garry McKeever of the Canadian Imperial Bank of Commerce spoke at the Institute on November 28 to about 20

senior TDRI staff members, guests and representatives from the Canadian Mission in Thailand. Dr. McKeever first gave an overview of the current situation and near-term outlook, pointing to Canada's post-1986/1987 economic recovery. His optimistic picture (strengthened exports in the natural resource sector for forestry and mineral products, a continued high import-export relationship with the United States, particularly in the automotive sector supported by the year-old US free-trade agreement; the large market that the EEC will become; and the dynamism of the Asia-Pacific Region) was tempered with the reality that if Canada is to reduce its deficit, taxes will rise and there will be cuts in government expenditure. A discussion followed Dr. McKeever's presentation.

The NRE Program Holds a Seminar on GIS Applications In Thailand

The NRE Program conducted a full-day seminar entitled, "GIS Applications In Thailand," as a major step in its continuing effort to promote and publicize the application of GIS technology to natural resource and environmental management in Thailand. The seminar brought together over 170 participants from the government and the private sector—almost double the number originally expected.

The seminar had four objectives: (1) to create a network of GIS users in Thailand; (2) to share experience gained from diverse GIS applications; (3) to direct future GIS development toward national benefits; and (4) to establish policy issues relevant to GIS. Presen-

tations over the course of the day from the large, diverse group of contributors confirmed the heightened interest in and use of GIS technology in Thailand, particularly for commercial applications such as land-use planning.

Participants heard presentations and held discussions that focused on the need to act on pressing environmental issues—particularly in light of Thailand's fast track to "NIC" status. Some important points brought out at the conference were: the importance of land and natural resources to the well-being of the Kingdom; how most of the populace is still tied to the land; how rapid industrialization is straining the country's environment—its land, water and air quality are now coming under increasing assault.

The conference also examined the steps which need to be taken to focus management efforts on critical land and natural resource issues. Some points made were that, in this information age, it is recognized that proper management and planning are dependent upon accurate and reliable data. This recognition has literally created a flood of information, which inundates and, at times, overwhelms managers. Measures are required to bring this information flood to heel. Because natural resource information is spatial in nature (that is, this data is held in the form of maps), the Geographic Information System (GIS) is a type of information technology that has been adapted to handle spatial data. Its proper use can result in considerable impact on some of the problems now facing Thailand.

The outcome of the workshop showed that GIS is a technology coming of age in Thailand. Several agencies and institutes are now actively engaged in GIS work. GIS is being applied to a wide variety of fields, such as land-use planning, waste-disposal site selection, urban planning, and land titling. This creates a viable atmosphere for further development as well indicates some of the real and potential problems in this expanding field. It was thus an opportune moment to gather the users of GIS together to discuss the future directions GIS might take.

Indeed, the seminar served as a vehicle to establish an open forum for the GIS community in Thailand. With the underlying assumption that information flowing among the users of GIS can only be of benefit to the Kingdom. The Imperial Hotel, Bangkok, November 8.



Mr. Paul Hastings and Dr. Dhira Phantumvanit of the NRE Program discuss the multiple benefits of GIS applications with Khun Prachuap Chaiyasarn, Minister of Science, Technology and Energy, GIS seminar held at the Imperial Hotel in Bangkok, on November 8.

TDRI Staff gets Desk-Top Publishing Training

Sunee Yingpaiboonwong, Publications Office Production Officer, conducted a desk-top publishing workshop for 14 members of the TDRI staff at the beginning of October. Participants got some hands-on experience and (1) became familiar with the requirements/limitations of the software; (2) learned rudimentary operations so that they could prepare work for their programs/projects on their own equipment; (3) began to learn this software so that they, in turn, would be able to transfer their skill to others.

Announcing Upcoming Publications!

TDRI will soon be publishing a number of new documents.
Resolution of Banking Crises in Thailand
 (in Thai) (December 1989)
Science and Technology Services in Thailand
 (In English) (February 1990)
The Factbook on Rice
 (in Thai) (March 1990)
The Rural Credit Market in Thailand
 (in English) (March 1990)

Seminars Attended, Papers Presented, and Institutional Linkages

"The Thai Economy in 1989." Seminar. Organized by the Thammasat Economic Association. Dr. Phaichitr Uathavikul, TDRI President, gave a talk on "The External Sector: Problems and Prospects." Bangkok, December 1.

"The State of the Economy." Conference. Organized by the American Chamber of Commerce. Dr. Phaichitr Uathavikul spoke on "The Thai Economy." Hilton Hotel, Bangkok, September 6.

"USAID EPDII Project Seminar." Dr. Phaichitr Uathavikul presided at the meeting, which was held at the Novotel Suriwongse Hotel, Chiang Mai, October 7-8.

"Trade and Investment Support Project." Workshop. Organized by USAID. Dr. Narongchai Akrasanee, ITR Program Director and TDRI Executive Vice President, participated. Dusit Resort, Pattaya, October 13-15.

"The Implications of the EC Internal Market for ASEAN." organized and sponsored by ISEAS. Dr. Narongchai Akrasanee participated and chaired the workshop. Singapore, October 17-18.

"The Financial Situation of Thailand's Trading Partners: The Impact on Thailand." Dr. Narongchai Akrasanee lectured. Chulalongkorn University, October 26.

"ASEAN EC Economic Relations." Organized by ISEAS and ITR/TDRI. Dr. Narongchai Akrasanee chaired the seminar. The Imperial Hotel, Bangkok, October 27.

The "Future of Asia-Pacific Economies (FAPE III): The Emerging Role of Asian NIES and ASEAN." Conference organized by the NESDB, APDC/Malaysia, and ITR/TDRI. Dr. Narongchai Akrasanee participated and presented a paper on "From Commodities to Manufactured Goods: ASEAN Policies and Strategies." The Imperial Hotel, Bangkok, November 8-10.

"The Seventh Pacific Economic Cooperation Conference." Sponsored by the Ministry of Foreign Affairs. Dr. Narongchai Akrasanee attended. The conference was held at the Sheraton Hotel, Auckland, November 12-15.

"Thai Industry in the Next Decade." Seminar. Dr. Narongchai Akrasanee joined this IFCT seminar as a moderator, at the IFCT Building, Bangkok, November 29.

"The International Automotive Industry Forum." Organized and sponsored by Technova Incorporated. Dr. Narongchai Akrasanee spoke on "NIEs: A Perspective." San Francisco, December 1-3.

NRE PROGRAM

"What Is GIS?" Presentation. Mr. Paul Hastings and Khun Chatchawan Boonraksa gave an introduction to Geographic Information System (GIS) technology to approximately 150 members of the Geographer's Association in Phitsanaloke Province in November. This educational presentation aimed at providing some answers to the question, "What Is GIS?" for participants—mostly school-teachers in geography and geology, soil scientists, and workers in related fields. The presentation was structured informally, covering

topics such as an overview of GIS and its applications, information currently held on TDRI/NRE's GIS database, and a question-and-answer session about current GIS data.

"The 1989 Technical Conference of the Engineering Institute of Thailand, New Technology In Engineering." NRE staff members presented two papers: (1) "GIS Applications for Solid Waste Collection Planning" and (2) "Geographic Information Systems for Engineering Applications." Khun Kerkpong Charnpratheep (paper 1) used a case study to demonstrate the potential for applying GIS technology to manage solid waste collection. Khun Chatchawan Boonraksa (Paper 2) introduced the concept and applications of GIS to engineering professionals by presenting two case studies: the first applied GIS technology to select hazardous waste transportation routes, and the second used GIS to simulate the effects of a hazardous chemical accident along a major transportation route. Hyatt Central Plaza Hotel, Bangkok, October 26-28.

MEP PROGRAM

"TDRI Research Activities Supported by the EPD II Project." Seminar. Dr. Virabongs Ramangkura presented a report on "Macroeconomic Policy Study." Chiang Mai. October 8-9.

"ADB Second Workshop on the Asian Economic Outlook." Dr. Virabongs Ramangkura presented a paper on "The Thai Economy in 1989 and the Economic Outlook for the Next Two Years." Manila, November 13-16.

"APDC Final Meeting on Econometric Modeling of Trade in Southeast Asia." Dr. Bhanupong Nidhiprabha, Dr. Damkirn Sawamiphakdi, and Khun Chanin Kamhaengpatiyoott presented a paper on "Economic Modeling of the International Influences on the Thai Economy." Manila, November 17-21.

STD PROGRAM

"Education for Newly Agro-Industrialized Countries." Seminar. Dr. Chatri Sripan, STD Program Director, acted as commentator on the paper, "The Desirable Characteristics of Personnel in Newly Agro-Industrialized Countries." Chulalongkorn University. September 5.

"The Role of the Private Sector in Research, Development, and Engineering in the Electronics Industry in Thailand." Seminar organized by the STDB. Dr. Chatri Sripan moderated the session on "Consumer Electronics." Asia Pattaya Hotel, Chonburi. September 6-8.

HRS PROGRAM

"Labor Force Survey and Manpower Planning in Thailand." Training Course. Sponsored by the ILO. Dr. Teera Ashakul and Dr. Yongyuth Chalamwong conducted a training course on the above

topic for the Director-General and officials of the Department of Labour, Rangoon, September 1.

"Human Resource Development Planning." Training Course. Sponsored by the ILO. Dr. Teera Ashakul presented supporting studies in the area to the Director of the Department of Labor, Rangoon, October 19.

"Thailand Population Association." Annual Meeting. Dr. Yongyuth Chalamwong presented a paper on "The Determinants of Co-Resident Surviving Children: A Cohort Analysis." Dr. Suganya Hutaserani presented a paper on "The Determinants of the Household Structure in Thailand." Dr. Teera Ashakul presented a paper on "Analysis of Contraceptive Method Choice and Optimum Contraceptive Pricing Structures." Dr. Chalongphob Sussangkarn participated in a panel discussion on "Population Changes in the Next Decade." Asia Hotel, Bangkok. November 9-10.

RIE PROJECT

Three RIE regional seminars were held in Chiang Mai (October 17), Khon Kaen (November 10), and Hat Yai (November 17) to disseminate preliminary findings. Regional entrepreneurs, industrialists, academicians and concerned government officials commented, made suggestions, and proposed strategies to accelerate the provincial industrialization process.

WID PROJECT

"Putting Women in the Mainstream: Experience from Asia" Organized by the United Nations Development Fund for Women (UNIFEM). Dr. Suteera Thomson, WID Project Adviser, gave a series of briefings on "Integrating Grassroots Women's Concerns into Mainstream Agriculture and Development in Thailand." United Nations Plaza, New York, October 18.

"Policy Research on Women in Development," Lecture. Organized by the Women Studies Program, Social Science Association, Chiang Mai University. Dr. Suteera Thomson gave this lecture to graduate students in Women in Development. Chiang Mai, October 23.

"Integration of Rural Women's Concerns into Mainstream Agriculture and Rural Development in Thailand." Dr. Suteera Thomson gave a presentation and led a discussion on this subject at the Department of Gender Studies in Agriculture, Wageningen Agricultural University, The Netherlands, November 14.

"Association of Women in Development Conference: The Global Empowerment of Women." Dr. Suteera Thomson presented a paper on "Raising Awareness and Building Consensus: Gender Issues and Development in Thailand." Washington D.C., November 17-19.

The role of Demand in Provincial Industry

(Continued from page 10)

The first track involves the promotion of small-scale industries in the provinces, mainly through measures that will increase rural household income and (probably less effective) through the existing, new supply incentive measures. An initial increase in rural household income usually results in an increase in the demand for durable goods—such as simple furniture and agricultural tools made by small, local manufacturers—in addition to an increase in the purchase of non-durable consumption goods. However, this demand will eventually reach market saturation due to the durable nature of the products. The ability to maintain either a service-providing role by producing service-related products to customers, or to modify their products and/or expand their markets beyond the old ones becomes crucial, and assistance will be needed. Maintenance service also becomes costly in proportion to geographical distance, and it could be an area in which local industries have the advantage. It is also natural that with higher income, there will be a shift in demand toward better quality, or more modern products. Timely and accurate information on new products, technology and markets is critical for the long-term survival of small provincial industries.

The second track focuses on continuing promotional policies to attract large-scale Thai and international investments in order to fully exploit the existing comparative advantages that Thailand currently possesses.

A two-track provincial industrialization policy is possible, because the success of each track requires different conditions and thus different strategies and measures. Since no single general measure for provincial industrialization will ever work without bias in one way or the other, conscious decisions must be made and appropriate measures designed and implemented for both large- and small-scale industries. More importantly, it must be kept in mind that the objective for provincial industrialization is not—and should never be—industrial growth *per se* but to generate additional employment opportunities and higher income in the provinces. This is a necessary condition for sustained demand, leading to industrialization and economic development in the long run.

Reference

Elkan, Walter. "Policy for Small Scale Industry: A Critique" *Journal of International Development*, 1,2 (April) 1989: 231-260.



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