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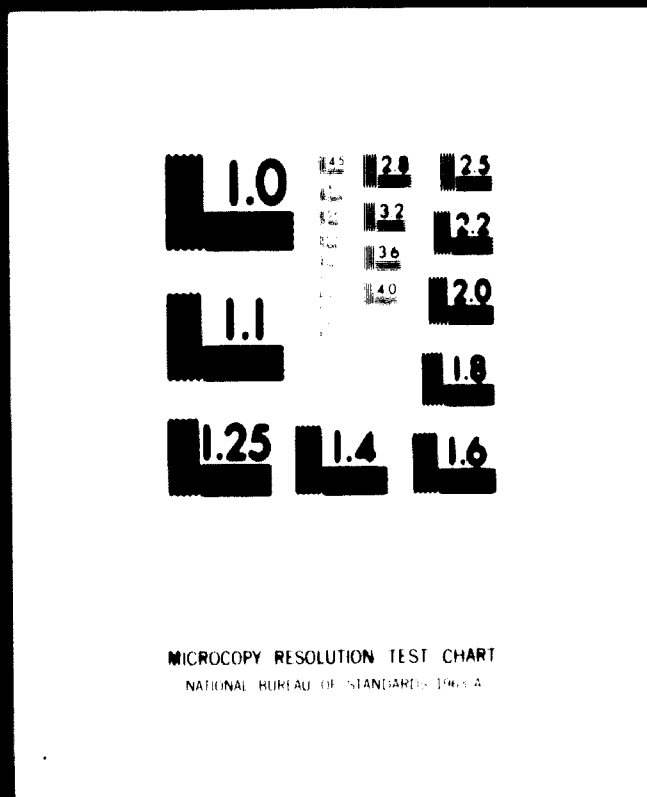
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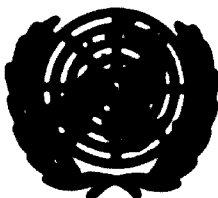
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**Sixth Training Programme in Plastics
Technology**

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**PRESENT STATUS AND FUTURE PLANS FOR THE
DEVELOPMENT OF THE PLASTICS INDUSTRY
IN IRAQ**

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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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ACKNOWLEDGEMENT

Compiling this comprehensive report is due to my acceptance in the Unido-Sixth training programme in Plastic Technology and their request for this report.

Due to the lack of time this report is in a comprehensive form and trust will render a clear view on the status of Plastic Industries in Iraq and the importance sought by the Unido for their development, with thanks

ANALYSIS OF PLASTIC PRODUCTS
CONSUMPTION IN IRAQ PRESENT & FUTURE

It is difficult to specify the commencement of consumption of Plastic products by Iraq, but however are able to estimate the period after the world War II as beginning of active consumption of Plastic products, which applied in that time to celluloid, in parallel to international use of this product and as definite results, its use spread in Iraq also, as a final imported product.

In accordance with the estimated statistics available on the consumption of Plastic products, it is confirmed that Iraq have consumed during 1963 (1800) tons and eventually in the year 1972 raised to (16045) tons and in 1973 to (20555) tons, i.e., doubling the quantity ten times within ten years past.

Table No. 1 will show the analysis of different varieties of plastic products consumed for years 1972/1973 from which it will be observed that Polyethylenes high density and low density and the ingredients of Polyvinyl Chloride have a higher capacity which are considered of great consumption on various fields. Depending on these basis it is decided to establish a plant for Petrochemical which will produce the above mentioned varieties during year 1979.

To indicate the most important sources of Plastic product consumption in the different economical sectors, we show in Table No.(2) the quantity consumed by each sector independently from which it will be gathered that the packaging sector exceeded other sectors by having 20% from total.

Table No. (1)

Iraq Consumption of Different Plastic Material in
1972 and 1975

<u>Type</u>	<u>1972 tons</u>	<u>1975 tons</u>
1. Low Density Polyethylene	3710	4695
2. High Density Polyethylene	1903	2030
3. PVC Compound	4778	5808
4. Polystyrene	1653	1808
5. Polypropylene	740	1657
6. Polyurethane	1268	2008
7. Melamene Formaldehyde	213	342
8. Urea Formaldehyde	159	170
9. Phenol Formaldehyde	24	30
10. Resins used for Formica	150	300
11. Polyester	100	120
12. Different	1347	2187
Total	16045	21155

Table No. (2)

Distribution of Plastic Consumption to different sectors in Iraq

Sectors	1972		1973	
	Tons	%	Tons	%
1. Packaging	3899	23.86	6004	28.38
2. Building	1088	6.78	1028	4.86
3. Industrial uses	1475	9.19	1953	9.23
4. Furniture	2320	14.46	3518	16.63
5. Shoes	2813	17.53	3829	18.10
6. Domestic uses	3722	23.20	3720	17.59
7. Different	798	4.97	1096	5.18
Total	16045	100%	21155	100%

The building and household sectors consumption have a small percentage and are not stable, whereas the industrial sectors and footwear sectors have retained normal position comparing with the average, consumption of Plastic products of Iraqi individuals with the average consumption of developing countries as shown in table No. (3) it is noted that our country was far behind due to lack of production and consumption of these products.

PRESENT STATUS OF PLASTIC PRODUCTION IN IRAQ

At present about 160 licensed Industrial Projects exists, specialised in production of different type of intermediate commodity, and majority of these projects are private owned and a limited number of mixed sectors.

There are at present two stages in Iraq in production of Plastic products which are as follows:

- Stage of Intermediate Commodities production, producing by means of compounding.
- Stage of finished commodities produced ready for use which applies to complimentary production within different production capacities.

With regard to the stage of production of Polymers, this has not yet materialised and is expected to be created in 1979.

Following is the analysis of the two stages already existing:

TABLE No. 3

RELATIONS BETWEEN CONSUMPTION OF PLASTIC

MATERIALS & INCOME PER CAPITA FOR SOME COUNTRIES IN COMPARISON

TO IPAS

Country	1 9 6 5		1 9 7 5		1 9 8 0		Plastic Consumption per capita kg
	Population Million	Plastic Consumption thousand Tons	Population Million	Plastic Consumption thousand Tons	Population Million	Plastic Consumption thousand Tons	
Egypt	31.7	15	37.7	55	42.7	125	3
Iran	27.7	40	33	90	38.0	165	4.25
Morocco	32.4	33.5	38.3	74	43.2	157	3.65
Syria	5.7	7	6.9	17	7.8	23	3.60
Turkey	33.6	85	40.0	125	45	240	5.35
Iraq	9.1	8	11.1	24.5	13.2	55.5	4.2

1) INTERMEDIATE COMMODITIES PRODUCTION BY MEANS OF COMPOUNDING

This applies to Projects specialised in production of PVC compounding in Granuel form. This production started in 1962 applied by only one Company under private sector at a capacity of approx 1000 tons p/year. depending on importing the Raw Material from abroad and the production were generally plasticized PVC granuels used for production footwears and hoses. This production started on vast scale after good success and joined by other Companies in the field of this product, arriving at a production capacity approximately 25000 tons p/year at present producing different type of granuels for purpose of containers, artificial leather, electrical cables and a part of these machinery allocated for production of plastic tubes direct, for different purposes as condute pipes, pressure pipes for purpose of water distribution and for agricultural requirement, etc.,.

2) COMPLIMENTARY INDUSTRIES FOR PRODUCTION OF GOODS READY FOR USE

This represents about 160 projects of complimentary Industries in Iraq licenced and specialised in production of Plastic goods ready for use. The number of machines used by the above establishments are estimated to 430 machinery of different types in 1973, the total capacity amounting to 142410 tons, from which the quantity produced was about 23516 tons, which means that utilized capacity is 16.51%. Table No (4) shows the number of machines allocated in accordance to production line. The percentage of capacity utilized is very little compared with the progressive countries as the total capacities for different machineries in Iraq is equivalent to what is requested of different Plastic goods for year 1985.

Table No. 4

Number of Machines in Iraq for Plastic Industries at 1973,
Total Capacity & Percent Utilized Capacity according to the
Method of Processing.

PROCESSING METHOD	NUMBER OF MACHINES	TOTAL CAPACITY TON	UTILIZED CAPACITY TON	% UTILIZED CAPACITY
1- EXTRUSION	32	20204	6510	32.09
2- INJECTION MOULDING	158	45470	7590	16.69
3- BLOW MOULDING	91	29609	4165	14.03
4- THERMOFORMING	8	3797	110	2.91
5- COMPRESSION MOULDING & SPRAYING	61	32127	2899	9.02
6- DIFFERENT PRINTING, COATING....etc	80	11043	2243	20.30
TOTAL	430	142440	23515	16.51

However this does not mean that the Country does not require further machineries, suitable for production of industrial goods efficiently, which could not be produced by using the existing machineries, in addition to many developed commodities during fast development, which is a pride for Industries. Eventually, several companies in both government and private sectors started securing plants for production of Plastic commodities required, specially, containers and bottles. Consequently Iraq started entering new stage, more developed than the past, as part of these Industries, especially those in the government sectors depends on planning and operation of machineries of higher capacities, utilising maximum possible percentage of capacities.

REGARDING DEVELOPMENT STAGE

In the last two years Iraq made an exceptional progress in building Plastic Projects and there are other projects and assume that the situation will change especially in case starting local production of some polymers, as a result of continuous study on this subject manufacturing of different material appeared such as Plastic Tubes, Sheets, Foils for different purposes and Foam Leather, leading towards progress. Also there are several projects under execution such as plastic covers for agricultural purposes, packing bags of different type, and also production of Laminated Plastic Sheet (Formica).

DEVELOPMENT PLANNING IN COUNTRY 1975/1979

These planning applies to creating a Petrochemical project to produce 60,000 tons Polyvinyl Chloride and 90,000 tons Polyethylene from which 30,000 tons of high density and 60,000 tons of low density. The aim of this project is to make available majority of this products locally for different purposes and for exporting surpluses if available. Therefore it is of great importance to locate sources for consuming of these products, doubtless the official sources in Iraq have started planning for this and soon existence of many Industries in the recent years such as the above mentioned projects.

POSSIBLE TECHNICAL ASSISTANCE

BY UNIDO

1- **Education in the field of Plastic Industries.**

The required education in the above field has not been provided till now in Iraq from all angles.

The development in the field of Plastic Industries referred to which forces Iraq to Proceed towards development as planned demands provision of skilled technicians on equal level to lead this Industry and in contrary there will be great lack for technical staff for Plastic Industries and believe the only way to solve this problem is by creating a Plastic Institute which can be shared by UNIDO to materialize this and on the following steps:

A) Physical study by the specialised experts with view to Plastic Industries and by those concerned from the Iraq Colleges and submit their proposal on the best level to lay the structures of the proposed Plastic Institute and the necessary requirements, tuition which shall take place, the education level from which could achieve in accordance with experience at which the developed countries could reach.

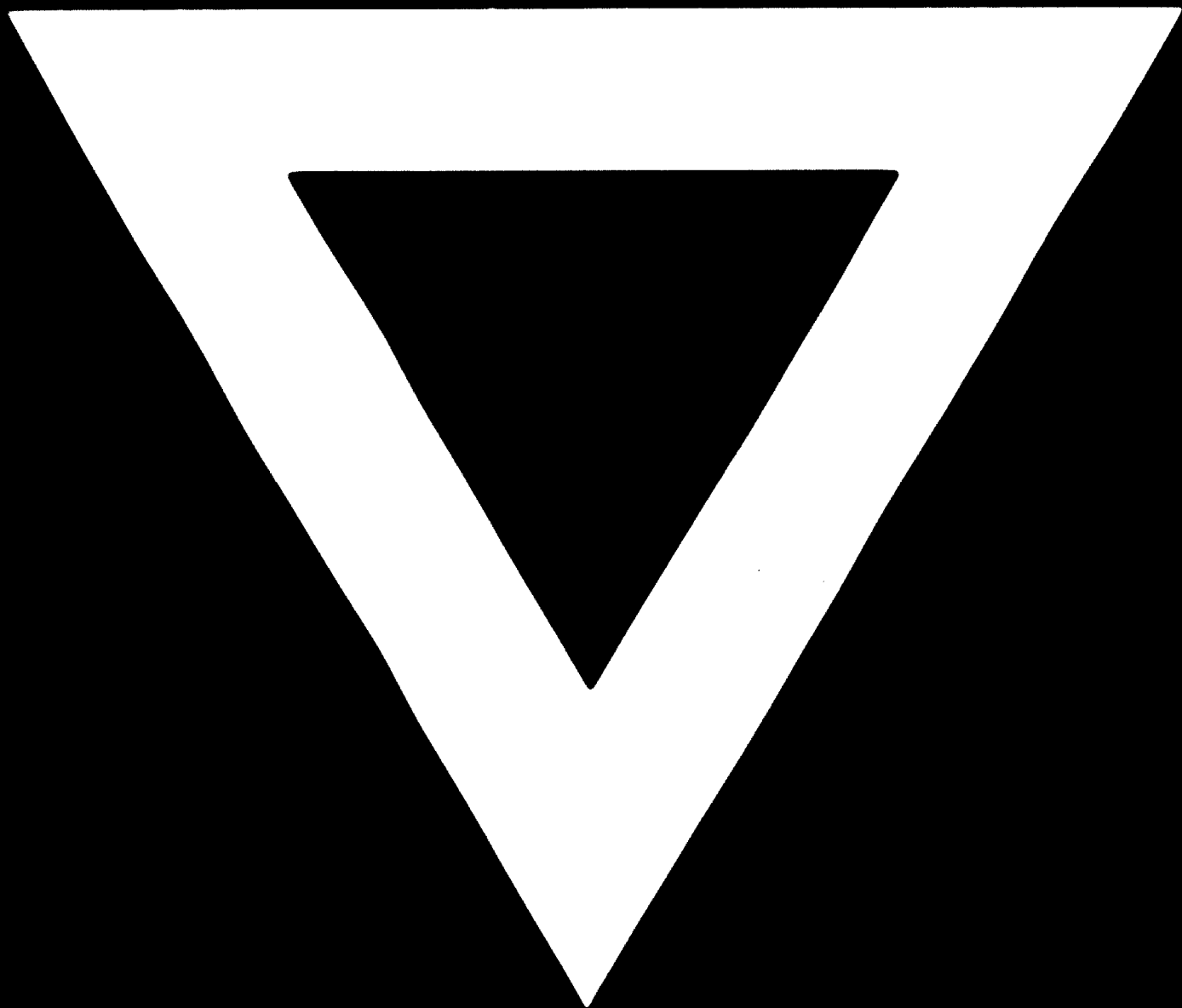
B) To invest and participate in creation of this Institute and for what are required such as books, laboratories and equipments, experts and all necessary information.

2- **Projects proposed which are under study in Iraq depending on the Plastic Industries are: Disposable Medicine facilities, disposable syringes, gloves...etc, which are shared by developing the medical services, and may UNIDO share to provide technical advice on the best level to execute such a project as a combined and efficient to produce whatever is possible to produce from Plastic such medical appliance used only once.**

3- The future planning in the Plastic Industries are aimed to occupy total products of Petrochemicals of different varieties as aforementioned, producing approx 60,000 tons P.V.C. Therefore for the preliminary future requirement should include consumption of this product for use in buildings and outdoor application, prefabricated buildings. UNIDO may participate in the studying the possibilities of creating a project for this purpose, taking into consideration developing of PVC compound to be used for outdoor application bearing climatic conditions in Iraq.



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