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05918



Distr.  
LIMITED  
ID/WG.139/7  
25 October 1974  
Original: ENGLISH

United Nations Industrial Development Organization

Fifth Training Programme in Plastics Technology  
Vienna, Austria, 23 September - 22 November 1974

*plastics program*

THE DEVELOPMENT OF THE PLASTICS INDUSTRY  
IN IRAQ<sup>1/</sup>

by

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<sup>1/</sup> 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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I. INTRODUCTION

1. The group of plastic materials of various types is one of the fastest growing members of petrochemicals family. All over the world plastics have found numerous applications in practically every walk of life. These raw materials are in much demand due to their versatility and wide range of interesting properties. Moreover, in contact to conventional materials, they are in most cases cheaper raw materials than the conventional ones. These features make plastics extremely important primary products in countries which are short of raw material resources.
2. IRAQ is poorly supplied with vital raw materials such as metals and timber, large quantities of foreign exchange are required to import these materials. On the other hand, Iraq is very rich in hydrocarbon resources as a basic raw material for petrochemicals and plastics industries. This makes the replacement of some of the major imported conventional raw materials by plastics and resins a matter of prime importance for Iraq.

## II. PLASTIC IN IRAQ.

### A. The past

- 1 The history of the plastic converting industry in IRAQ starts in 1950 when semi-automatic machines were imported for the compression moulding of thermosets. During 1950 this activity is expanded into the injection moulding of thermoplastics for the household industry.

By the end of the fifties polyethylene is already being extruded into film and injection moulding industry is being intensified. In the sixties the Iraqi industry incorporated extrusion of PVC and polyethylene pipe, rotational injection moulding of PVC shoes, PVC compounds, polyurethane foam products, artificial leather, expanded polystyrene, melamine and urea formaldehyde table ware and electrical goods.

This period, witnessed the mushrooming of plastic private companies with the establishment of more than one hundred (100) firms with known registration data. Product line of these companies vary, such as house wares, containers, hoses and pipes, bottles, caps, ropes, shoes, sandals, toys, bags -----etc.

- 2 Of the estimated Statistics available on the consumption of plastic materials, it was found that Iraq has consumed during the year 1963 was 1800 ton, against 16045 and 20555 ton in 1972 and 1973 respectively. In other word, the increase went upto 10 times more.

Schedule no. (1) shows a classification for different plastic materials consumed in Iraq during the years 1972 and 1973 wherein it appears that low density and high density Polyethylene & PVC, are extensively used in various fields.

Schedule no. (2) illustrates the consumption of plastic materials in various economical sectors which show that packing is segregated as first among the other sectors and forms 28 % of the quantity consumed in 1973, i.e. by an increase of 5 % compared to the year 1972. For the building sector, and

other domestic uses, the quantity went down at a rate of 2 % and 6 % compared to the year 1972, at a time when the Industrial Sector, particularly Shoe Industry, remained undeveloped

In accordance with Statistics available for the years 1972 and 1973 the existing plastic plants relevant to the private Sector in Iraq were estimated at about (160) plants ( 4 % of this figure belongs to the mixed and General Sectors ). Such plants comprise 228 machines of different types at a total capacity amounting to 142 thousand ton, of which only 16 % was utilized for actual production.

Schedule no. (3) shows the types & number of the above machines classified by the processing method of production. This Schedule elucidates that the number of Injection Moulding Machines forms the majority, then come the Extrusion and Blow Moulding Machines.

3. Plastic Industry in Iraq during the past few years was undeveloped from both production and consumption aspects, since goods introduced to the local market were mostly of identical types, and not in conformity with the International Standard Specifications, apart from the fact that goods produced in Iraq were excessively affected by the climatic conditions.

The reasons that entailed such unfavourable results are as follows:

- A) Lack of proper planning in the past in regard to growth and development of plastic industries that correspond with the need of the various Economical Sectors, which matter led to establishment of these industries on a small and scattered basis, far from developments from both quantity and quality point of view.
- B) The policy of the Imperialistic Countries performed by its monopolised Companies have exerted fullest efforts to keep industries at a lower standard, and in an economical complex, to put Iraq as an importer of manufactured goods, exporting his oil and natural gas which form the main national income, at cheapest prices.

- C) Lack of specialities, and expanded production that are linked with applied research to develop plastic goods in a way to cope with the technological and social development as a result of which the growth of plastics and consumption thereof was generally at a lower trend.
- D) The aim of the major private industries was based on achievement of higher profits, whereas on the other hand they neglected the technical aspects, and failed to bind themselves with the world standard specifications.

Schedule no. (1) Classification for different plastic materials consumed in Iraq during the years 1972 and 1973 in tons

No.	Plastic material	1972	1973
1	HD polyethylene	3 710	4 695
2	LD polyethylene	1 903	2 030
3	PVC	4 778	5 808
4	Polystyrene	1 653	1 808
5	Polypropylene	740	1 657
6	Polyurethane	1 268	2 008
7	Melamine powders	213	342
8	Urea-formoldehyde powder	159	170
9	Phenol-formoldehyde powders	24	30
10	Resin for formica production	150	300
11	Polyester	100	120
12	Miscellaneous	1 347	2 187
<b>Total</b>		<b>16 045</b>	<b>20 555</b>



Schedule no. (2) Illustration showing the consumption of plastic materials in various economical sectors.

No.	Sector	1972		1973	
		Tons	%	Tons	%
1.	Packing	3 839	23.8	5 834	28.3
2.	Building	1 088	6.7	995	4.8
3.	Industry	1 475	9.1	1 898	9.2
4.	Metal	2 320	14.4	3 420	16.6
5.	Shoe industry	2 813	17.5	3 723	18.1
6.	Domestic use	3 722	23.1	3 615	17.5
7.	Agricultural uses	-	-	-	-
8.	Miscellaneous	798	4.9	1 066	5.1
Total		16 045	99.99	20 555	99.98

Schedule no. (3) Types and number of plastics processing machines, 1973

No.	Processing method	Number of machines	Max. capacity city tons	utilized capacity tons	%
1	Extrusion	32	20 284	6 510	32.09
2	Injection moulding	158	45 470	7 590	16.69
3	Blow moulding	91	29 689	4 155	14.03
4	Thermoforming	8	3 797	110	2.91
5	Compression moulding and spraying	61	32 127	2 899	9.02
6	Miscellaneous	80	11 043	2 242	20.3
	<b>Total</b>	<b>228</b>	<b>142 410</b>	<b>23 516</b>	<b>16.5</b>

### III Present Status and future growth and development:

Since the 17th July 1968 National Progressive Revolution, Iraq faced by virtue of the Revolutionary Government radical changes which covered most spaces of the economical and social life including the Industrial Sector, as well as the strategy of industrialization depending mainly on the national resources which are processed for exporting purposes and self-content. Under this stage nationalization was brought forth to achieve complete sovereignty on oil and natural gas for liberation from foreign monopoly as a preliminary step to stabilize the major portion of financial income in the hand of the State for use in a more active manner to build a solid and developed economy.

As a result of this decisive economic policy, a large number of projects came out which included various economic sectors, the most important of which was petrochemicals, refineries, and fertilizers projects etc.

As a matter of fact, petrochemical industries are extremely important, especially for Iraq where this industry will play a dynamic role that will have a sound effect on all sections of the Iraqi Economy, as a result of which values of products will be increased thus achieving a large capital accumulation which is the fundamental basis for building, growing, and developing the said Economy. For this individual reason, petrochemical projects occupied the advanced position in the 5-years national plan 1975-1979, considering the high importance of such projects for the Industrial Sector in particular, and the national Economy in general.

The Petrochemical Complex shall depend on the national gas to produce (60) thousand ton of polyvenyl chloride and (90) thousand ton of low and high density polyethylene. It may not be out of text to mention on this occasion that the Revolutionary Government has lately decided to set up

another Complex for production of petrochemicals solely allocated for export and local consumption on naphtha basis.

Simultaneously, the petrochemical products mentioned above could be called resins that warrant some downstream processes to convert same to finished products.

The most important plastic projects included in the next 5-years national plan are the following:

1. Unplasticized PVC pipes with <sup>a</sup>capacity of 24 thousand tons per year; for using drinking, drainage, farms and others
2. Elastic boxes project with a capacity of 4 million per year expandable to 6 million crates upto 1980.
3. Woven bags project, production capacity 40-50 million bag per year, to use it for various economic sectors excluding Fertilizers industry, which depends on itself production.
4. Units for production bottles, containers to canning factories and refineries---etc. with a capacity 5000 tons per year.
5. Project for production 6000 tons per year agricultural polyethylene films, expandable upto 12 thousand tons per year.
6. Floor covering project with a capacity <sup>20-25</sup> / million pieces per year.
7. Project for production 600 thousand sq. meter per year of high pressure decorative laminates, expandable to 2.5-3 million sq. meter per year.
8. Blown bags project with a capacity 6000 tons per year expandable to 12 thousand per year.
9. Units for production 6000 ton per year of polystyren sheet and foiles.
10. Artificial leathers project with a capacity 1.5 million long meter per year, expandable upto 4 million long meter per year.

Areas in which UNIDO assistance is desirable:

The main problems in which UNIDO assistance is desirable and likely to yield the most fruitful results for the economic development of our country are as follows:

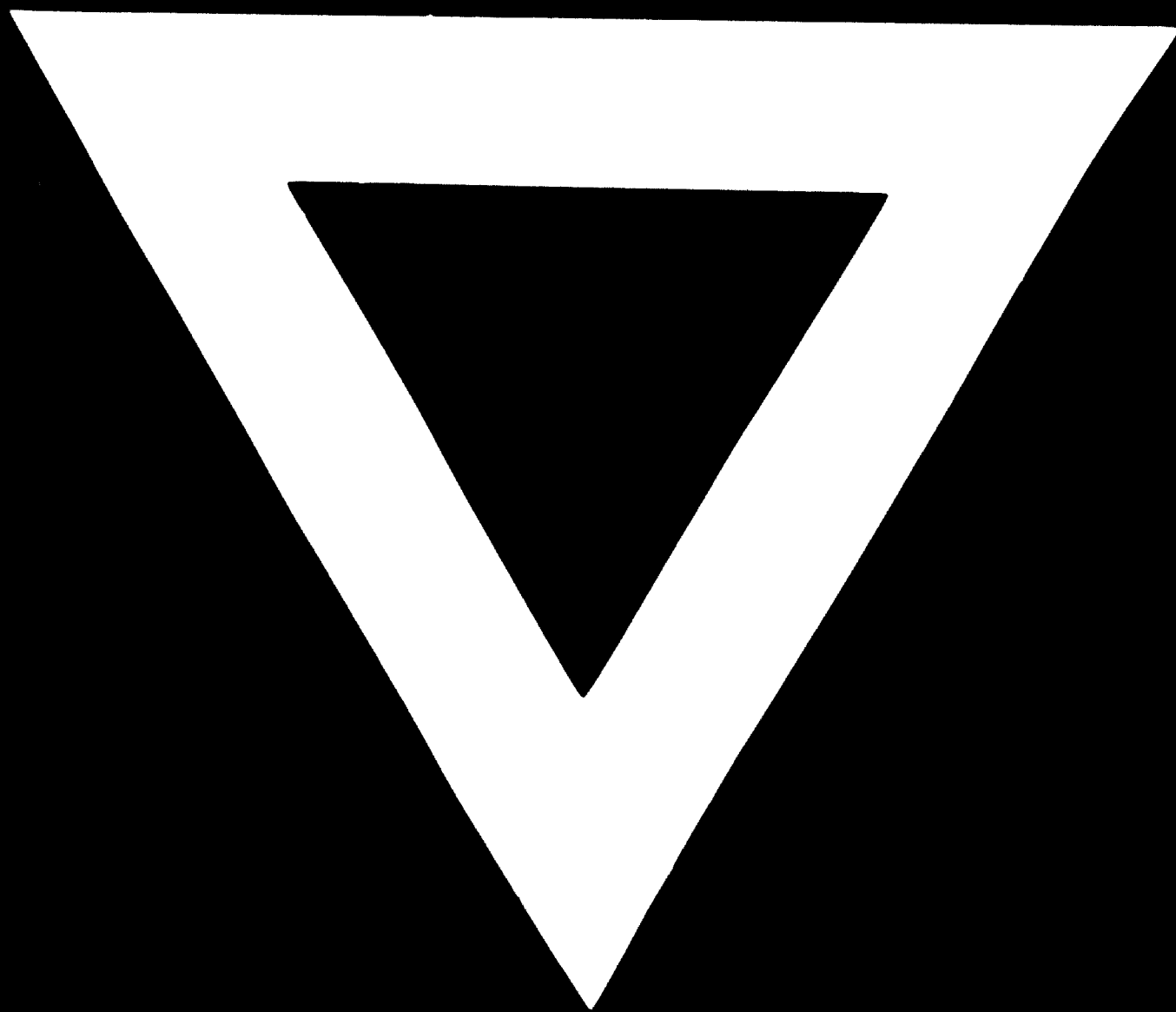
1. Iraq is short of skilled manpower required in the plastics processing industry. The workers are not well-equipped with proper knowledge and training to operate plastics processing equipment. They also lack the knowledge about the proper use of plastics materials. It is felt that by giving proper training and education about machines and plastics materials, both the quality and the quantity of operation can be improved.
2. United Nations can help in the promotion of plastics in Iraq by establishing a plastic institute for education and training of personnel for the plastics processing and equipment manufacturing industries.
3. One of the most problems faced by the plastics processing industry in Iraq is a raw materials shortage and availability of moulds. Moulds locally fabricated are crude in design, these moulds are fabricated in small workshops which do not follow universally standard specifications. Companies, preferred by UNIDO, can help in erecting a plant for producing standard moulds for different plastics industries.
4. Characteristics of Iraqi climate is reflected in high sun radiation, specially on UV rays, as well as high temperature during the summer time. This situation leads to degradation of the plastic goods and losing their main properties. The Companies and research institutes considered by UNIDO can help in realizing programmes for practical research to develop plastic goods, specially for PVC and PE for outdoor application
5. Production of insulating panels for cold storages and freezers.
6. Production of doors and windows.
7. Production of melamine and urea formaldehyde moulding powders for different purposes.

8. Production of water tanks with a capacity of 1-2 cubic meter, from HD polyethylene for private houses.
9. Production of decorative films for wall covering.
10. Production of polyvinylacetate for different purposes.
11. Production of carton plastic for date packing for export.
12. Waste plastics regeneration project.

For the proper solving of the above-mentioned problems, we would like to discuss and get information and proposals, separately for each product and problem on the following points:

- a) Each project mentioned above shall be included minimum economical capacity suggested by you, with possibilities for future extension.
- b) Feasibility study for each plant is necessary.
- c) Quality characteristics of the end-products and major producers.
- d) Consumption break down and application of the articles in the economy of the developed countries.
- e) Raw materials and their quality characteristics.
- f) Processing machines and equipment, including major machinery producers.
- g) Technology, including know-how and Companies owners of "know-how".
- h) Consumption figures and production costs over one ton production.





**75.04.09**