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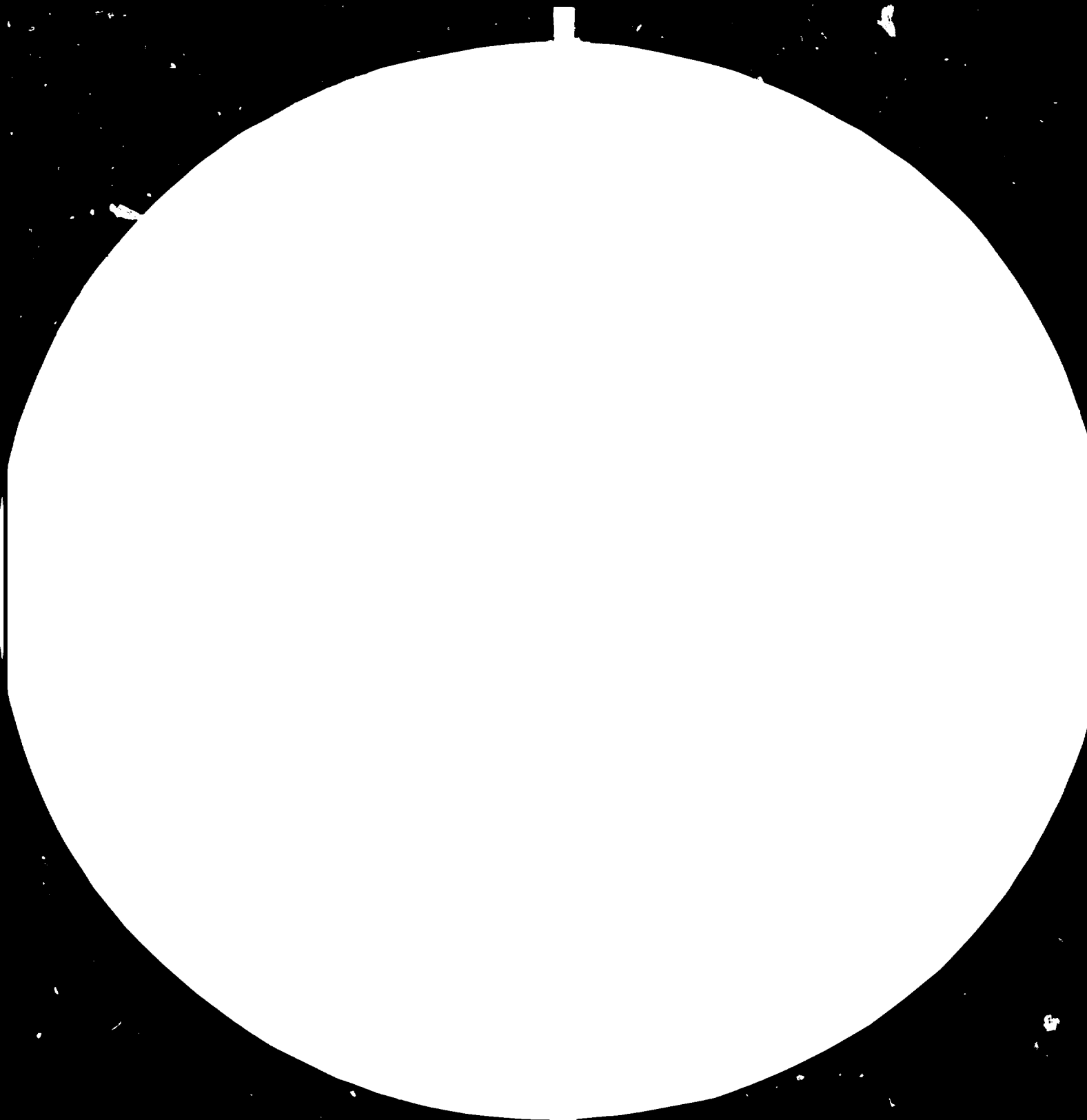
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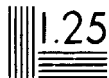
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INDUSTRIAL RESTRUCTURING IN THAILAND -
SOME OBSERVATIONS ON THE PLASTIC INDUSTRY

Interim Report*

Prepared for the Government of Thailand

M. Youssef

Report No.4 in series of policy papers on industrial restructuring in Thailand, by the Regional and Country Studies Branch, Division for Industrial Studies.

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I. INTRODUCTION

1. UNIDO is currently assisting the Government of Thailand in its programme of industrial restructuring. As part of that assistance UNIDO was requested, through the National Economic and Social Development Board (NESDB) and the Industrial Restructuring Committee (RESCOM) for which it is the Secretariat, to provide some observations on the plastics industry.

2. The present report has been prepared by the UNIDO Senior Interregional Adviser, Mr. M. Youssef, in co-operation with staff of the Regional and Country Studies Branch of the Division for Industrial Studies. It follows a short visit to Bangkok (20 - 24 February 1983), and is based on discussions held with government officials, bankers and the chemical and plastics industries. Background material available in English on the situation of the petrochemical and plastics industry in Thailand was drawn upon^{1/}. Information on international developments on the petrochemical and plastic industry was drawn upon from UNIDO documents and the Senior Interregional Adviser's experience in other developing countries.

II. THE WORLD SITUATION OF THE PETROCHEMICAL INDUSTRIES

3. The recession and existing over-capacities in developed countries have led to a major restructuring of their petrochemical industry, which has accelerated technical innovations and expansions of the industry elsewhere, in particular in feed stock-endowed countries. Developing countries having faster growing markets and advantageous feedstocks for their industry are better positioned to make a favourable contribution to supplying world markets to the mutual advantage of the concerned.

4. The maturing of markets in developed countries coupled to inflation, recession, high interest rates and the increased weight of feedstocks in the production cost of petrochemicals, required producers mainly in Western

^{1/} In particular:

- Comparative advantage of manufacturing industries in Thailand (R1/2525, Industrial Finance Corporation of Thailand, 1982)
- (Excerpts from) NESDB: The Thai economy and profiles of selected industries, 1982.

Europe and Japan into rationalization, restriction and diversification efforts to fend off market inroads by a growing number of outside-the-region producers having a production edge over them.

5. The five thermoplastics account for about 70 per cent of total plastics consumption. The plastics demand is not expected to show high annual growth rates in the mature markets of the developed countries. In developing countries it does, but is inhibited by a number of obstacles, which have currently slowed down its growth.

6. Developing countries could build up more capacity. However ethylene units should not be built alone, but should be more or less integrated into downstream plants according to market need and resource availability. Generally, for an integrated petrochemical complex it takes almost a decade until the whole complex is running smoothly, without any assurance of a favourable business climate at that time.

7. In developing countries data of the last few years show steady progress in the expansion of processing industries, a major step towards increasing consumption of plastics in those countries. Estimates of market potential, given in terms of kilograms per capita, are based on unsatisfied needs and on effective purchasing power of the population. Thus developing countries have a much larger growth potential than developed countries which are reaching market saturation levels. This situation poses a good case to further the development of the petrochemical industry through co-operation between developing countries.

8. In developed countries the North American region per capita consumption of the five main thermoplastics is 45 kg per capita followed by the other regions with an average of 24 kg per capita. The world total is around 10 kg per capita. Among the developing regions Latin America is currently leading with 6 kg per capita consumption, although in absolute terms Asia consumes twice more plastics than Latin America. The per capita consumption in Asia is about 2 kg.

9. If we look at the different regions of the world, Latin America has recently achieved good progress in petrochemical plant construction. There have been activities in most countries concerning large petrochemical

complexes involving large loans and leading recently many of these countries into heavy indebtedness. Compared with other developing regions, Latin America is the most advanced one. As to Africa and the Middle East, most of the oil-producing countries in these regions have the problem of too small domestic markets compared to economic plant sizes with the exception of Nigeria, Turkey, Egypt and Iran. However some of these countries are starting large-scale production and are building their plants. Asian countries have the markets which other developing areas are missing. There are more advantageous feedstocks found recently to support government development in the petrochemical field in most countries in the area.

10. In order to sustain production capacity in the petrochemical industry in the developing countries, the domestic end-uses should meet the demand which should be expanded and developed. Generally in the developing countries there is already a large processing industry before the establishment of petrochemical complexes. International petrochemical producers have well realized and established the meaning of development of end-uses. They continuously monitor the market to ascertain what is going on with their product, and their R and D departments are constantly in quest of new uses and applications.

11. Developing countries even those with no petrochemical industries establish Plastics Research and Development Centres to assist the plastics processors in identifying new applications, opening of new markets, solving of technical problems, dissemination of information and training of personnel. Those countries which have large local markets, sophisticated technology, R and D facilities and advantageous feedstocks and other resources can do almost everything in petrochemicals. Coming up examples are Mexico, Brazil, China and India. Smaller countries must carefully appraise their own role and possibilities in this field.

12. In conclusion it must be noted that the petrochemical industry in the developed countries in these recessionary years is facing serious problems as they have built substantial overcapacities for exports. In the developing countries a rather dynamic development and expansion will take place based on advantageous feedstocks and should result also in competitive outlets to world markets. Outlets of this industry should be ensured by developing processing industries and domestic end-uses, thus providing growing local markets for petrochemical products.

III. SITUATION OF THE PETROCHEMICAL AND PLASTICS INDUSTRIES IN THAILAND

13. A contract has been signed by the Petroleum Authority of Thailand for the construction of a gas separation plant using the natural gas which has recently become available from the Gulf of Thailand. This plant is scheduled for completion in 1985, to supply LPG for the Thai market and raw materials for the petrochemical industry.

14. One of the main issues facing the Government in establishing the petrochemical industry is the cost of feedstock which according to the Government will be of high cost. Thermoplastics are being imported into Thailand at prices lower than what is being paid for the import of ethylene. Second choice raw material is being dumped into the market at cut-throat prices and the processors in Thailand would use any low grade material depending on the cost, giving no attention to quality.

15. The plastics industry in Thailand comprises two major subsectors namely the production of primary plastic materials from imported monomers and the processing of plastics materials into end products. According to official statistics there are about 1400 registered factories, the majority located in Bangkok. Many of these factories are small-scale enterprises. Production is largely concentrated in consumer items, such as household utensils, plastic film, bags for packaging, and toys and flowers mainly for export. However, PVC pipes, cables and artificial leather is also produced to world standards. Moulds for the plastics industry are manufactured locally and some are exported to Indonesia, Sri Lanka and Pakistan.

16. The consumption of the local market is in the range of 4 billion bahts annually, while the exports are about 1 million bahts. The plastics processors envisage a 15 per cent growth in exports in 1983, but are not optimistic about the future.

17. The situation in Thailand for its exports of processed plastics articles is similar to that facing the other developed and developing countries in the world at present; namely that even the smallest developing country has its own plastics processing industry which in most cases covers the needs of the

country of domestic utensils, film and bags for packaging.

18. Thailand's main plastics export items are plastic flowers and toys. Thailand is now replacing Hong Kong in toy manufacture and many entrepreneurs from Hong Kong are moving into Thailand, due to lack of space in Hong Kong and to cheaper labour in Thailand. This should be encouraged. However, in plastic flowers the export market which is mainly the USA, is declining, due, according to the Thai industrialists, to the change of taste of the consumers.

19. The plastics industry in Thailand has recently formed a "Plastics Processing Club", which is currently collecting statistics on the plastics industry and will publish a directory. Each factory is requested to pay an annual fee, and the main objectives of the "Club" is to help the plastics industry in solving its technical problems, collection of information and act as a go-between the industry and the Government institutions. This should be encouraged by Government.

20. The industrial problems in relation to Government are multifold:

- (a) Double taxation
- (b) 7.7 per cent sales value tax.
- (c) Bureaucracy in filling of forms for export and import purposes.

21. The plastics processors in Thailand should be encouraged to develop their "Club", and to establish what may be called a "Plastics Industries Development Centre", to collect and disseminate technical information to the industry, set up quality control and promote standardization, train technicians and identify new applications and markets.

22. The main potential market for Thailand should be the domestic market and not the export market. There are many areas untapped in the domestic market which can potentially double the consumption of thermoplastics in the country, such as applications of plastics in agriculture, in the construction industry, in the packaging of foodstuffs for local consumption and export and in canal lining and water management.

23. Nevertheless the export market should be developed as far as possible on basis of thorough product and market research. For example, in the case of artificial flowers, market studies should be made of the export markets to adapt and renovate production continuously to the taste of the consumer. In the case of toy manufacture, diversification should be the main item, and the local entrepreneurs, including those from Hong Kong, are quite capable in developing this market.

IV. RECOMMENDATIONS AND POSSIBLE ACTION BY RESCOM

24. It is highly recommended that a detailed study of the needs and future possibilities for the Thai plastics processing industry be made by a plastics industry specialist attached to the RESCOM secretariat team. Within the context of the study an assessment should be made of existing institutional infrastructure from the point of view of the possible need for establishing a Plastics Industries Development Centre. Such a study could be carried out within one month. On basis of the study findings, a seminar on the future prospects for the plastics industry should be held in Thailand at which the plastics industry should be well represented.

25. It must be stressed once more that the main future market for the plastics industry in Thailand is the domestic market and not the export market which will constantly be facing difficulties. The export of moulds, however, should be encouraged. If a Plastics Industries Development Centre is established, a department on mould making and mould design should be part of it.

26. Thailand is presently exporting blow moulding machines. This activity should be encouraged and possibilities of manufacturing other plastics processing equipment and exporting them should also be explored.

27. Consideration should be given to the possible establishment of a petrochemical R and D facility to give support to the nascent petrochemical industry to adapt foreign technology to Thailand conditions and keep it up to date, train the plant operators and solve any technical problems which the industry would face. Such a facility could be established jointly between the university, the industry and the Government.

Table 1. Thailand: Present status of the intermediate chemical industries' facilities and estimated demand

<u>Existing</u>	<u>Capacity/Year</u>	<u>Local demand</u>	<u>Remarks</u>
1) PVC Resin	50,000 MT	40,000 MT	Recently expanded
Compound	24,000 MT	20,000 MT	
2) PS	22,500 MT	14,000 MT	Export - 6,000 MT
3) Polyester fibre	80,000 MT	66,000 MT	Export - 14,000 MT
4) Nylon fibre	17,000 MT	20,000 MT	
5) Carbon black			
<u>Already approved</u>			
1) LDPE	65,000 MT	35,000 MT	Completed
2) HDPE	25,000 MT	30,000 MT	
3) a) Soda ash	400,000 MT	Intended for local and ASEAN market	Approved as ASEAN Industrial Project
b) Rocksalt	600,000 MT		
c) Ammonium chloride	400,000 MT		
<u>Application not yet approved but submitted</u>			
1) a) Urea	500,000 MT		
b) Di-Amonium phosphate	300,000 MT		
c) Ammonia	1,350 M/day		
2) PP	60,000 - 70,000 MT	50,000 MT	
3) Ethylene Glycol	30,000 MT	30,000 MT	
4) VCM	80,000 MT	60,000 MT (1985)	
5) Ethylene	300,000 MT	-	
6) HDPE	80,000 - 100,000 MT	-	

Note: Unless otherwise specified, estimated demand is for year 1982.

Table 2. Thailand: Exports of plastics products, 1977-82

(Unit: Million Baht)

Items	1977	1978	1979	1980	1981	1981 January- June	1982 January- June
PVA sheet or film	27.66	25.81	45.78	53.01	64.35	32.66	29.65
Artificial glass	30.57	41.81	49.35	43.32	20.38	9.03	20.67
Pipe and pipe fitting	0.66	0.42	1.26	2.85	4.98	3.13	3.65
Melamine	19.70	25.34	41.03	48.55	79.05	40.09	49.73
Accessories for bathroom	0.09	1.18	3.04	4.22	1.13	0.18	0.16
Raincoat	23.45	45.25	87.24	85.64	2.77	25.07	25.96
Plastic bag	8.53	13.81	28.84	61.08	96.71	31.06	42.05
Adhesive tape	14.25	14.21	40.37	41.30	65.44	33.08	29.96
Vinyl floor tyre	0.29	0.18	0.64	0.82	1.33	1.17	0.23
Artificial flower	103.08	119.91	165.95	284.98	382.42	164.73	187.69
Plastic bag (artificial leather)	45.97	21.38	79.74	23.96	29.09	15.77	19.69
Total	274.25	309.30	543.24	649.73	747.65	355.92	408.95

