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THE PRESENT STATUS AND FUTURE PLANS FOR DEVELOPMENT OF THE PLASTICS INDUSTRY IN ISRAEL AND TECHNICAL ASSISTANCE REQUIRED[1/]

by

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I. INTRODUCTION

1. The statistics of the plastics industry in Israel is impressive. The first local plastics factory was establish 40 years ago, but the bulk of the industry has developed only during the past decade. Production of plastics raw materials was started in Israel in 1964. With nearly 300 enterprises of various sizes and a manpower of over 5,000, the plastics industry claims the largest number of new plants of any Israeli industry in recent years.

2. Per capita consumption of plastics in Israel in 1972 has been, approximately, 22 Kg, compared with 1971 consumption in West Germany and Sweden- over 55 Kg, Japan and USA - over 40 Kg and most Western European countries over 30 Kg. Due to the dynamic industrialization of Israel, it may be anticipated-by analogy- that Israel's plastic industry will continue growing at least at its present rate of growth.

II. PRODUCTION AND IMPORT OF PLATICS RAW MATERIALS

3. Israel has a particular need for plastics, if only because the alternative materials - metals and timber - are all imported.
The three major groups of materials presently produced in Israel are LDPE (49%, by weight), PVC (34%) and Thermosets (17%). LDPE is produced by Israel Petrochemical Enterprises, PVC is produced by Electrochemical Industries (Frutarom), and thermosets are produced mainly by Carmel Chemicals (urea and melamine formaldehydes) and by Makhteshim (polyesters).

4. Imports of plastic raw materials until 1973 have been increasing at a higher rate than local production; clearly, local demand has been taking up more than available production capacity. Total production and imports of plastic raw materials for the period 1968 - 1976 are presented in Table I :

Table I

Production and Import (1000 tons)
of Plastic Raw Materials in Israel

	PRODUCTION						IMPORT					
	1968	1969	1970	1971	1972	EST 1976[1]	1968	1969	1970	1971	1972	EST. 1976
P.V.C.	7.9	8.6	9.6	10.5	13.5	50.0	1.8	4.4	6.8	7.2	10.0	5.0
LDPE	18.6	16.0	17.8	18.0	19.0	53.0	2.1	3.5	0.3	3.8	4.0	2.0
HDPE	-	-	-	-	-	-	-	-	4.4	4.7	5.0	8.0
Polystyrene	-	-	-	-	-	16.0	6.1	6.7	7.0	8.0	7.5	2.0
Polypropylene	-	-	-	-	-	-	1.8	2.4	2.7	4.0	5.5	10.0
Thermosets[2]	3.4	4.0	4.4	6.0	7.0	18.0	0.5	1.0	1.3	1.5	1.6	1.0
Polyurethanes	-	-	-	-	-	-	1.2	1.7	2.3	2.8	3.0	5.0
Others	-	-	-	-	-	12.0[3]	0.5	0.6	0.8	1.2	1.7	3.0
TOTAL	29.9	28.6	31.8	34.5	39.5	149.0	14.0	20.3	25.8	31.2	36.3	36.0

(1) Accompanied by added capacities of ethylene, benzene, styrene and methanol

(2) Urea formaldehyde, Melamine formaldehyde, Phenol formaldehyde and Polyesters

(3) Includes Nylon 6/6 - and polyester - fibres

III. CONSUMPTION AND EXPORT OF PLASTIC RAW MATERIALS

5. It is estimated that in 1976 plastic raw material production will match consumption at circa 130,000 ton, whereas imports will match exports at circa 40,000 ton.

6. Consumption and export of plastic raw materials for the period 1963-1976 are summarized in Table II.

Table II

Consumption and Export (1000 tons)
of plastic Raw Materials, Israel

	CONSUMPTION						EXPORT					
	1968	1969	1970	1971	1972	EST. 1976	1968	1969	1970	1971	1972	EST. 1976
PVC	8.5	11.4	13.9	16.6	21.0	40.0	1.2	1.6	2.5	1.1	2.5	15.0
LDPE	10.4	14.2	13.6	18.6	21.0	42.0	10.3	5.3	2.5	2.2	2.0	13.0
HDPE	-	-	4.4	4.7	5.0	8.0	-	-	-	-	-	-
Polystyrene	6.1	6.7	7.0	8.0	7.5	18.0	-	-	-	-	-	-
Polypropylene	1.8	2.4	2.7	4.0	5.5	10.0	-	-	-	-	-	-
Thermosets	2.5	3.1	3.6	3.3	3.5	6.0	1.0	1.0	1.6	2.9	5.1	13.0
Polyurethanes	1.1	1.7	2.3	2.8	3.0	5.0	-	-	-	-	-	-
Others	0.5	0.6	0.8	1.2	1.7	3.0	-	-	-	-	-	-
TOTAL	30.9	40.1	47.7	58.2	68.2	132.0	12.5	7.9	9.1	6.2	9.6	41.0

IV. PLASTICS APPLICATIONS, CONSUMPTION TRENDS

7. Breakdown of consumption, by applications, in Israel and in a typical industrialized country are summarized in Tables III and IV:

Table III

LDPE and PVC Application, Israel - % of their volume, 1971

	LDPE	PVC
Packaging (soft & rigid)	47.5	8.1
Agriculture & Building	19.4	29.0
Pipe & Tubing	16.3	27.9
Electrical cables	-	16.9
Consumer goods	12.8	12.0
Others	4.0	1.9
TOTAL	100.0	100.0

Table IV

Plastics Applications, Israel-% of total Volume

	Israel	Typical Industrialized Country
Semi-finished goods	31.0	37.9
Piping	4.0	3.7
Technical products	4.5	24.0
Packaging	28.0	19.1
Consumer goods	30.0	14.1
Others	2.5	1.6
TOTAL	100.0	100.0

8. Examination of the consumption patterns presented above points to a significant development potential in technical products in Israel, i.e. in items of more complicated design and advanced manufacturing know-how. The present trend of growth, of over 30%, in packaging applications, which is higher than the average rate of general plastics consumption increase, indicates a further concurrent growth in all plastics applications in Israel.

V. TRENDS AND FORECASTS, GENERAL

9. Since 1965 the plastics industry output in Israel has been growing at an average annual rate of 22%, twice as fast as industry in general. Besides the gradual increase in imports of plastics raw materials and finished goods, a substantial volume of plastic products enters Israel as components of imported items, or packagings of products, not classified by custom authorities as plastics.

10. The 1976 export goal for plastics products (Table V) involves plans to reach nearly a 3.9 multiple of the 1971 plastics exports, which is nearly twice as high as the corresponding goal set for the total industry.

Table V

Plastics Exports (millions of $US) from Israel

	1965	1968	1969	1970	1971	EST. 1973	EST. 1976
Raw materials	1.1	4.0	2.9	3.3	3.4	3.8	16.0
Processed goods	1.8	2.4	3.2	4.0	4.9	7.7	16.0
TOTAL	2.9	6.4	6.1	7.3	8.3	11.5	32.0

11. Industrial output in Israel has been planned to triple during the period 1965 - 1976, with emphasis on increased exports and decreased imports. Examining the performance of the plastics industry in comparison with other industries in Israel, its average rate of growth is only lower than those of electronics, transportation and machinery. In terms of productivity by day-work, the plastics processing industry is distinctly higher, and has been increasing faster, than the total industry average.

The relatively fast growth of the plastics industry in Israel has been spurred by ever increasing investments (Table VI), growing - for plastics processing - from circa 2 million US $ in 1966, to nearly 19 million US $ in 1972.

Table VI

Investments in Plastics Production By Application, Israel (millions of US $)

	1971	1972	EST. 1972 - 1976
Packaging	3.0	3.5	
Technical products	3.0	5.5	
Building	2277	3.8	
Agriculture	2.5	2.0	
Consumer	1.5	1.5	
Others	1.5	2.5	
TOTAL	14.2	18.8	80.0
Plastics Raw Materials	-	-	60.0

VI. PROCESSING FACILITIES AND MANPOWER

11. An examination of 100, out of circa 210, plastics processing plants (1971) (Tables VII and VIII) by sales volume, investment and number of employees shows that extrusion plants are bigger than injection molding plants. The average annual sales volumes in 1971 were 1.5 million US $ per extrusion, vs. .75 million US $ per injection plant. The average investments were $1 million per extrusion, vs. .120 million US $ per injection plant. Per worker, investment and annual sales were 15,000 US $ and 37,000 US $ in extrusion, vs. 3,500 US $ and 22,500 US $ in injection, correspondingly. The relatively small investment required in injection molding, coupled with the far from saturated market, have resulted in a temporary proliferation of medium - and small - size injection plants.

Table VII

Conversion Equipment Breakdown, Approximation (1971, Israel

	Units	Unit %
Injection molding	320	47.5
Extrusion	140	21.0
Comp., and trans., molding	60	9.0
Blow molding.	40	6.0
Laminating presses	20	3
Calendering	10	1.5
Miscel.,	80	12
TOTAL	670	100.0

Table VIII

Number of Employees Per Plant (1971)

No. of Employees	No. of Plants
Less than 10	122
10 - 20	25
21 - 50	40
51 - 100	15
Over 100	8

13. Manpower trained in plastics technology is in great demand. Besides on - the - job training there has been a continuous effort, especially by the Technion (Israel Institute of Technology), to provide qualified manpower. A breakdown of manpower (1971) by qualifications is shown in Table IX.

Table IX

Employees, Plastics Industry, 1971, Israel

- Total number of employees	-	approximately 5,000
- Professional Engineers	-	2.5%
- Trained techniciens	-	4.0%
- Tooling machinists	-	4.5%
- Maintenance personnel	-	5.5%
- Untrained production lab.	-	75.0%
- Miscel.,	-	8.5%

14. Mold making in Israel deserves special comment. In 1972 only 5 mold makers employed more than 15 employees; the remainder (about 35) employed 5-7 employees. There is a severe shortage of experienced product designers and expert mold makers. Most consumer products will not meet competition in the local market and therefore their design and molds are accepted if reasonably free of defects. Products of more exacting design and molds are handled only by a small fraction of the mold makers in Israel, who are thus overburdened. As competition in plastics increases, along with consumption per capita, delivery time of better designs and molds becomes longer entailing, presently, waiting periods of 7 - 10 months.

VII. NEEDS AND CONTACTS

15. The goals of Israel's plastics industry include increased production of better designed and higher-quality consumer goods and engineering products, introduce newer technologies, develop the production of disposable medical items, improve and increase food packaging applications, increase and improve applications in ibuilding and agriculture.

16. The plastics industry has always invited foreign manufacturers to consider both partnership with local processors and investments in existing firms, on the basis of the foreign firms' advanced know-how or markets.

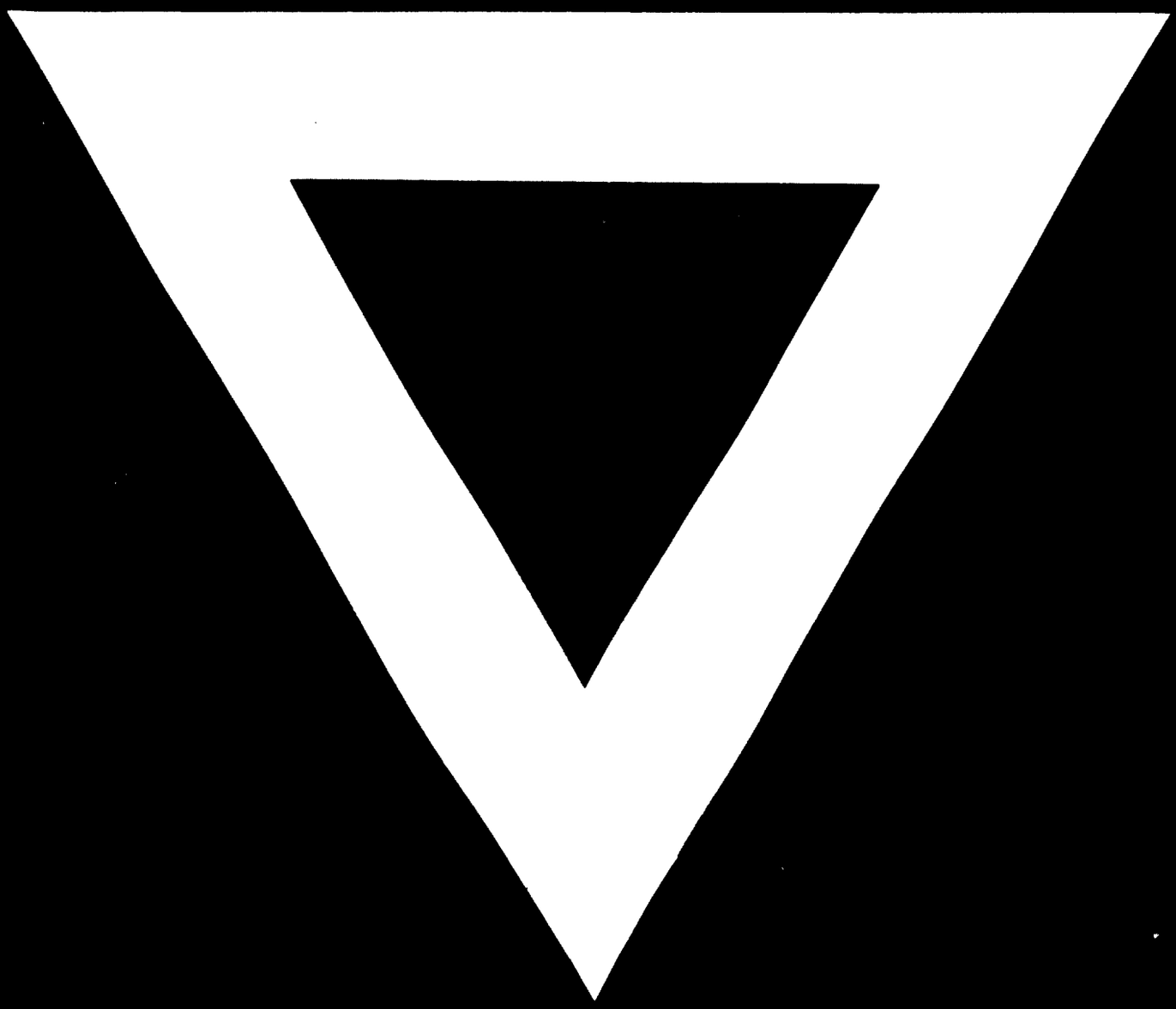
17. The government of Israel has followed a policy of aid to exporters, in order to enhance the competitiveness of their goods with the products of the large industrial nations. The aid includes various tax incentives, various grants and loans, financing of working capital and participation in sales promotion overseas.

12. Further information may be obtained from:

- The Government of Israel Investment Authority offices in the US (N.Y., Atlanta, Chicago, Los Angeles), Canada (Toronto), Switzerland (Zurich) and England (London)

- Israel Export Institute, Shalom Tower, Tel-Aviv, Israel

- The Plastics Committee, 13 Montefiore St. Tel-Aviv, Israel



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