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THE PRESENT STATUS AND FUTURE PLANS
FOR DEVELOPMENT OF THE PLASTICS INDUSTRY IN PANAMA AND
TECHNICAL ASSISTANCE REQUIRED^{1/}

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I. HISTORICAL BACKGROUND

1. The first industrial installation for the transformation of plastic materials in Panamá was established just after the end of World War II. However, this pioneering effort did not last long, and the injection plant closed its doors after a few months of operation.
2. Later on, new plants were installed, but it was not until about ten years ago when the industry came into a high level of production with a wide range of plastic goods.

II. PRESENT SITUATION

3. Today, there are sixteen plants producing plastic goods. Some of these plants are highly mechanized while many of them are still utilizing processes outdated with regard to the modern techniques applied elsewhere.
4. However, there is a great enthusiasm and interest in expanding and improving the quality of the plastic production among the young entrepreneurs who in most cases are in charge of the plastic processing plants in Panamá.
5. The plastic industry in Panamá includes plants utilizing the processes of molding, extrusion or injection. Machinery and tools are imported as well as the raw materials, while the technical know-how is provided by the suppliers of machinery and raw materials. A few plants have their own machine shops for the production and/or reconditioning of second hand dies.
6. In some instances, the polymer is imported in its basic form and the local plant then processes it until a compound ready for production is obtained.

II. 1 TYPE OF PRODUCTS

The local plastics industries produce the following products:

For Household Use

7. Tableware, pails, dishes, pans, table pads, hangers, combs, containers, dishes, ornamental trays and ornaments in general.

For Industrial Purposes

8. Polyethylene bags, cellophanes bags, beer and soft drink cases, bottles

and containers.

For the Construction Industry

9. Pipes for drinking water, electricity, drainage and ventilation; panels.

For Various Uses

10. Refrigeration tanks, water tanks, gasoline tanks, balls, belts, luminous commercial signs, toys.

II. 2 PRODUCTION CAPACITY

11. The local plastic industry has a maximum production capacity of 2,300 metric tons per month. However, at the present time, the existing plants are processing only about 700 tons of plastic materials per month, which represents 31% of the installed capacity.

12. At each individual plant the maximum utilization of the installed capacity varies from 25% to 60%.

II. 3 LABOR

13. At the present time, the plastics industry in Panamá employs a little over than 500 workers.

14. In general, these workers lack training in this field. However, many of them are benefiting from on the job training programs carried out by foreign instructors contracted by some of the interested local plants.

II. 4 RAW MATERIALS

15. Since there is no petrochemical industry in Panamá, almost all the raw materials required for the production of plastics products is imported.

16. The imported raw materials consist mainly of the following products: Polyvinyl Chloride (PVC), Polystyrene, Polypropylene, Polyethylene, acrylic plastics, polyvinyl acetate. These materials, as well as the machinery and equipment for the plastic plants, are imported from the United States, Japan, Europe, Colombia and Costa Rica.

17. Recently, two of the existing plants have gone one step further, by importing the PVC resin, in powder form, which is then stabilized and plasti-

cized until a PVC compound suitable for the production of plastic products is obtained. In this way, the raw material can be used directly in powder form, saving two or three operations and in consequence reducing production costs. A third plant is also considering the introduction of this system.

III. PROJECTION CONSUMPTION OF PLASTIC PRODUCTS IN PANAMA UNTIL YEAR 1980

18. The apparent consumption of plastic materials is determined by their imports, either as raw materials for the local plastic industries or as finished products. At the present stage, the exportation of plastic products could be considered negligible for statistical purposes.

19. Based on statistical data, it is hard to forecast the consumption of plastic products in the coming years, because this is a substitution material in traditional products. There are several fields where the utilization of plastic products could be advantageous if their prices were competitive. In the meantime, these fields remain as potential markets.

20. An optimistic estimate of the future consumption of plastic products could be based on the assumption that the present increase rate of per capita consumption of these products will remain at the same level in the coming years.

21. The above mentioned assumption could also be based on the following facts:

- a) Population Growth: From 1960 to 1970, the population of Panama grew at a rate of 3.3% per year. This means that in the year 1980 there will be an increase of 40% in the number of potential consumers.
- b) Standard of Living: The rate of growth of the national gross product is 4.6% per year.
- c) The substitution of traditional materials such as wood, metals, cement, etc., by plastics, as well as the combination of these materials with plastics. While the per capita consumption of plastics shows a growth rate of 19.5% per year,

steel is only 5.86. (See Tables II, III, IV and V).

In 1965 the consumption of steel, by weight, was more than seven times the consumption of plastic materials. It is expected that in 1980 this ratio will be only 1.22.

d) New applications for plastic products: The total consumption of plastic products in 1971 was almost 3.5 times more than in 1965. It is expected that in 1980 the consumption of plastic products will be three times more than in 1971. (See Tables II and III).

It is expected that the per capita consumption of plastic products will increase from 8.5 kilogrammes in 1971 to 42.1 kilogrammes in 1980.

IV. MAJOR PROBLEMS

Adaptation of Technology

22. Because of their limited resources, the local plastic plants cannot afford to establish research programs to develop new techniques or the adaptation of the existing technology. Many industrialists have reported problems in adapting imported technology due to the difference between the local environmental and atmospheric conditions and those of the supplier country.

Limited Market

23. The reduced local market is determined, mainly, by the relatively small population of the country. Therefore, in order to operate above the break-even point, only enterprises of certain minimum size with a diversified production can be established in most cases.

24. Some plants are facing difficulties because they were established on the assumption of an easy access to the export market as a potential outlet for their products. However, they missed the fact that in many countries imports are regulated by international agreements.

Lack of Trained Personnel

25. The most common problem found in this industry is the shortage of tech-

nicians and skilled workers. Each enterprise has to train their own workers.

Consumer Preference

26. In spite of higher prices for imported plastic products and the availability of local produced plastic commodities of similar quality and better prices, there is a tendency among the consumers to buy imported goods.

27. The above described situation is due, at least in part, to the fact that the plastic industry in Panama is relatively young and in some instances has not developed yet the necessary skill to produce goods of the same quality and finish of those imported from highly developed countries.

28. In order to collaborate in the solution of some of the above mentioned factors which retard our industrial development, the Government has enacted an Industrial Investment Incentive Law. This Law grants, among others, the following privileges to the qualified enterprises:

- a) Exemption in the payment of duties on imported machinery, equipment and raw materials.
- b) Exemption in the payment of Income Tax on profits obtained from the exportation of their products.
- c) Tariff protection against the competition or dumping of imported products.

V. TECHNICAL ASSISTANCE

29. As mentioned before, there is a lack of technicians and skilled workers for the plastic industry in Panama. On the other hand, this industry has encountered some difficulties in adapting new technologies imported from highly developed countries.

30. Although many of these plants receive sporadic technical assistance from their suppliers of machinery, equipment and raw materials, there is a large need for a more formal program of technical assistance, advice and training for the plastic industry.

31. At the technician level it would be very useful to have a program covered

ing the techniques for selecting and adapting imported technologies more suitable to the local conditions.

32. Further more, at the production level, a training program for supervisors is most desirable. Such a program should include the basics of plastic raw materials, machinery and equipment operation and maintenance, material handling and quality control.

33. After these two briefly described programs have taken place, then each participating plant could organize their own training programs for their workers, either by themselves or under the guidance of an international expert, if possible.

VI. PERSPECTIVES OF THE PLASTIC INDUSTRY IN PANAMA

34. If we take into consideration that the plastic industry has a better potential for growth in the fields of the construction industry, furniture-making and shoe-making, then a careful analysis has to be made with regard to its overall effect on the national economy.

35. In this sense, when considering the industrial uses of plastics in the above mentioned fields, the following points should be taken into account:

- 1) This industry is based on raw materials which are not produced in this country, and in view of the present conditions it cannot be expected to be produced locally in a short or medium term. This without mentioning the highly technological development required for the production of plastic raw materials.
- 2) The utilization of plastic raw materials requires a mass production technology and the use of automatic machinery and equipment in most cases. In other words, it is a capital-intensive industry.

36. On the other hand, with regard to the situation of the locally produced raw materials for the construction, furniture-making and shoe-making indus-

tries, as well as of the labor force, the following aspects should be considered:

- a) Through a proper development policy, this country can produce the necessary raw materials to supply industrial needs in the areas of cement and aggregates, wood, skin and hides.
- b) Being capital-intensive, the plastic industry offers relatively limited employment opportunities for the labor force.

37. The plastic industry should be oriented toward those areas where it can add more positively to the development of the national economy. Some of these areas could be identified in the industrial production of containers, packing and publicity materials.

38. Another possibility where the plastic industry could have a positive effect on the national economy is through the combination of plastic materials with locally produced items of a traditional nature thus affording more versatility to the latter instead of completely substituting them.

COMPANIES MANUFACTURING PLASTIC PRODUCTS IN PANAMA

TABLE NO 1

	NAME OF THE COMP. NY	METRIC TONS			30000 KWH. VALUE	RAW MATERIALS	MANUFACTURING METHOD
		Utilized Production capacity	Installed production capacity	Number of employees			
1.	POLYMER FABRICATION, S.A.	398	1,592.	200		Polyethylene, powder PVC, polystyrene, polypropylene, acrylics.	Extrusion, Vacuum forming.
2.	PLASTIC INDUSTRIAL S.A.	60	150	16		Polyethylene	Extrusion, pressure.
3.	TRANSPLASTICOS INDUSTRIALES S.A.	20	50	36		Polyethylene, PVC	Extrusion.
4.	CELLOFINI, S.A.	25	41	53		Polyethylene	Extrusion, blowing.
5.	INDUSTRIA NACIONAL DEL PLASTICO, S.A.	60	240	34		PVC, polystyrene, polypropylene, polyvinyl acetate.	Extrusion, injection.
6.	PLASTICO INDUSTRIAL, S.A.	36	90	4		Rigid PVC	Extrusion.
7.	PANAPLASTICO, S.A.	1	1	12		Acrylic plastics	Vacuum forming.
8.	ACIPLASTA, S.A.	25	25	16		Acrylic plastics	Vacuum forming.
9.	PLASTICO NACIONAL, S.A.	26	35	25		Polyethylene, polystyrene, PVC, polypropylene, acrylics, nylon.	Extrusion, vacuum forming
10.	PLASTICO INTERNACIONAL, S.A.			19			Extrusion, injection, pressure, blowing, vacuum forming.

Continuation
TABLE NO I

NAME OF COMPANY	METRIC TONS		GOODS MANUFACTURED	RAW MATERIALS	PROCESSING METHOD
	Utilised production capacity	Installed production capacity			
11. PLASTICOS NACIONALES, S.A.	68	82	Hoses, pipes for water, drainage electricity and ventilation.	Powder PVC	Extrusion.
12. PLASTIFOM, S.A.	14	56	Foam rubber.	Polyurethane, flexible	Vacuum forming.
13. PRODUCTOS NEON, S.A.	--	--	Luminous signs.	Acrylic plastics	Extrusion
14. TERMOPLASTICA LAM, S.A.	--	--	Plastic sheets for doors, walls, panels, etc.	PVC	
15. KATIVO DE PANAMA, S.A.	--	--	Plastics sheets for roofs, wall and furniture.	Ethyrene	
SUB TOTAL	<u>233</u>	<u>2,362</u>			
		<u>470</u>			

TABLE II
CONSUMPTION OF PLASTICS MATERIALS

<u>YEAR</u>	<u>APPARENT CONSUMPTION METRIC TONS:</u>	<u>CONSUMPTION PER CAPITA Kilograms/Person</u>
1965	3606.	2.9
1966	4511 .	3.5
1967	5244.	3.9
1968	7365.	5.4
1969	7929.	5.6
1970	10347.	7.2
1971	12459.	8.5

TABLE III

PROJECTION OF DEMAND FOR PLASTICS MATERIALS

<u>YEAR</u>	<u>APPARENT CONSUMPTION Metric Tons (I)</u>	<u>CONSUMPTION PER CAPITA Kg/Person (II)</u>
1972	15318	10.1
1973	18834	12.1
1974	23156	14.5
1975	28470	17.3
1976	35004	20.6
1977	43037	24.7
1978	52915	29.5
1979	65058	35.2
1980	79989	42.1

(I) Criteria: Growth rate of 22.95% per year .

(II) Criteria: Growth rate of 19.5% per year.

TABLE IV
CONSUMPTION OF STEEL

<u>YEAR</u>	<u>APPARENT CONSUMPTION Metric Tons</u>	<u>CONSUMPTION PER CAPITA Kg/Person</u>
1965	27930	22.4
1966	23941	18.6
1967	33774	25.4
1968	37557	27.4
1969	38082	26.9
1970	42360	29.7

TABLE I
PROJECTION OF THE DEMAND FOR STEEL

<u>YEAR</u>	<u>APPARENT CONSUMPTION Metric Tons (III)</u>	<u>CONSUMPTION PER CAPITA Kg/Person (IV)</u>
1971	46033	31.4
1972	50024	33.3
1973	54301	35.2
1974	59079	37.2
1975	64196	39.4
1976	69762	41.6
1977	75810	44.1
1978	82383	46.6
1979	89525	49.3
1980	97287	52.2

(III) Criteria: Growth rate of 3.67% per year.

(IV) Criteria: Growth rate of 5.8% per year.





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