OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

FAIR USE POLICY

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

05138

United Nations Industrial Development Organization

Distribution
LIMITED

ID/WG.166/5
9 November 1973

Original: ENGLISH

Fourth Training Programme in Plastics Technology
Vienna, Austria, 10 September - 9 November 1973

THE DEVELOPMENT OF THE PLASTICS INDUSTRY IN EGYPT1/

by

Said A. A. Gomaiel

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.
This document has been reproduced without formal editing.

id.73-7950

PLASTICS INDUSTRY IN EGYPT

The industry of plastics began in Egypt after the second world war as very small companies owned by individuals. Its activity was restricted to injection and compression moulding techniques only. After the Egyptian revolution of July 1952, this industry, as many other industries, began to expand considerably and new methods of fabrication such as blow moulding, extrusion, vacuum forming, took place. Since 1961, the plastics industry has been divided between the public sector which is owned by the Government and produces approximately 80% of the total production, and the private sector consisting of approximately 150-180 small companies producing mostly traditional goods.

There are about nine plastics processing factories in Egypt belonging to the public sector, namely:

1. Canaltex Company

producing nylon carpets and vinyl floorings, consuming approximately 400-500 t/year of raw material.

2. Verta

producing polyethylene sacks and packaging materials, consuming approximately 1,000 t/year of raw material.

3. Delta industry company

producing plastic parts for refrigerators, consuming approximately 1,500 t/year of raw material, mostly H. I. polystyrene.

4. Electrocable

producing electrocables, consuming approximately 5,000 t/year of raw material mostly PVC compound.

5. BATA

producing plastic shoes and soles, consuming approximately 2,000 t/year mostly PVC compound.

6. Medical packing company

producing bottles and containers for pharmaceuticals and foodstuff, consuming approximately 3,000 t/year of different types of raw material.

7. Beida-Dyers

producing PVC coated cloth.

All of the above mentioned companies produce plastics as a material necessary for completion of their original products e.g. Delta company produces plastic parts necessary for refrigerators which are the original product of the company.

In addition, there are two other large plastic companies producing different kinds of plastics for many applications. These are:

(i) National plastic "Cairo"

(ii) Egyptian plastic and electrical industries "Alexandria".

The activities of the second factory include:

a) Injection moulding plant

Production of crates, stools, toys, radio cabinets, TV sets, housewares and numerous small articles, having machines with shot capacities ranging from 50 to 4,000 gm using different types of thermoplastics; the moulds are locally made.

b) Compression moulding plant

Production of toys, toilet seats, housewares, radio cabinets and different plastic accessories for the textile industry and many other industries, having presses ranging from 30 to 1,000 kg/cm2 using phenol, urea and melamene formaldehyde resins.

c) Extrusion

Production of rigid and flexible pipes, HIPS sheets for thermoforming and polypropylene strips.

d) Blow moulding

Production of jerrycans, bottles and containers of different sizes.

e) Thermoforming

Production of small containers of HI polystyrene and has been equipped recently with extruder for sheet production.

f) PVC coated cloth

Production of table cloth, PVC coated cloth of different thickness for upholstery, carpets, PVC coated paper for decoration. This plant has recently been expanded and equipped with new machines for production of foam PVC coated cloth to replace natural leather for the shoe industry as well as polyurethane coated cloth.

g) Expanded polystyrene plant

This is the only plant in Egypt for fabrication of expanded polystyrene as blocks, sheets and pipes for thermal insulation in the refrigeration industry, building (walls, roofs, ceilings and floors) and different mouldings for packaging purposes, floatings and decoration.

The "Egyptian plastics and electrical industries" in Alexandria consumes about 25,000 t/year of different plastic raw materials. This factory has the following expansion projects in the coming years:

1. Manufacture of paper-like polyethylene film, thickness 10-30 microns, extrusion blowing method, for packaging fresh and frozen feedstuffs and for manufacture of ready made clothes.

2. Production of plastic buttons from polyester and acrylics.

3. Manufacture of polypropylene raphia for production of woven sacks for the packaging of agricultural products.

4. Manufacture of PVC micro-porous separators for lead acid accumulators.

5. Increasing thermoforming and blow-moulding of bottles for edible oils.

EXPECTED FUTURE OF PLASTICS INDUSTRY IN EGYPT

As plastics are an easily fabricated material and can substitute many other materials for different applications in the industrial field and daily life of people, together with the characteristic features of the material e.g. low price-cost, wide range of application, light weight and attractive appearance and colours, in other word, plastics are a material of modern life.

Besides, the population increase in Egypt has been at the rate of 2% over the last ten years and is expected to increase at the same rate or little below. In addition, the industrial progress leads to possibilities of replacement of traditional materials in several fields by plastics.

For the factors mentioned above, we expect that the plastics industry will expand considerably in Egypt in the near future both in quality and quantity.

Mentioned below are some fields of application of plastics in Egypt in which great application of material is expected in the few coming years:

1. Packaging

This field of application is expected to become the greatest outlet for plastics in Egypt in coming years.

It includes:

a) Light duty sacks and bags - for packing of pasteurized milk, foodstuffs, clothes and other goods. These low density polyethylene bags have recently been introduced in Egypt and there is a great tendency to wrap goods in plastic bags for many reasons. This means an increasing amount of plastics is needed.

b) Heavy duty sacks - for packing fertilizers manufactured in Egyptian factories for local market and export. These sacks made of low density polyethylene are used now with great success. As the fertilizer industry in Egypt expands very rapidly, increasing amounts of polyethylene sacks are required. These sacks can also be used for sugar and other products.

c) Woven sacks - the use of air permeable films for packing of products such as rice, cotton, and many vegetables. These sacks will be fabricated of polypropylene and they are expected to replace the jute sacks which are used nowadays in Egypt.

d) Crates - for replacement of wooden crates used now in Egypt. The "Egyptian plastic and electrical industries" in Alexandria has started the production of these crates by injection moulding since a year only. These crates have the advantages of being light weighted, having great durability and needing no maintenance. We think that usage of these crates will increase in the future taking into consideration the continuous increase in price of imported wood.

e) Bottles - plastic bottles made of PVC, low density polyethylene and to some extent polystyrene will serve for:

(i) edible oils: "Egyptian plastic and electrical industries" has started two years ago with the fabrfication of PVC bottles for Egyptian Salt and Soda Company for edible oil.

- Soft drinks and wines: partial replacement of glass bottles by PVC bottles is expected in the few coming years.
- Bottles for pharmaceutical industry, powdered cleaners and also for detergents.

f) Containers - include:

- small containers: fabricated by vacuum or thermoforming method; used for cheese, ice-cream and pharmaceutical products.
- large containers: made of polyethylene or polypropylene with different capacities ranging from 4 to 50 litres. These are produced by blow-moulding method and they are used as water and gasoline containers and for lubricating oils.

2. Building

The high rate of increase of population in Egypt requires a continuously increasing amount of buildings such as houses, schools, hotels, etc. and this will lead to consumption of plastics which are used in this field e.g. expanded polystyrene for thermal insulation, PVC corrigated pipes for electrical connections, toilet seats and many other applications.

3. Agriculture

As agriculture is an important branch of Egyptian economy, it will be necessary to apply most recent and scientific methods in agriculture in order to get increasing products of crops. Among these fields of applications are:

a) Drainage - because of the heavy nature of the Egyptian soil, field trials are carried out recently to replace cement tiles used now by the PVC pipes in order to get better and more effective drainage system.

b) Irrigation

- Lining of irrigation canals in the recently prepared land for cultivation with polyethylene film instead of cement used now;
- replacements of all pipes of sprinkler's system which have recently been tried in these lands.

4. Plastic articles for the electric industries

According to the project of supplying electricity to approximately 4,000 Egyptian villages during the next five years, it is expected that there will be a great demand for electrical equipment including PVC cables, electrical conduits, TV sets, radio cabinets and some other goods which depend in its work on the occurance of electricity such as refrigerators and washing machines.

5. Industrial applications

a) Fabrication of fish trays from polyethylene or expandable polystyrene instead of wood;

b) cases of lead acid accumulators fabricated by injection moulding from polypropylene instead of the hard rubber cases used presently;

c) articles for textile industry;

d) articles for application in the automotive industry.

6. Domestic and houseware

Including plates, cups, brushhandles, toys, games, combs, educational aids, trays, egg cups, dolls, picnic sets, pencil boxes and many other articles.

GENERAL REMARKS ON PLASTICS INDUSTRY IN EGYPT

1. All the plastics raw materials used now in Egypt are imported from foreign countries.

2. Since two years El Mansura Company is producing phenol and urea formaldehyde resins.

3. The plastics industry is completely dependent on the importation of raw materials which leads to continuous decrease in quantities of raw materials needed for complete working of existing capacities because of the shortage of foreign currency.

4. We think in Egypt that the project of petrochemical complex will solve the problem of raw materials.

5. We hope that UNIDO will be in a position to help the Egyptian authorities in establishing this project by theoretical studies, technical experience, local and export market studies and other points.

6. The majority of the machines and equipments used in processing plastics is also imported and most of these machines specially in the private sector are in poor condition in spite of the great effort of Egyptian factories to renew these machines.

7. In addition, there will be great demand for new processing machines after the petrochemical complex is starting production.

8. For points mentioned in 6. and 7. above we think that a special factory for manufacturing the plastic processing machines equipped with necessary modern tools will serve in the progress of plastic industry in Egypt, because it will save foreign currency, assist in the replacement of old fashioned processing machines and result in the rapid delivery of spare parts needed.

9. Most of the moulds used especially for injection and compression moulding are locally made. Many factories have their own workshops for manufacturing moulds but these factories have no equipment for hardening and chrome plating except one company in the public sector and this causes trouble in processing.

We think that it is important that the plastic industry is equipped with a central unit for heat treatment and chrome plating in order to serve all plastic processors in Egypt.

10. As a result of local fabrication of raw materials, processing machines and the expected progress of plastics industry, it is very important to this industry to have a Plastics Development Centre which will provide different services.

a) Training section - for training technical persons at various levels in manufacturing plastic processing equipments and moulds and for planning and supervising the training programmes in plastics industries held within the factories for their technicians and workers.

b) Research and studies of particular plastics application.

c) Mechanical, chemical and other tests for plastics.

We think that this Centre will be a great step in the progress of plastics industry in our country and we hope that UNIDO can help the Egyptian authorities in this field.

Finally, I hope that I was able to give an idea about the plastics industry in Egypt.

12. 8. 74