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THE DEVELOPMENT OF THE PLASTICS INDUSTRY
IN THAILAND^{1/}

by

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^{1/} The views and opinions expressed in this paper are those of the author and do not necessarily reflect the views of the secretariat of UNIDO.
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Introduction :

At present, the plastic consumers products are very well known in the market of Thailand and the rate of consumption has a tendency to increase rapidly. The plastic industry usually imports the raw material from foreign countries. Recently few factories have received permissions for producing plastic resin in order to supply local plastic industry. However, the consumers products are limited in varieties and the application of plastic resins is not as vast as it should be, because of lacking in technology as well as ^{an} investigation and research for seeking of suitable process. The plastic industry seriously needs for improvement. Therefore, the Department of Science, Ministry of Industry has organised the project for improvement and promotion of this kind of industry. The purposes of this project are to carry out investigation and research for seeking out suitable process, to study the properties of products and raw material with respect to developing the process of manufacturing products, to assist the industry in solving their problems involved in production, and to investigate new ways for utilization of raw materials.

From the above mentioned, it is necessary to establish or organise the team of researchers for study and carrying out the project programme. The project should include a supervisory and training programme which will offer a technical service to industry.

Present Situation of Plastics Industry

Most of the existing plastics industry has been producing consumers articles for daily use. But only small fraction of the total amount of the resin raw material is used as the raw material in other field of industry. There are about 600 plants in Thailand most of which are small

industry employing 10 workers or less. Practically all the raw material for such industry is imported from Japan, Taiwan and European Countries. The consumption of plastic is shown in table I

Table I
Imported Plastic materials, semi-finished products and
Finished Articles in Metric Ton

Year	Raw Materials & Semi-Finished Products	Finished Articles
1959	3,291	321
1960	5,521	487
1961	6,523	626
1962	10,464	365
1963	13,644	609
1964	19,327	625
1965	24,403	711
1966	37,408	1,197
1967	47,163	1,313
1968	57,756	1,584
1969	56,246	2,440
1970	78,480	5,216
1971	97,502	4,589

Table II
Forecasts of Plastics Consumption

Material	1976		1981	
	Metric Tons	Annual Growth As Since 1971	Metric Tons	Annual Growth As Since 1976
LDPE	57,900	14%	111,600	14%

HDPE	32,600	16%	68,400	16%
PP	22,900	25%	46,000	15%
PS (all grades)	13,400	15%	26,900	15%
PVC (100% Resin Basis)	38,600	20%	77,600	15%
PV Acetate(100% Resin Basis)	4400	15%	8,800	15%
Polymethylmethacrylate	2,000	15%	4,000	15%
Miscellaneous Thermoplastics				
inc. PV Alcohol	7,300	15%	14,700	15%
P.F., U.F., and H.F.				
Resins inc. Wood Glues	19,600	18%	39,600	15%
Miscellaneous Thermosets	8,000	15%	16,000	15%
Finished Articles	4,000	-	4,000	-
Total	210,700	15.2%	417,600	14.9%

Source : Report of UNIDO Expert in 1972

Problems of Thai Plastic Industry

As indicated above, most of the plastics processing factories are small scale industry. They have no equipment and apparatus for testing their raw materials and finished products. Manufacturers are lacking of technical know how in the processing technique. They have done very little on research and experiments to improve of the quality of plastic products and on the development of new design and new products. Technically, only few processing plastic companies employed scientists, engineers or technicians for factory operation, but most of them do not have such facility.

In many cases, nonqualified raw materials are employed in producing the plastic articles since good raw materials are very expensive.

Raw Materials Producers

There are few companies producing resins and compounds such as

polyvinyl chloride (PVC), polyvinyl acetate (PVA). The Thai Plastics and Chemical Co; Ltd. is currently the only one company in Thailand producing PVC from the imported vinyl chloride monomer (VCM). Since the cost of monomer imported has increased, the company can operate only 70% of its full capacity, i.e, 12,000 tons of PVC resin. The produced resin is not enough for consumption in the country. The Board of Investment, Government of Thailand has arranged the quota for plastics processing industry to purchase PVC resin and compound from Thai Plastics and Chemicals Co; Ltd. in order to avoid the problem of raw material shortage. Even so, some plastic processing industry in Thailand may have to close their business because of shortage of the raw materials.

The Impact of Proposed Petrochemical Complex.

The planning for installation of a petrochemicals complex in Thailand is now in advanced stage and expected to be completed in 1978. The project is divided in two parts, namely upstream and downstream. The upstream consists of a crude oil distillation unit. The downstream section in the first stage, will produce 70,000 metric tons per annum LBPE, 40,000 m.t./a HDPE, 40,000 m.t./a PP, 12,000 m.t./a PE and 4,000 expandable PE, 42,000 m.t./a VCM for 40,000 m.t./a PVC and 20,000 m.t./a alkyl benzene. The production of acrylic resins, synthetic fibers, plasticizer and synthetic rubber will be followed in the later stage.

Plastic Testing and Research Laboratory.

According to the report of Mr. J.T. ^{Shen} ^A The Regional Adviser on Petrochemical Industry to ECAFE, who was assigned by UNDP/ECAFE as an expert on plastics, to the Department of Science, Ministry of Industry in 1971. After his investigation the expert has strongly recommended the establishment of a Plastic Testing and Research Laboratory under the Department of Science, Ministry of Industry. This laboratory will be for the

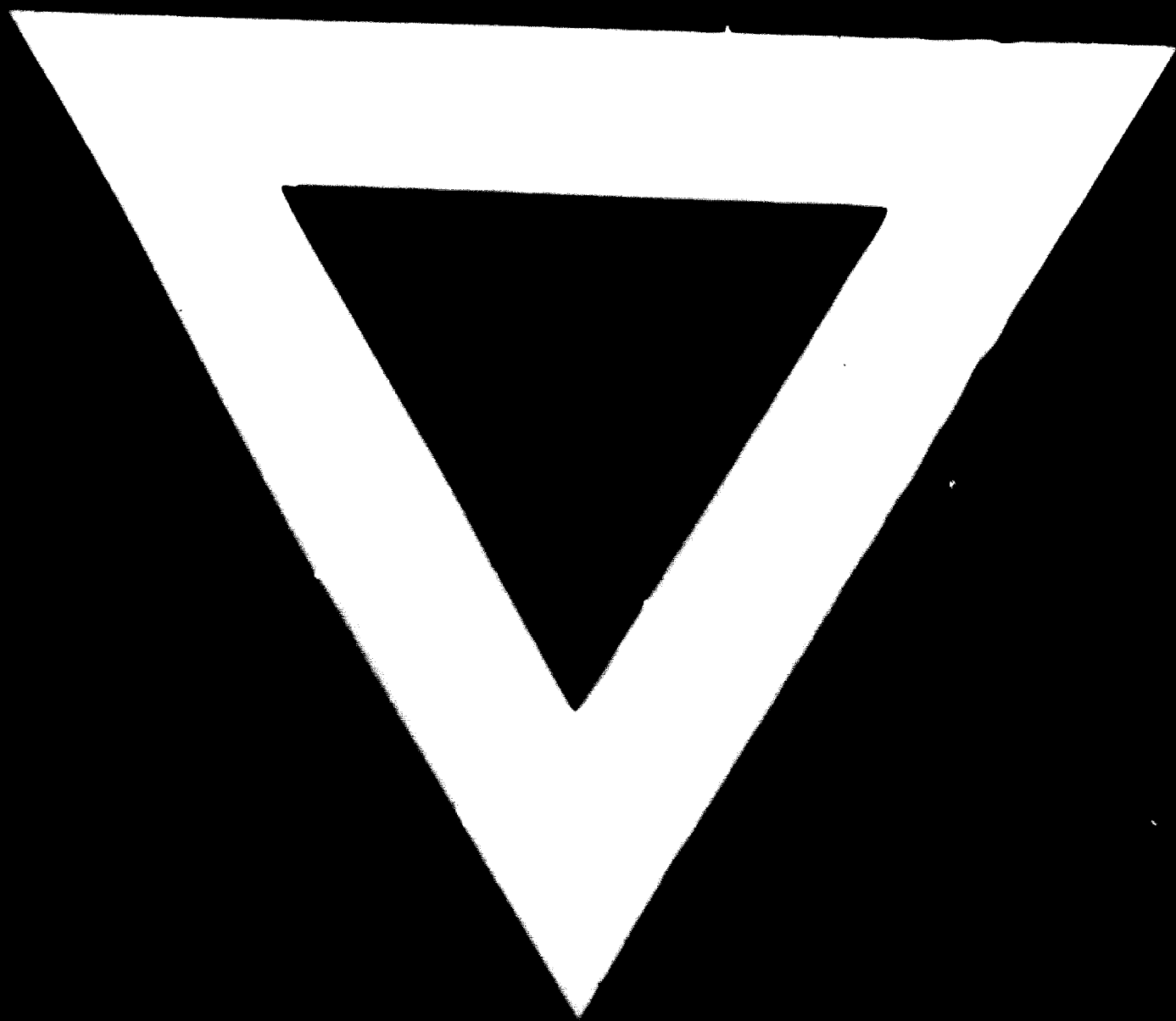
development of plastic industry in Thailand since at present there is no such facility available both in the governmental and private organizations. As indicated in the report, the services of the testing and research center for plastics should include the following activities :

- (a) Standardization of plastic products such as pipes, floortiles coated cables and wires, film, artificial leathers, containers etc;
- (b) Testing of plastic products and their raw materials ;
- (c) Investigation on the toxicity of plastic products for use as food containers, water pipes and hoses, and to specify the use of nontoxic stabiliser in such plastic materials.
- (d) Investigation on the substitution of imported raw materials for the manufacture of plastic products ;
- (e) Research on the improvement of the quality of locally produced plastic products and on the development of new products.
- (f) Research on the development of plastic uses in agriculture and construction material.

According to Mr. J.T. Shen advice, the Department of Science should make a request for UNIDO assistance as to facilitate the establishment of the Plastics Laboratory. He also estimated the fund required for the expert services, fellowships and equipment for such activity.

Conclusion

The establishment of Plastics Research and Testing Laboratory at the Department of Science will be helpful for assisting the plastic industry as to improve their quality as well as to reduce the cost of production. It is hopeful that the plastic industry of Thailand will be further progressive since it is one of the industries which play an important role in the economic development of the country.



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