

Economies of Scale

THE CASE FOR ASEAN REGIONAL COOPERATION

By MIGUEL Z. PATOLOT

Estimates of production and apparent consumption of certain manufactures, 1967

US \$ millions at 1967 prices

	Gross value of production	Exports	Domestic sales (1) - (2)	Imports of manufactures		Total sales of finished products (3) + (4)	Import shares in total sales (%) (4) ÷ (5)
				finished goods	intermediate products		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Textiles							
Indonesia	119.7	0.5	119.2	88.1	10.8	207.3	47.8
Malaysia	16.7	4.8	11.9	38.2	4.9	50.1	86.1
Philippines	195.3	4.4	190.9	27.0	10.2	217.9	17.1
Singapore	2.7	4.3	-1.6	76.7	15.3	75.1	125.5
Thailand	151.2	5.1	146.1	75.0	13.6	221.1	40.3
ASEAN	485.6	19.1	466.5	305.0	54.8	771.5	46.6
Chemicals and chemical products							
Indonesia	69.3	36.5	32.8	24.9	30.7	57.7	96.4
Malaysia	126.8	59.3	67.5	47.6	28.9	115.1	66.5
Philippines	395.9	64.0	331.9	65.5	57.5	397.4	31.0
Singapore	38.1	19.0	19.1	47.7	16.3	66.8	95.8
Thailand	104.7	1.2	103.5	77.6	44.2	181.1	67.3
ASEAN	734.8	180.0	554.8	263.3	177.6	818.1	53.9
Machinery, except electrical							
Indonesia	8.3	—	8.3	76.0	—	84.3	90.2
Malaysia	12.6	1.4	11.2	73.3	—	84.5	86.7
Philippines	22.8	0.1	22.7	262.7	—	285.4	92.0
Singapore	11.9	1.0	10.9	47.0	—	57.9	81.2
Thailand	19.9	—	19.9	111.0	—	130.9	83.5
ASEAN	79.7	—	79.7	476.0	—	555.7	85.2
Electrical machinery and supplies							
Indonesia	3.5	0.4	3.1	46.9	—	50.0	93.8
Malaysia	13.7	2.8	10.9	48.8	—	59.7	81.7
Philippines	78.0	—	78.0	59.3	—	137.3	43.2
Singapore	14.3	5.7	8.6	58.0	—	66.6	87.1
Thailand	19.9	0.4	19.5	69.6	—	89.1	78.1
ASEAN	129.4	9.3	120.1	282.6	—	402.7	70.2
Transport equipment							
Indonesia	22.0	0.5	21.5	55.2	8.5	76.7	83.1
Malaysia	25.0	0.2	24.8	47.1	21.9	71.9	96.0
Philippines	108.9	0.6	108.3	128.4	34.5	236.7	68.8
Singapore	31.4	12.0	19.4	17.4	15.6	36.8	89.7
Thailand	120.8	0.1	120.7	119.8	21.6	240.5	58.8
ASEAN	308.1	13.4	294.7	367.9	102.1	662.6	70.9

The Progressive Car Manufacturing Program is only one of the basic approaches towards the realization of an ASEAN industrial complementation program.

Other regional oriented projects being developed by the Board under a local content formula are: appliances and apparatus, including telecommunications, rubber products, pharmaceuticals, electric power generating and distributing equipment, chemicals and petrochemicals, agricultural machinery, building materials, processed foodstuffs and dry cell batteries.

The Board is currently working on a Progressive Truck Manufacturing Program and a Progressive Electronic Manufacturing Program. Last year, the Board also launched the Progressive Motorcycle Manufacturing Program.

All these three programs have their respective regional linkages. The Board is working on the assumption that each of the other countries will contribute their share in setting up facilities for the complete manufacture of trucks, motorcycles, and elec-

markets, would have internationally competitive costs of production, Paterno pointed out.

"There are enough items mentioned in the United Nations report (on the areas for economic cooperation among the ASEAN countries) to form a regional shopping list of package deal projects," the BOI chairman said.

These are: fertilizers, both nitrogenous and phosphatic; carbon black; caprolactam; DMT; ethylene glycol; soda ash; sheet glass, newsprint; sealed refrigeration compressors; steel; small engines; and typewriters.

Soda ash plant

To underline the benefits that may be derived from this regionally cooperative form of industrialization, Paterno described how a regionally based soda ash plant can be worked out in order that Southeast Asia can be self-sufficient in glass items:

"The raw materials for soda ash manufacture are principally salt and limestone. All of the Southeast Asian countries have salt making capabilities and limestone is found in every one of the countries. The process of making soda ash is classic, was already essential, described in the textbooks of my elementary chemistry classes, which I attended in the late 1930's.

"Since the raw materials are or could be available in every one of the countries in Southeast Asia, and the process of manufacture is standard, why does no soda ash plant exist in the region?"

"The answer is found in the comparison of consumption in each of

Economic sense

"It makes economic sense to establish within the region various industrial plants which would be economically sized and internationally competitive," BOI Chairman Vicente T. Paterno said.

If each of these plants were to serve the market requirements of two or more countries of the region, production costs could be reasonably in line with international prices, in contrast to a plant which, even if serving the requirements of the largest of the individual

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(Continued on page 6)

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ECONOMIES OF CAPITAL COST, RESULTING FROM REGIONAL PROJECTS

	US\$ Million at 1970 prices	
	Capital cost of regional project to 1980	Capital cost of regional project as percentage of cost of group of national projects with same capacity in 1980
Nitrogenous fertilizers	220.0	245.2
Phosphatic fertilizers	22.9	30.0
Carbon black	10.2	15.3
Caprolactam	38.3	53.2
D.M.T.	40.9	64.0
Ethylene glycol	14.6	21.1
Soda ash	39.0	70.3
Sheet glass (a)	11.7	20.8
Newsprint (b)	142.7	202.2
Sealed Compressors	11.0	12.8
Small engines	13.9	21.9
Small engines	13.9	21.9
Typewriters	22.0	34.8
Steel	135.4	176.6
Total	720.6	964.2

Complementation more economical

(Continued from page 4) the countries, compared with the annual output of a plant of minimum efficient size, as given in the UN study. The largest consumption of soda ash of any ASEAN country in 1970 was 44,000 tons and in 1980 would be 104,000 tons, whereas a plant of minimum efficient size was estimated at 360,000 tons per year. On the other hand, total ASEAN consumption of soda ash in 1970 was 116,000 tons, estimated

to rise to 310,000 tons by 1980, so that by 1982 total ASEAN consumption would more than absorb the full output of an economic sized plant in the region. "Such a regional plant would be able to produce soda ash under 1970 conditions at an estimated price providing an acceptable rate of return of capital of \$50 per ton compared to a world price then of \$56.50, CIF ASEAN port (also at 1970 freight rates). Delivered

price to the other countries of the region would be higher to the extent of the freight cost from the plant to the other countries. Such a regional plant would have a capital cost of \$39 million, compared with an aggregate cost of \$70 million if each of the countries were to build plants sized to the consumption of their individual markets. Each of the country plants would have a unit cost of production substantially higher than that of

the regional plant. The UN study estimates that the average unit cost of production in the country plants would be 65 per cent higher than the unit cost of production in the regional plant.

"I believe that if this study were to be conducted under 1973 conditions, the economics of the regional plants would be even more attractive. Costs of manufacture of soda ash are even higher now in the industrial countries due in part to the much

tighter standards being imposed on pollution and the consequently higher costs of manufacturing due to pollution control. Freights have also risen very substantially from the developed countries to Southeast Asia."

UN view

The BOI argument supports the UN view that Southeast Asia should, through various cooperative agreements, attempt to be self-sufficient in major import items which it is in the best position to produce.

The bulk of manufactures required by

Southeast Asia continue to be imported and paid for in primary products. For chemicals and chemical products alone, the Philippine dependence on imports of these items is as much as 60 per cent.

Spilling prices of semi-manufactures and capital equipments have recently created pressure on the ASEAN countries to produce more for exports. So far, the foreign exchange earnings of Malaysia, the Philippines, Thailand, Singapore and Indonesia continue to depend on a relatively small number of commodities.

For instance, a UN survey noted that Indonesia, Malaysia and Thailand each depend for substantially more than half their export income on their three largest exports. The level of imports that can be financed will depend upon the extent of success in developing new sources of export earnings in the form of other primary products, of semi-manufactures and of finished manufacturers.

More awareness

This situation has created further awareness of the necessity of embarking on an industrial complementation plan that will lessen the impact of world prices on the already high inflation rate in the region.

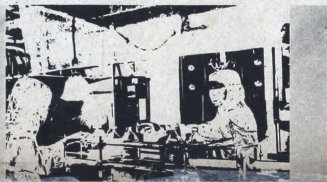
Chairman Paterno said that complementarity agreements are also another avenue for regional industrialization.

"By complementarity, we mean the exchange of industrial products or components thereof among the different countries of the region, generally in the same industry sector," he said.

Paterno said that an example of complementarity can be found in the automotive industry. "Proposals have been presented to Malaysia, Philippines and Thailand for the manufacture of various components of automotive rear axles in each of the countries," he added.

These components would be exchanged among the countries and the complete rear axles would be assembled from these components in each of the countries. "Thus the component manufactured in each country would be produced in a volume equal to the demand for rear axles in all the three countries, and each component manufacturing facility would enjoy advantages of scale greater than if sized for the individual market alone," he said.

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