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PACKAGING FOR PROGRESS :

UNIDO'S ROLE

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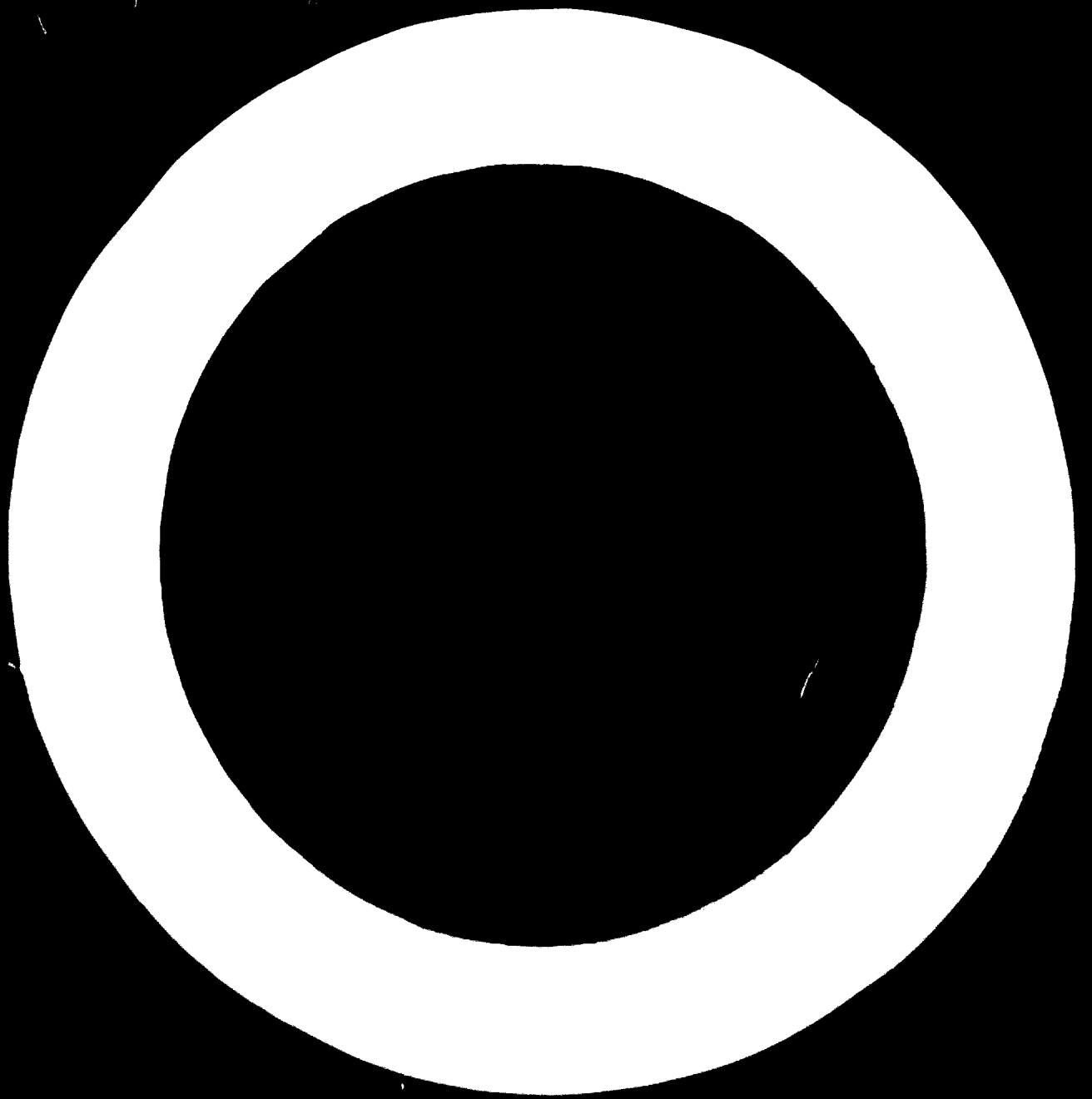
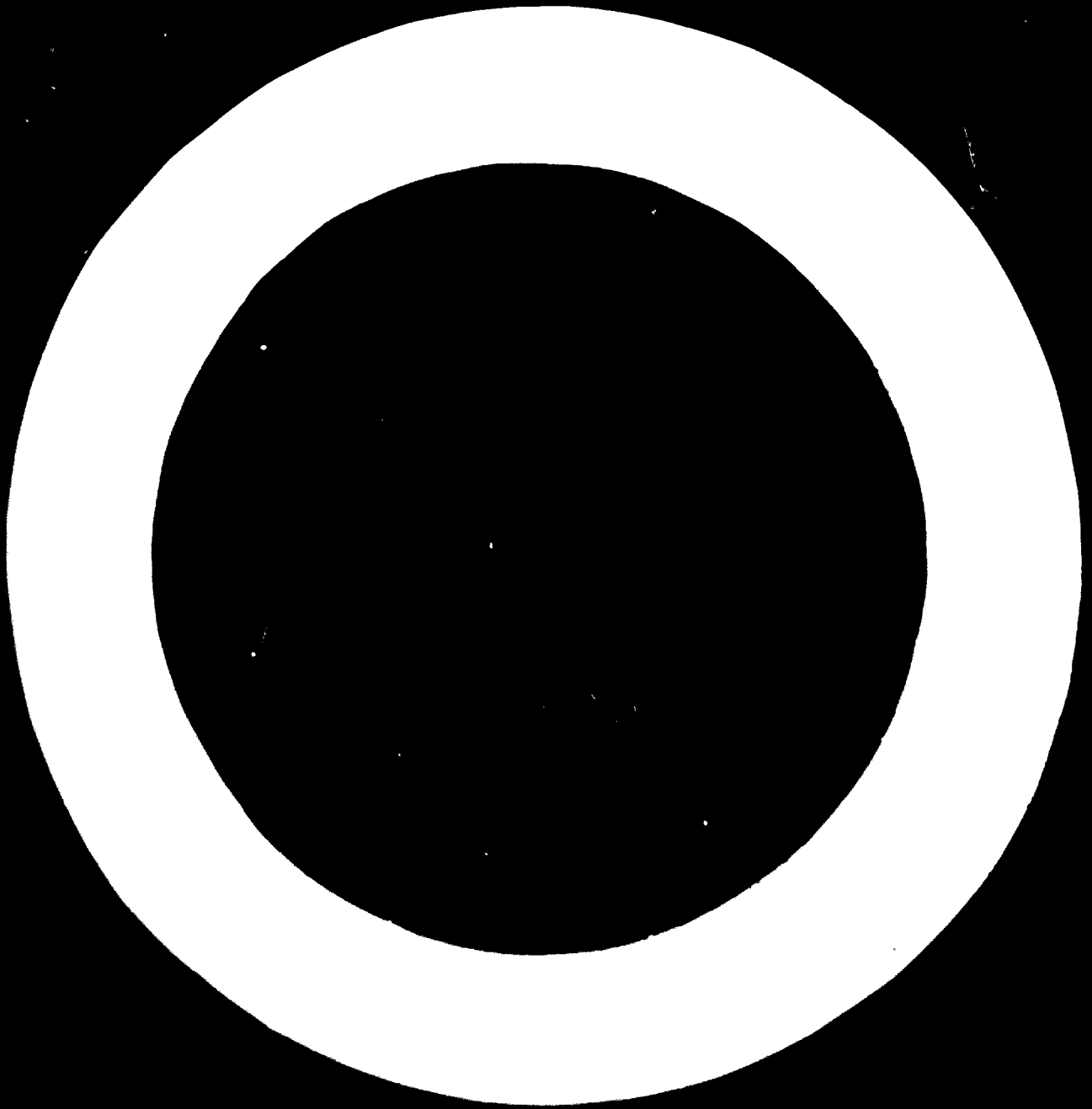


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CHAPTER I

INTRODUCTION

Realizing the importance of packaging in the industrial development of the developing countries, the United Nations Industrial Development Organization (UNIDO) commenced provision of regular technical assistance in this field in 1969. Although some headway has been made in this regard, much more remains to be achieved. There are a large number of areas in the world which should become aware of the benefits of improved packaging techniques not only for their internal trade, but also for the successful exportation of their goods, so as to earn the necessary foreign exchange which is so important to their economic development.

The developing countries have yet to realize the role of packaging in the conservation and preservation of many of their products. The necessity for packaging as a means for increasing productivity, optimum utilization of manpower and resources, **should** be emphasized in these areas. In order to assess the extent of the problem, identify specific areas in which assistance could be effectively given, and the methodology required, an Expert Group Meeting was organized by UNIDO in Vienna from 20 - 22 October 1971. Packaging experts from both developing and industrialized countries participated in this meeting. The following points emerged out of the discussion:

1. Stimulating packaging consciousness in various sectors of the packaging industry;
2. Establishment of institutions adequately equipped to act as a Reference Centre for all concerned in the field of packaging;
3. Upgrading packaging skills through packaging education, training and information services;
4. Rendering assistance through various export promotional measures, so important for economic development;
5. Encouraging co-operation in packaging at regional and global levels.

A detailed Report of this meeting will be made available to all concerned shortly.

This Brochure highlights the above mentioned areas, indicates the present position of packaging in the developing countries, deals with the role of packaging in industrial development and gives ways and means by which UNIDO will assist the developing countries in improving their packaging pattern. It also contains three appendices giving information on the aims and objectives of UNIDO, some model job descriptions which would act as a guide for preparing job descriptions on specific items, and includes specific areas in packaging in which assistance of UNIDO could be made available.

It is hoped that this Brochure will serve as a useful guide to the developing countries, for obtaining assistance from UNIDO in up-grading their packaging pattern, not only for the benefit of themselves, but also of the world at large.

CHAPTER II

PACKAGING IN DEVELOPING COUNTRIES

SYNOPSIS

This chapter deals with the functional attributes of a package, its role in increasing productivity, preventing spoilage of food, minimizing damage to industrial goods, and improving health standards by adequate packaging of food products; all of which are vital to the industrial growth of a country. The status of packaging in the developing countries together with a few examples to emphasise the importance of packaging, has been mentioned in the Introduction.

PACKAGING AND ITS ATTRIBUTES

Packaging is a technique of using the most appropriate packaging media for the safe delivery of the contents from the point of production to the ultimate consumer. Packaging serves as a vital link in the long line of production, storage, transport, distribution and marketing. The package must protect and preserve the product, so that it reaches the consumer in as safe and as fresh a condition as it was produced. In addition, the pattern so developed should have a distinctive feature of its own and generate impulse buying.

Adequate and functional packaging of products, be they food, fruits and vegetables, pharmaceuticals, leather and leather goods, textiles and garments, machines, electrical and electronic instruments, handicrafts, etc. materially contributes to industrial prosperity of a country by optimum utilization of manpower, raw materials, and finances. It is the package which has to protect the contents against several hazards such as climate and transport. During the course of its journey, the package would be exposed to climatic conditions, often resulting in evaporation and condensation of water on the contents inside the package. In the transport of goods by sea, salt-spray has a profound influence on the packaged product. Similarly, the effect of atmospheric gases has to be reckoned with i.e. oxygen, sulphur-dioxide and ozone leading to tarnishing and corrosion of metals and metallic parts.

While this is so in the case of bulk packages, the unit container which comes directly in contact with the product must have requisite barrier and protective properties. A scientifically designed package should, therefore, afford protection against egress or ingress of moisture, odour loss or pick-up, light, oxygen microbial and fungus attack, apart from being compatible with the product packaged. It is the package which must preserve the quality, freshness and functional performance of the product, afford the requisite shelf-life, and make it possible for the product to reach the consumer in prime condition. The moment the manufacturer has put his product in a well-designed package, it is the package that takes over the function of delivering the goods in as fresh a condition as they were produced.

The preservation and protection needs of a product must obviously guide the choice of appropriate packaging media. The material so chosen should be able to give the required protection in addition to being economical. The packaging materials are those made from metal, glass, wood, paper, textiles, film and foil, plastics and an unlimited variety of laminates, each having different protective and strength properties to varying degrees. In order to develop a successful package for a product, a great deal of time, attention and application of scientific packaging techniques are essential.

For a product to establish itself on the market, however excellent its quality may be, it is the package which has to act as its own 'Salesman'. The package must convey what it contains, what it will do, how to use it and who made it, all of which are essential for brand identification. A scientifically designed and well-printed package having regard to the colour psychology of the market, is the finest means of developing brand loyalty in a consumer.

Yet another important aspect of a package in modern marketing is convenience, i.e. convenience to fill, transport, stock and use. Self-selling and built-in convenience have been the principal motivating factors for the introduction of many new packaging systems and techniques.

This in turn has led to the manufacture of a host of new materials, containers and designs. Thus a dynamic packaging industry has grown to cater to the needs of the consumer. Typical examples are: aerosols, ready-to-cook packs, boil-in-bags, etc. In all major markets abroad, where the consumer is highly discriminating and sophisticated in habit and taste, the package becomes a powerful point of sale advertisement media. In the export field, the three inseparable factors, viz. the product, the package and the market, need the utmost consideration and no exporter can afford to overlook any of these.

Briefly, the successful evolution of a package calls for an interplay of a number of disciplines, like physics, chemistry, biology, engineering, transport, economics and marketing techniques. Packaging is a means to an end and an important one too. It is a means to increased productivity and optimum utilization of man-power, materials and resources. In the field of food, packaging is vital towards the improvement of health and nutritional standard of the population.

STATUS OF PACKAGING IN DEVELOPING COUNTRIES

The status of packaging in many areas of the world is still in a stage of infancy. Practically in all developing countries, be they Latin America, Africa, Asia and Far East, the advantages of adequate functional packaging seems to have reached only the fringe of the population. Dependence on agriculture, rapid increase in population, low levels of literacy, low productivity and inadequate financial resources, are some of the factors impeding the establishment of industries on a large scale. By and large, agriculture, marine, animal, dairy and forest produce have been the main source of employment in these countries. The industrial revolution which greatly boosted the economy of the developed countries, did not have any significant impact on the present day developing world. In fact, packaging used for daily necessities of life in the developing countries is still similar to what it was some fifty years ago in Europe and the USA.

In many of the developing countries, the co-existence of glut and famine is not uncommon. Products grown in one part do not reach the consumer markets in the other in adequate quantities, resulting in scarcity. This situation is attributable mainly to the use of improper means of transport and inadequate packaging. Many developing countries have yet to realize the importance of scientific packaging. Packaging consciousness, which is the first necessity for improving packaging methods is not in evidence. Knowledge of the techniques of appropriate packaging is not easily available. Modern methods of processing and manufacture and the integrated systems of packaging and marketing are yet to be adopted. Adequate transport and communication systems are pre-requisites for proper distribution of goods. Mechanization in packaging which is so important in mass production is not yet in sight in the developing countries.

Age-old packaging materials like the jute bag and heavy wooden boxes are mainly used for bulk packaging. For fruits and vegetables, baskets made of bamboo strips or similar agricultural materials cushioned with paddy straw and the like, are commonly used in practically all the countries in the Asian Region. In certain areas even for fragile items like glass, crockery, and sanitary ware, very flimsy packages are used. While these containers were suited to short distance transport in earlier days, they fail to meet the changing situation. Consequently, it is not uncommon to find a high proportion of products getting damaged or broken, mostly due to the indifferent packaging pattern adopted, even before reaching the consumer. For example:

- Consignments of dried nuts like cashew, walnuts, etc. had to be destroyed due to insect infestation, and being unfit for human consumption;
- A bulk consignment of spices could not be used due to mould growth, insect infestation and loss of aroma;
- A complete consignment of frozen shrimps was lost because the bulk container had shattered and the unit cartons burst;
- Wet and caked sugar had to be dumped;
- Loss of crispness and rancidity in biscuits due to exposure to moisture rendered them inedible;

- Loss of aroma/flavour in coffee powder and tea affected sales;
- Consignment of milk powder was unfit for use, as it had caked, lost its colour and was not soluble in water;
- Crushing of fruits on their way from the orchard to the consumer resulted in a great loss to the grower and scarcity in the consumer centres;
- Large quantities of fish perished in the coastal areas for want of proper packaging, storage and suitable transport;
- An exporter had to settle on unfavourable terms for a consignment of electric fans which had twisted blades and paint chipped off;
- Breakage, denting, rusting, and shattering of machine and machine parts, electrical and electronic goods resulted in the cancellation of repeated orders;
- Inadequate packaging affected the potency of pharmaceutical preparations and life saving drugs with serious results;
- Fading of colours and mildew in textiles, woollen and leather goods resulted in their undervaluation;
- Problems of storage, handling and disposal of wooden boxes and infestation, have made the developed countries insist on insect-free and easily disposable packages;
- Marketing of certain consumer goods had to face a set-back due to wrong-colour combination, design and labelling not conforming to regulations;
- Rejection due to inferior standards of material used - supplier having no testing facilities;
- Lack of enforcement of quality standards on packaging materials affected increased productivity;
- A large proportion of consignment of refrigerators reached the destination with broken compressors and handles;
- Sale of food in unpacked condition affected the health standard of the population.

The above are but a few instances which serve to emphasise the need for the adoption of proper packaging techniques which are vital to the economic growth of the country.

In many countries, the above situation is aggravated by increase in population, low levels of productivity and large scale unemployment. All the same, many countries after their independence have been making all out efforts to establish industries to improve their economic condition. Although in some countries in Africa, Latin America and Asia, quite a few packaging industries have improved recently, a great deal more remains not only in terms of quality and quantity but also establishment of industries and development of newer varieties of packaging materials to suit the changing situation. Standards with regard to packaging materials, packages and techniques need to be formulated, and adopted for an overall improvement in packaging. The entire need of packaging machinery is met by importation, although in some countries sufficient skill and capacity exist in the engineering industry.

For the rapid industrialization and improvement of their economy, the developing countries have to import raw materials and machinery and obtain technical know-how involving a heavy outgo of foreign exchange. To pay for such imports, the countries have to export their products in as large measure as possible. For example, countries like India and Brazil are making all out efforts to export large variety of materials in bulk such as spices, tea, coffee, cashew, walnuts, tobacco, etc. and manufactured goods such as footwear, garments, machines and machine parts, such as engineering goods, processed foods, marine products, handicrafts, etc. If only the developing countries exported packaged goods, instead of selling in bulk, there would be a substantial increase in foreign exchange earnings, besides providing an enormous scope for an all-round development of the packaging industry. Products from developing countries have to be sold in the highly sophisticated and discriminating world markets. Obviously, packaging needs to be not only functional but also attractive.

In some developing countries, there is already a basis for the production of packaging materials but owing to the factors like lack of packaging education and expertise, finances, etc. newer and better types of packaging materials as available in industrialized countries, are not produced. There is no shortage of natural wealth or manpower or talent.

Practically all the developing countries have specialities of their own which find ready markets in many countries of the world. What is hampering progress is the lack of knowledge and expertise and a forum for exchange of knowledge, guidance to the packaging industries as well as concerned authorities, these being the lines on which packaging should progress for economic development.

This phenomenon therefore calls for quick action both at the national and at the international levels so that the developing countries may make every endeavour to improve their packaging pattern for the benefit of all concerned.

CHAPTER III

PACKAGING IN INDUSTRIAL DEVELOPMENT

SYNOPSIS

Packaging which as an industry was in the nascent stage in the early part of the century, has come to be recognized in modern times as an integral part of the industrial complex. With the increasing tempo of urbanization and with man becoming more sophisticated in his habits and tastes, this industry is now playing a much wider role than ever before. Packaging technology is recognized as an important branch of applied science. This chapter emphasizes the role of packaging in the industrial development of a country. Important areas which need urgent attention for the balanced development of the packaging industry are identified.

PACKAGING AS A PART OF INDUSTRIALIZATION

The packaging industry which was of minor importance in the early part of this century in industrialized countries, received a tremendous boost during the late twenties by which time industrialization was taking place in a big way. Industrialization resulted in the migration of populations to towns and cities which grew rapidly. The urban population became increasingly sophisticated in tastes and habits, and the packaging industry had to gear itself to satisfy the ego of the consumer. Labour became scarce, and automation in production and distribution and marketing was introduced to save manpower and time. More trade routes developed, transport systems were speeded up. Age-old methods of marketing consumer goods gave place to newer systems such as super-markets and self-service stores. This phenomenon led inevitably to a search for packaging materials possessing requisite properties, and for better techniques to satisfy the consumer. A variety of packaging industries using the differing materials available came into existence, and economies in manufacture became an important selling point.

These developments, brought about by the establishment of consumer goods industries, were not without problems. Orientation of working and production to suit changed requirements of the consumer called for appropriate

packaging materials and methods. With this the marketing pattern changed and from a minor industry packaging soon grew into one of the largest industrial activities in the industrialized countries. "Packaging" became a new type of expertise and with it a new discipline - Packaging Technology - came to be recognized as an important branch of applied science. In modern industry packaging is no longer considered in isolation. It is recognized as an integral part of production, marketing and distribution.

The developing countries which are on the threshold of industrial prosperity through the establishment of light, heavy and consumer industries should benefit by the experience of the industrially advanced nations. The growth of packaging industries should keep pace with the establishment of consumer goods industry. Packaging should receive the requisite attention and be integrated with the establishment of any processing industry. Likewise, there should be a comprehensive approach with regard to the planning and development of farm produce, be it cereal, fruit, vegetable, marine, dairy or animal products. It is not enough if more production is achieved through various means; what is equally important is that all that is produced should reach the consumer in a usable condition. It is then that the efforts in any venture can become successful. Simultaneously with the establishment of agro-based, chemical or engineering industries, packaging industries which include inter alia materials, methods and techniques and research need to be promoted. Other related activities like transport, warehousing, marketing and distribution should receive equal attention. Thus, the modern concept of industrialization should take note of all the related activities to achieve optimum results. It is sufficient to say that the packaging industry has by its own right come to occupy an important place in the industrial economy of a country.

SALIENT FEATURES OF PACKAGING INDUSTRY AND ITS DEVELOPMENT

In the establishment of a viable and dynamic packaging industry the following fields are easily identifiable:

1. Package planning and development;
2. Packaging materials, containers and accessories;
3. Mechanization in packaging;
4. Packaging institutes and services.

1. PACKAGE PLANNING AND DEVELOPMENT

For any venture to be successful, proper planning and a forward looking programme is essential and packaging industry is no exception. The manufacturer who is concerned with the consumer goods should necessarily give equal or perhaps even greater attention to the packaging of his products. In other words, packaging must be recognized as an entity and the packaging department must go hand in hand with production, taking note of problems involved in transport, storage, distribution and marketing in their totality.

It may be mentioned that from the time a new product is conceived till it reaches the consumer, the packaging manager should be an active member of the team. Because, it is he who has to guide in the selection of the right type of package, enforce rigid quality standards, assess shelf-life of the packaged product and develop innovations and improvements to suit the changing marketing trends.

In small enterprises, this function is usually done by the process technologist. Even so, a sound understanding of packaging is quite essential. But where the company has a large number of product lines, the packaging organization tends to become more complex, requiring a sound knowledge of packaging technology, management, marketing, design, economics and not the least the sociological problems.

It is to be realized that packaging is ever-dynamic and the packaging manager in a company, whatever its size, should be alive to modern trends. He would have to have newer packaging concepts and be ready with the formulation of improved packaging materials, sources of supply, specifications, quality control facilities and better machines etc. By this means, the Packaging Technologist identifies himself as an essential member of the organization. Indeed, the profession of packaging technologist is gaining increasing importance in all industrialized countries.

2. PACKAGING MATERIALS, CONTAINERS AND ACCESSORIES

i) Packaging Materials and Containers: Packaging materials as distinct from primary materials are many and varied in their characteristics and functional behaviour. While the manufacture of materials like tinfoil, glass, paper and plastics, etc. fall into the domain of metallurgical and chemical industries, their conversion into different forms useful for packaging is the concern of the packaging industry. For example, tinfoil is manufactured in the steel rolling mills, but tin containers are manufactured in the converting units; paper is produced in paper mills, and its conversion for packaging purposes including printing, lamination etc. is done by the packaging industry. So is the case with plastics, which are converted to films or moulded into containers by the conversion units. Owing to the exacting demands of the packaging industry, the primary materials manufacturing industries should be alive to the needs of the packaging industry, since it is this sector which accounts for a good part of their production for conversion into packaging purposes.

The packaging media that is available for the packager includes fabrication from tinfoil, glass, ceramics, plastics, paperboard, wood, textiles, etc. Flexible packaging materials such as coated papers, films and foils, plastic films made from polyvinyl chloride, polyethylene (low and high density), polyamides, polyesters and innumerable laminates are finding large number of applications. Laminates comprising two or more flexible packaging materials have practically revolutionized the packaging industry in that they combine properties of each.

Packaging materials are fabricated into a number of forms and shapes and sizes, depending on their end use. The package, be it a pouch, a bag, a sachet, bottle or a can, should afford the necessary protection against the environmental factors as well as be able to sell the product it contains. In the case of bulk packages, the pattern adopted should effectively protect the unit packs from climatic, handling, transport, storage and distribution hazards. The packaging technologist is therefore concerned with the proper selection and adoption of suitable types of packaging materials for a product.

For the packaging of bulk produce, jute bags, multiwall paper sacks, and more recently plastic woven sacks and heavy duty plastic sacks are used. Among the rigid packaging materials used for bulk packaging, the traditional packaging material like wood is being rapidly replaced by corrugated and fibreboard containers, on account of their inherent advantages. Recently, plastic crates are fast eliminating the use of wood and metal ones for the transport of bottled goods. Similarly, wooden boxes are becoming out of date for the transported fish.

Barrels, drums, pails, kegs, etc. made out of metal, glass or wood as the case may be, are used for the transport of a large number of products in bulk like paints, varnishes, oils, dairy products like butter and semi-processed agricultural products. Even in these cases, the plastics either singly or in combination with others have made great inroads. Furthermore, improvements are being effected by light weighting the drums, glass, carboys, and similar conventional materials. It is sufficient to say in the modern packaging practice, that there is an ever ending search for improved packaging media.

ii) Accessories: In the field of accessories, without which packaging is incomplete, mention may be made of lacquers, coatings, waxes, cushioning, adhesives, tapes, closures, etc. In each of these fields, a great deal of research is in progress and newer materials are being put on the market each competing with the other both in performance and price.

Great strides have been made in recent times in the development of lacquers to meet the exacting demands of the food canning industry. Epoxy resins of various types have been made available for application where the product is likely to interact with the container. Waxes of different types are used for waxing paper for bread wrapping and for lamination. In the packaging of fragile articles, cushioning plays a very important part. Cushioning materials made from rubberized hair and coir, plastic foams, moulded paper pulp, etc. have practically eliminated the use of conventional cushioning materials like paddy straw, paper shavings and woodwool. Lately, a great deal of research is in progress in the science of cushioning and cushioning technology.

Adhesives enter almost every section of the packaging industry and are now a specialized facet of the chemicals and plastic industries. Modern adhesive is tailor-made to the operational requirements aimed at increased productivity. Major development in recent years relate to hot-melts, synthetic resins, emulsions which are rapidly replacing the traditional dextrine and starch-based adhesives. It is through a scientific approach to packaging that the adhesives industry is making a significant contribution towards the quality and performance of the finished pack.

Tapes are yet another important element of packaging technology. They are made from cellophane, polyethylene, paper or textile coated with a suitable adhesive. Pressure sensitive tapes in innumerable varieties are available for labelling, decorating, combining reinforcing, protecting, unitizing and palletizing. Rayon, nylon or paper based strappings are being largely used for the bulk packaging of goods. Steel strapping is becoming a thing of the past, except in specific applications.

The importance of closures in packaging needs hardly any emphasis. The closure must protect the product against ingress or egress of moisture, contact with oxygen and other gases and spillage. Considering the variety of packages like glass, metal, plastics, paper and paper board and laminates used for countless number of products and also adopting them for mass-production, the progress made in the development of closures is most remarkable. Modern trend in convenience packaging demands that closures and sealing devices should be easy to open and close.

3. MECHANIZATION IN PACKAGING

As a result of increasing competition and demand for consumer goods, efficiency has become the key-note of packaging operations. Optimum utilization of manpower and resources have impelled the development of better machines for packaging, handling, distribution and retailing. In industrialized countries, with the increasing cost of labour, mechanization in packaging process is paying rich dividends. In many cases, an apparently expensive machine has paid for itself within a year of its purchase. Today, high-speed machines to form, fill, seal, weight and label, capable of handling a wide range of packaging media for products ranging from powder to liquids are available to the packager. It is interesting to note that even computers have entered the packaging field in a big way.

Packaging machine building is now a highly specialized industry. Use of the right type of material of construction and electronic devices have made it possible to produce any conceivable type of equipment. Machines with speeds which were considered impossible some years ago, are being produced to suit newer systems in packaging. Strip, blister, skin, vacuum filling, shrink packaging, suiting any kind of product are coming into vogue. This has required a new type of skill to plan, manufacture, establish and maintain the large types of packaging machines. Vending machines which have become an indispensable tool to marketing, have added a further dimension to the packaging machine building industry.

4. PACKAGING INSTITUTES AND SERVICES

As in other branches of industrial sector, a central agency to deal with various facets of packaging, its development and research, testing, consultancy and dissemination of knowledge is very important. This had not received attention because packaging science as an applied branch of technology had not been recognized so far. In the context of the rapid development of the industrial activity in a country, a central organization to deal with all facets of packaging, keeping in view the social needs, expansion of different sectors in the industry, commercial, communication and all other related services, on a national level is vital.

Such an organization will provide a common platform for all those interested in packaging including manufacturers and users of packaging media, advertising agencies, carrier systems, governmental agencies concerned with internal and international trade and related research institutions. Such a packaging institute or centre should obviously concern itself with the following aspects of packaging:

1. Planning and economic research;
2. Testing and research;
3. Standardization;
4. Training;
5. Information and documentation;
6. Promotional activities.

The organizational structure of the contemplated institution would naturally differ from country to country depending upon its status and sociological needs. However common features of every packaging institute is the need for necessary technical expertise, equipment and promotional services. It is only through the establishment of such institutes/centres that the developing countries can become self-supporting and self-reliant in the field of packaging which is so vital to their economic development.

Packaging by its very nature is quite complex. However, some broad areas in which UNIDO technical assistance could be made available are shown in Appendix I.

CHAPTER IV

UNIDO AND ITS PLANNED ACTIVITIES IN PACKAGING

SYNOPSIS

This chapter deals with the types of UNIDO activities in relation to packaging, success achieved in the last two years and some typical examples of current and planned projects. It includes information on ways and means of securing technical assistance open to developing countries in the field of packaging.

TYPES OF ACTIVITIES IN PACKAGING

Operational activities relate to direct assistance to developing countries and include:

- Exploratory missions, geared to survey the industrial branches, namely manufacturers and users of packaging media, investigate the existing packaging operations, and quality of packages and materials used. In the light of these, specific objectives for technical assistance are identified. This type of activity usually involves a team of experts;
- Short term assignments of experts to advise the Government of a country on specific problems concerning packaging;
- Long term projects, aiming at establishment of research and development institutions, industrial estates, pilot plants, etc;
- Carrying out feasibility pre-investment studies, offering experts and fellowships and financing necessary equipment.

The supporting activities are arranged with a view to accelerating the flow of technical know-how and skills in packaging from industrialized to developing countries. They are in the form of:

- International meetings, (seminars, workshops, symposia, expert group meetings) to serve as a forum for exchange of views on various issues and problems connected with the development of packaging;
- Inplant training programmes, at which professionals from developing countries are given practical training on a selected subject;
- Fellowships to developing countries to upgrade the skill of their packaging specialists in the industrial enterprises and institutions in developed countries.

Member governments are assisted at their request, to identify opportunities for investment, set up research, training and promotion institutions, launch pilot or demonstration plants, involving provision of experts, consultants and equipment, as well as fellowships for training abroad.

The technical assistance rendered by UNIDO in packaging to developing countries is so designed as to lead them to develop expertise and become self-reliant in course of time. New forms of technical assistance, so as to have an integrated approach to the development of the packaging industry in line with sectors of the economy, are also contemplated.

UNIDO'S ONGOING PROJECTS

Over the two years 1969-1971 UNIDO assisted in formulating 61 projects in packaging spread over nearly 20 countries in the developing world.

Briefly these are:

Packaging projects relating to food products	-	20
Packaging of industrial products	-	14
Packaging materials + containers development	-	10
Establishment of packaging centres	-	<u>17</u>
		61
		--

Among the active field projects, mention may be made of the following:

OPERATIONAL

Techno-economic and marketing study of packaging and distribution of dates: (Request by the Government of Iraq)

Dates are the second most important Iraqi produce next to petroleum. Annual production of this fruit amounts to 350,000 tons of which 250,000 tons are exported.

In view of the increasing competition in the overseas markets, and the growing demand for suitably packed dates within the country, the need for the improvement of packaging is considered most urgent. This necessitates the adoption of improved packaging techniques, better packaging materials, attractive designs and suitable packaging machinery, keeping in view factors like transport, climate and marketing requirements. To study the problem from all points of view, and to suggest appropriate measures, a team of three experts were assigned to Baghdad. It is needless to mention that adoption of modern packaging techniques will not only enhance the export of this commodity but also make the product available on the local market in a hygienic way.

Improvement of production of plastics bags and wrappings
(Request by the Government of Bulgaria)

Rapid growth of the plastic industry has resulted in the production of a variety of new packaging materials in the form of films, bags, and pouches, which are fast replacing the conventional, especially paper-based, types.

In their effort to introduce more efficient packages, the Government of Bulgaria requested an expert for selecting suitable types of plastic films that could be manufactured locally, recommend appropriate production techniques, design and determine specific areas of application of the converted films, as bags and wrappings. This action-oriented assistance, it is believed, will be of immense value to the Bulgarian Plastic Industry in making proper investment decisions in this field and also help the Bulgarian Institute of Packaging to establish modern testing and research facilities for plastic films. In addition, guidelines with regard to proper construction and standards for plastic bags and wrappers will be established for the benefit of local industries. When implemented, the improvements suggested would materially benefit all concerned through the substitution of the already scarce paper-based materials by plastics.

Establishment of a National Packaging Centre in Thailand
(Request by the Government of Thailand)

Of late, in many developing countries, the importance of packaging industries in their economic development, is being increasingly realised. This multi-dimensional industrial sector needs systematic assistance in developing and modernizing production processes and packaging techniques. Development of standards education and techno-economic information on packaging are also extremely important.

In the fulfillment of the above objectives, the establishment of a National Packaging Centre is under the active consideration of the concerned authorities in Thailand. Accordingly, UNIDO has been requested to send an expert to elaborate the terms of reference, the organizational structure and to identify the types of testing and research equipment required for the purpose.

Programme for development of the packaging industry in Tunisia
(Request by the Government of Tunisia)

The Government of Tunisia is considering ways and means of establishing a sound packaging industry on modern lines. For this purpose, UNIDO's assistance has been sought.

A team of three experts will be shortly sent to Tunisia to investigate the present situation and future needs and to select appropriate branches for development. The experts will be expected to:

- Survey the industrial branches which are consumers of packaging media and assess their current and future needs for packaging materials and containers;
- Investigate the existing packaging manufacturing processes and assess the possibilities of their modernization;
- Analyse the type and quality of packaging materials required by the home and foreign markets;

In the light of the above, to recommend a comprehensive programme for development of the relevant facets of the packaging industry which appear to be technically and economically feasible.

Expansion of the Research + Training Activities of the Indian Institute of Packaging (Request by the Government of India)

The Indian Institute of Packaging was established in 1966 at Bombay by the packaging and allied industries in India with active support of the Government of India for improving the current packaging pattern not only for internal trade but also for exports.

The Institute is making every effort to achieve its objectives through training, technical consultancy and informative services.

However, in a country like India whose problems in packaging are of a very complex nature needing urgent solution, the available facilities will have to be substantially enlarged and augmented to cope with the enormous tasks that lie ahead; and UNIDO's assistance has been sought in this regard.

In the framework of this project spread over a period of three years, the Institute will receive UN experts and fellowships amounting to 180 man months and modern package testing research and training equipment valued at more than US\$ 270,000.

It is expected that this project will enable the Institute to offer full-scale services to the local packaging industry for the improvement of packaging media production, modernization of packaging methods (especially for export goods), and bring the Indian packaging standard in line with international levels. This will have a substantial influence on growth of exports as well as bringing substantial reduction of losses in food.

SUPPORTING

An inplant training programme in packaging for Spanish speaking participants will be arranged with the support of the Government of Spain in Madrid in 1972. This project is aimed at training specialists from the Spanish speaking countries in the modern methods of packaging for different export goods. Each participant would have an opportunity to study the specific problem with which he is deeply concerned. The programme includes lectures, practical work in packaging laboratories and factories, and study tours, in the host and neighbouring countries. About 20 participants will be trained for a period of three months.

Furthermore, a number of inplant training programmes, seminars and symposia on different packaging problems, are planned for 1972 and 1973.

As already mentioned a new form of assistance on an integrated basis is contemplated by UNIDO. This would, naturally, have to take note of increasing output of manufactured goods; improvements in the distribution system like self-service, super-markets, mechanization and acceleration of transportation systems, consumer demands.

UNIDO's future programme of assistance will be enlarged on the following lines:

- Setting up local industries and improving those existing in the manufacture of new types of packaging materials and containers;
- Establishment of research and development centres and training of packaging specialists;

- Dissemination of information through various means on a national and regional basis;
- Choice and adoption of modern packaging systems inter alia by setting up demonstration plants;
- International meetings for discussing the guidelines for development of selected packaging sections;
- Organizing management clinics at the company level to aid local packaging manufacturers and users.

HOW TO OBTAIN UNIDO'S ASSISTANCE

Procedures for the submission of requests for assistance vary from programme to programme. The UNDP Resident Represent will advise Governments on these matters. Although the nature and extent of a request would vary depending on the circumstances, the following criteria are common to all requests:

- Assistance is granted only at the request of governments in a formal communication emanating from the concerned authorities after establishing their own requirements and priorities;
- Requests of Governments are to be submitted through the Resident Representative of the United Nations Development Programme, and transmitted simultaneously to UNIDO and UNDP for processing and approval;
- A request may be formulated through the combined efforts of the national authorities and technical assistance experts including UNIDO staff, Industrial Field Adviser, and the UNDP Resident Representative;

- Official requests should normally contain a description of the project, its objectives, duration, the number of experts and the equipment required and the nature or amount of local costs and counterparts contribution that would be provided by the recipient government;
- Upon receiving the request, preliminary negotiations will be carried out by the Resident Representative with the requesting government on the nature of the request and the source and availability of funds;
- Requests for urgent short term assistance may be made under the programme of Special Industrial Services, while medium term advisory missions and pre-investment and pilot projects comprising experts, fellowships, and equipment can be financed through the normal procedures of the UNDP;
- Requests for assistance when received by the UNIDO are examined in their bearings, before putting them into action. In the event that any further information or revision is needed, arrangements will be made to assist the government in this regard;
- Recruitment of experts is undertaken by UNIDO in co-operation with the United Nations Technical Assistance Recruiting Service (TARS). In all cases, prior approval for the proposed candidate will be sought from the Government concerned before appointment.

Some model job descriptions for technical assistance requests are shown in Appendix II. It may be of interest to mention that UNIDO has maintained a list of competent experts in different fields of packaging for assignments to different countries related to specific requests. This list is constantly reviewed and kept up-to-date.

APPENDIX I

CLASSIFICATION OF AREAS FOR TECHNICAL ASSISTANCE IN PACKAGING

I. PACKAGE PLANNING AND DEVELOPMENT

1. Packaging Management on enterprise level

- a) Co-ordination of packaging functions among different departments;
- b) Identification of tasks and distribution of work;
- c) Appraisal of designs and specifications.

2. Planning long-term packaging programme for an enterprise

- a) Definition of objectives through marketing and economic research;
- b) Identification of possible packaging concepts.

3. Package Design

- a) Preparation of designs and models;
- b) Elaboration of specifications;
- c) Sample tooling and fabrication;
- d) Evaluation approvals and clearance.

4. Application of new package

- a) Set up of new packing line;
- b) Development of quality control programme.

5. Material supply

- a) Forecast of demand for packaging materials;
- b) Supply sources;
- c) Quality control.

II. PACKAGING MATERIALS

- a) Wood
- b) Paper and board
- c) Plastics, rubbers and other polymers
- d) Laminates
- e) Glass and ceramics
- f) Metals (including foils)
- g) Textiles

III. PACKAGING CONTAINERS

1. Retail Containers:

- a) Flexible packaging
 - i) Bags and sachets
 - ii) Wrappings
 - iii) Blister and skin packaging
 - iv) Shrink packaging
 - v) Vacuum and gas packaging
- b) Metal cans and boxes
- c) Collapsible metal tubes
- d) Folding and rigid paperboard boxes
- e) Canisters and composite containers
- f) Moulded pulp containers
- g) Moulded plastics containers
- h) Glass and ceramic containers
- i) Aerosol containers

2. Transport Containers:

- a) Wooden containers
- b) Metal containers
- c) Fibreboard containers
- d) Sacks
- e) Plastics and rubber containers (other than plastic sacks)
- f) Bales

IV. ACCESSORIES FOR PACKAGING:

a) Cushioning Materials:

Cork, cellulose, moulded pulp, foams, bonded hair, etc.

b) Reinforcement Materials:

Wires, straps, stitches

- c) Adhesives, waxes and coatings
- d) Sealing tapes
- e) Closures and valves

V. MECHANIZATION OF PACKING PROCESSES

- a) Planning packaging operations and equipment
- b) Packaging processes and machinery
 - i) Organization of packing lines
 - ii) Counting
 - iii) Weighing
 - iv) Erecting (forming) packs
 - v) Filling (loading)
 - vi) Closing
 - vii) Fastening the contents inside the package
 - viii) Labelling (printing)
 - ix) Wrapping and bundling
 - x) Collating
- c) Adaptation and design of packaging machinery

VI. PACKAGING INSTITUTIONS AND SERVICES

- a) Research
- b) Testing
- c) Consultancy
- d) Information and documentation
- e) Training
- f) Promotion
- g) Industrial associations

APPENDIX II

UNIDO AND ITS FUNCTIONS

UNIDO - WHAT IT IS

The United Nations Industrial Development Organization (UNIDO) was established on 1 January 1967 by the General Assembly of the United Nations to promote and accelerate the industrialization of the developing countries; and was given the central role in co-ordinating all the activities undertaken by the United Nations family in this field. Its headquarters are in Vienna, Austria. Many developing countries had not attained independence when the United Nations was established in the late 1940's and hence, no provision was made for a special organization to deal with their industrialization, though various agencies dealt with aspects falling within their competence. Eventually UNIDO was established as an autonomous body within the United Nations.

WHAT IT DOES

It undertakes two basic types of activities:

- A) Operational activities, involving direct assistance to developing countries, and
- B) Supporting activities, including action-oriented studies and research.

The following are services available under (A):

- i) the establishment, operation and management of industrial enterprises, to promote domestic investment and increase external financing for specific industrial projects;
- ii) building effective national organizations to administer industrial services;
- iii) preparing industrial development programmes and specific projects;

- iv) training staff;
- v) solving problems related to the exploitation and use of natural resources, industrial raw materials and by-products;
- vi) disseminating information on new technologies and assisting the developing countries to apply such information effectively;
- vii) promoting national, regional and international action to achieve more rapid industrialization.

UNIDO also undertakes at the request of the Governments of developing countries and with the approval of the Governing Council of the UNDP, Special Fund Projects, which are long term pre-investment projects. Under these projects the following services are provided:

- i) feasibility studies to identify investment opportunities and to determine the extent of available resources and markets for industrial development purposes;
- ii) helping in the setting-up of research and training institutes, development centres and launching of pilot and demonstration plants.

SPECIAL INDUSTRIAL SERVICES (SIS) PROGRAMME

UNIDO provides aid at short notice to developing countries wishing to solve urgent industrial problems. This is the Special Industrial Services (SIS) which is financed by voluntary contributions and administered jointly by UNIDO and the UNDP. In this programme experts are sent for brief periods at short notice to advise on the solution of urgent technical problems.

FIELD ADVISERS

UNIDO maintains close and direct contact with the field through a number of channels. Its Field Advisers are in direct contact with Governments and with the UNDP Resident Representatives, the accredited

official representatives of the United Nations in matters of technical assistance, on specific matters relating to industrial development and the formulation of requests for assistance.

B) Supporting activities include studies, research, exchange of information and training designed to contribute to the effectiveness of field operations. This category covers the compilation, analysis publication and dissemination of data concerning various aspects of industrialization such as industrial technology, investment, financing, production, management and planning.

FINANCING UNIDO'S ACTIVITIES

Expenses for the administrative and research activities of UNIDO are borne by the regular budget of the United Nations. For its operational activities, UNIDO draws mainly on the resources provided by the United Nations Development Programme (UNDP) and on a part of the regular budget of the United Nations as well as on voluntary contributions from member Governments.

INDUSTRIAL DEVELOPMENT BOARD

The principal policy-making body of UNIDO is the Industrial Development Board whose 45 members are elected by the General Assembly from member states of the United Nations and its agencies for a term of three years. The Board meets once a year to formulate guidelines and policies for UNIDO and to approve its programme of activities.

APPENDIX III (A)

UNITED NATIONS
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
UNIDO

JOB DESCRIPTION (GENERAL)

UNIDO/PCKG/GEN. 1 *

POST TITLE: Programme for development of the Packaging Industry

DURATION: One to four months

DATE REQUIRED: 1972/74

DUTY STATION: A developing country with possibility of travel within the country

DUTIES: A team of experts will be sent to a developing country to investigate the present situation and future needs in packaging and to recommend branches for further development.

The experts will be expected to:

- a) survey the packaging media for consumer industries and assess their current and future needs of packaging materials and containers;
- b) investigate the existing packaging manufacturing processes and assess possibilities of their modernization;
- c) analyse the type and quality of packaging materials required by the home and foreign markets;
- d) in the light of the above, to recommend an integrated programme for development of those branches of the packaging industry which appear technically and economically justified;

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PLEASE SUBMIT CANDIDATES AS SOON AS POSSIBLE

Personnel Services, UNIDO, P.O. Box 707, A-1010 Vienna, Austria

- (e) recommend any other technical assistance measures needed in the above field.

QUALIFICATIONS:

Packaging Technologists and/or industrial economists with ample experience in manufacture and use of packaging media for industrial and food products, as well as in carrying out industrial surveys. Knowledge of marketing is essential.

LANGUAGE:

English, French and/or Spanish, depending on the country

BACKGROUND INFORMATION:

The increase in agricultural and industrial production, especially in such branches as canned foods, detergents, confectionery and chemicals, results in a growing demand for adequate packaging to protect the product and withstand foreign market competition. Most of the required materials are imported in their original form, although some ready-made packages are also imported.

Modern packaging technology making more and more use of sophisticated materials and package constructions adaptable to mechanized packaging methods is an essential pre-requisite for development of the packaging industry. At the same time, sales promotion functions of packaging must also be developed, especially in view of growing competition from foreign markets.

Modernization of the packaging industry can only be effective when based on a carefully prepared programme, which would take into account:

- a) consumption growth of the packed goods;
- b) new trends in packaging technology;
- c) development of research and testing.

Being aware of the importance of packaging for the economic development of developing countries, and following requests from many developing countries for technical assistance for improving their packaging techniques, UNIDO has launched a world-wide programme in this field. The necessary technical assistance plans are already formulated for some countries and it is expected that these will be extended to many other countries.

APPENDIX III (B)

UNITED NATIONS
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
UNIDO

JOB DESCRIPTION (GENERAL)

UNIDO/PCKG/GEN. 2 *

- POST TITLE:** Establishment of Packaging Research and Promotion Centre
- DURATION:** Two to three years
- DATE REQUIRED:** 1972/74
- DUTY STATION:** A developing country with possibility of travel within the country
- DUTIES:** In order to provide a developing country with an instrument of development and promotion of packaging science and techniques, a packaging research and development centre is proposed to be established.
- The centre should aim at taking all measures to develop modern process of package production and to introduce the new packing materials and techniques. To achieve this, it must actively promote package consciousness, advise on packaging design, standards and planning, render consultancy services to industry and commerce, and serve as technical literature documentation centre. In order to do this, it may have the following departments:
- a) Packaging Promotion Department - with the following scope of activities:

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- consultancy and advisory services to industry and commerce on the subject of recent developments in equipment, technology and materials used in the production of packaging containers and in the packing systems, as well as on packaging design;
- analysis of the packaging methods actually used in different industrial enterprises and working out the recommendations regarding their improvement and modernization;
- gathering, compiling and dissemination of technical and economic information in forms of periodically issued abstracts, bulletins and newsletters;
- carrying out of market surveys concerning packaging requirements for specific products;
- initiation and organization of lectures, seminars and other forms of packaging education;
- organization of periodic exhibitions and competitions.

b) Packaging Research and Testing Department - in charge of:

- testing of packaging materials;
- testing and development of retail and transport packages;
- carrying out applied research in the field of packaging;

c) Packaging Standardization and Quality Control Department - responsible for:

- elaboration of packaging standards;
- elaboration of packaging requirements for export goods;
- assessment of quality of packaging materials and containers;
- delivering of "quality" labels for manufactured packaging. In introducing such a quality mark, conforming to international rules, and controlling its use by the local producers, the Centre would contribute to export promotion and make it possible to obtain substantial railway freight discounts abroad;

- establishment of a quality control system (especially for export packaging)
- d) Packaging Economics Department - whose functions should be the following:
 - planning of the country's package and packaging materials demand in the light of the state investments and import policy;
 - evaluation of packaging costs as part of the overall production cost and improvement of costing methods;
 - examination of packaging economy in various currently used retail and shipping containers and substitution possibilities;
 - collection and analysis of statistical data.

QUALIFICATIONS:

Packaging Technologist or Industrial Economist with ample practical experience in managing a packaging centre.

LANGUAGE:

English, French and/or Spanish, depending on the country.

**BACKGROUND
INFORMATION:**

The proper growth of the industrial production and exports of any country is conditioned by the development of packaging. Packaging enters into almost all types of products that are distributed to the public or need protection during transport; it also makes products competitive on the foreign markets.

The Packaging Centre establishment should be considered by a developing country in order to:

- a) achieve the fullest utilization of its own packaging materials resources and packaging industry capabilities;
- b) co-ordinate packaging production and imports with the growing demands for packaging materials and containers;
- c) provide the systematic quality control in packaging production, thus contributing to increase the exports of commodities;
- d) improve the existing technologies by applied research activities;
- e) ensure the constant inflow of packaging knowledge to packers and pack producers.

This Centre would serve as a focal point for packaging users and manufacturers and would help to improve the existing technologies and systems, as well as to introduce new ones. The Centre would also serve in the diffusion of technical know-how through training courses, exhibitions and competitions, in the compilation and distribution of technical documentation, in the elaboration of packaging standards, and in the carrying out of quality control testing of packages and packaging materials. Once established, the impact of such a centre would be felt on this whole sector of industry and would help upgrade packaging to the level of international standards. Assistance would also be given to exporters through market surveys.

Being aware of the importance of packaging for the economic development of developing countries, and following requests from many developing countries for technical assistance for improving their packaging techniques, UNIDO has launched a world-wide programme in this field. The necessary technical assistance plans are already formulated for some countries and it is expected that these will be extended to many other countries.

PROJECT COMPONENTS:

a) UNDP contributions:

- imported equipment;
- foreign experts;
- UN fellowships.

b) Country contributions:

- land, buildings, furniture;
- local staff, training and other administrative expenses;
- indigenous equipment.

APPENDIX III (C)

UNITED NATIONS
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
UNIDO

JOB DESCRIPTION (GENERAL)

UNIDO/PCKU/GEN. 3 *

POST TITLE: Assistance in setting up (or improving) the production of packaging material and/or containers

DURATION: Two to four months

DATE REQUIRED: 1972/74

DUTY STATION: A developing country with possibility of travel within the country

DUTIES: The expert will advise on the steps to be taken by the government to develop local production of packaging media. Specifically he will:

Variant 1: Establishment of new production:

1. study the requirements of the local industries in packaging containers;
2. advise on the establishment of a pilot plant to make packaging media for different food or industrial products;
3. assist in the preparation of the specification for the pilot plant as well as in working out estimates of the expenses.

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Variant 2: Improvement of existing production:

1. survey the existing equipment, production methods and quality control in the factory;
2. recommend modifications in the technological regime, additional equipment needed for improvement of quality and enlargement of the range of products, as well as advise on the appropriate quality of imported materials;
3. make recommendations necessary for establishing a suitable quality control policy, and establish the inspection procedure for the finished products;
4. recommend the necessary training needs for the management and technical personnel of the plant.

QUALIFICATIONS:

Engineer with extensive practical experience in establishing and running packaging plants. Knowledge of marketing essential.

LANGUAGE:

English, French and/or Spanish, depending on the country.

**BACKGROUND
INFORMATION:**

Variant 1: Establishment of new production:

The growing role of packaging, particularly in improving the marketing of locally produced goods at home and abroad, has been recognized and appreciated by the government. It is felt that processing industries in particular might greatly increase sales of their products through use of the appropriate packaging system and use of modern containers for preserving and dispatching goods. It seems to be useful therefore to set up, with UN technical assistance a packaging pilot plant for making packaging materials and/or containers to meet the demand from processing industries after carrying out studies regarding the requirements of the containers through contacts with the country's authorities and industrialists. It is also expected that the expert will assist the government in the preparation of the request for UN technical assistance to set up a packaging pilot plant for packaging media and help with the preparation of estimates of the expenses to implement the project.

Variant 2: Improvement of the existing production:

The growing competition on the foreign markets and changing demands of local consumers call for modernization of actually manufactured packaging media, by increasing their quality and sales appeal, reducing production costs, and enlarging the assortment of packages.

Being aware of the importance of packaging for the economic development of developing countries, and following requests from many developing countries for technical assistance for improving their packaging techniques, UNIDO has launched a world-wide programme in this field. The necessary technical assistance plans are already formulated for some countries and it is expected that these will be extended to many other countries.

APPENDIX III (D)

UNITED NATIONS
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
UNIDO

JOB DESCRIPTION (GENERAL)

UNIDO/PCKG/GEN. 4 *

- POST TITLE:** Improvement of packaging for an Industrial or Food Product
- DURATION:** Two to six months
- DATE REQUIRED:** 1972/74
- DUTY STATION:** A developing country with possibility of travel within the country
- DUTIES:** The expert will be expected to advise a developing country on packaging of a product for export or local market. Specifically the expert will:
- a) survey briefly the present status and trends in the local production of the market;
 - b) examine the methods currently in use for packaging the product and ascertain the specific export and/or local market requirements;
 - c) recommend most efficient and economical packaging materials, as well as packaging techniques, giving detailed technical descriptions and specifying equipment to be installed;
 - d) recommend any other measures of technical assistance needed in the above field.

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QUALIFICATIONS:

Packaging Technologist with ample practical experience in packaging of that product. Familiarity with marketing essential.

LANGUAGE:

English, French and/or Spanish, depending on the country.

**BACKGROUND
INFORMATION:**

Manufacture of the product in the country, as well as its quantity, is substantially increasing. Importers show growing interest and marketing analysis of neighbouring countries indicates that there is a considerable absorptive power in their markets for this commodity. Requirements of local market are also increasing.

It is the intention of the country to develop export-oriented industry. The main stumbling block, however, is the inferior packaging, the cost of which considerably reduces export profitability.

Being aware of the importance of packaging for the economy of developing countries, and following requests from many developing countries for technical assistance for improving their packaging techniques, UNIDO has launched a world-wide programme in this field. The necessary technical assistance plans are already formulated for some countries and it is expected that these will be extended to many other countries.

APPENDIX III (E)

UNITED NATIONS
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
UNIDO

JOB DESCRIPTION (GENERAL)

UNIDO/PCKG/GEN. 5 *

- POST TITLE:** Expert in Packaging Design
- DURATION:** One to four months
- DATE REQUIRED:** 1972/74
- DUTY STATION:** A developing country with possibility of travel within the country
- DUTIES:** An expert or a team of experts will be assigned to the country who will investigate the present pattern of packaging in relation to the package design and presentation so as to make them competitive on the local as well as overseas markets. The experts will be expected to:
- a) survey the current packaging pattern adopted for consumer goods and locate areas which need re-designing,
 - b) locate suitable design consultants, and hold meetings with them so as to bring home the need for proper package design;
 - c) investigate the existing facilities with the package manufacturers and assess their capabilities for producing improved design;
 - d) in the light of the above, suggest suitable measures for improvement in package technical and graphic design;

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- e) to recommend forms of technical assistance needed in the furtherance of the above.

QUALIFICATIONS:

Experience in package design studies, actual art and lay-out, ability to analyse packaging needs in relation to market requirements.

LANGUAGE:

English, French and/or Spanish depending on the country

**BACKGROUND
INFORMATION:**

The country is capable of producing a large number of consumer goods and handicraft items. Active steps are being taken to promote their exports in a very large measure. Being unacquainted with the modern techniques of package design and presentation, the country is faced with problems in promoting their sale on the highly competitive markets.

Development of appropriate package design, keeping in view the functional requirements of the package as well as surface design is considered most urgent. Package manufacturers, printers and advertising agents who if made aware of the requirements of the overseas markets, given the necessary facilities, would be able to effectively play their part in the improvement of packaging pattern.

APPENDIX III (F)

UNITED NATIONS
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
UNIDO

JOB DESCRIPTION (GENERAL)
UNIDO/PCKG/GEN. 6 *

POST TITLE: Packaging Machinery Consultant

DURATION: Two to four months

DATE REQUIRED: 1972/74

DUTY STATION: A developing country with possibility of travel within the country

DUTIES: The expert is expected to:

- a) survey the packaging machinery requirements in different fields, particularly in the consumer product range;
- b) locate areas where there is a large demand for packaging machinery;
- c) assess the possibility of manufacture of some of the machinery, keeping in view the engineering facilities and the required skill;
- d) based on the studies, the expert would recommend appropriate measures for the manufacture of these machines, training of suitable personnel in this regard and advise the forms of assistance that are required for the purpose.

LANGUAGE: English, French and/or Spanish depending on the country

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PLEASE SUBMIT CANDIDATES AS SOON AS POSSIBLE

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QUALIFICATIONS:

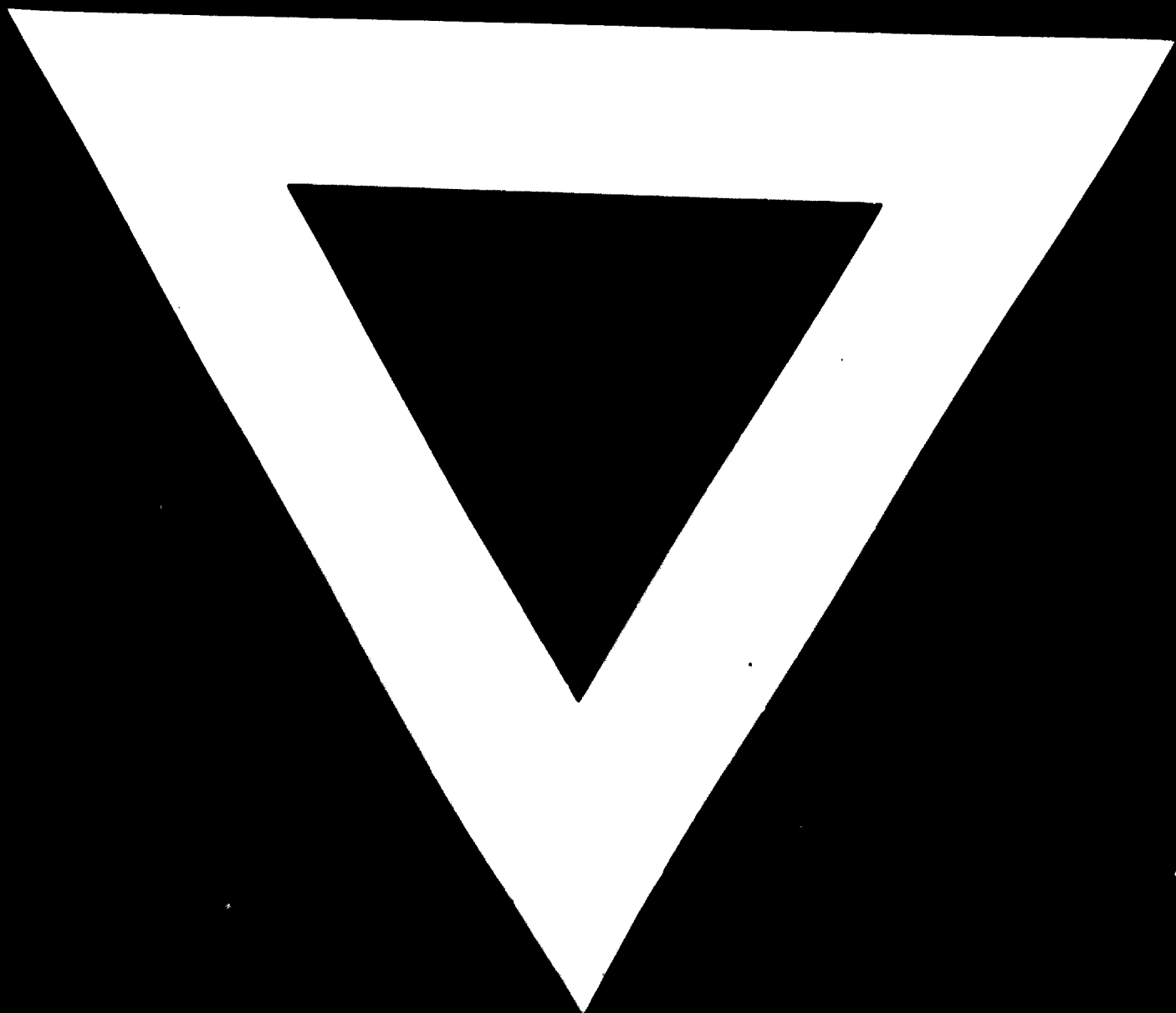
The candidate should be basically a mechanical engineer with adequate experience in machine building. He should have knowledge of the types of packaging machinery used for consumer goods and should have worked in a packaging industry manufacturing firm of repute for not less than ten years.

**BACKGROUND
INFORMATION:**

The country has a large programme of producing consumer goods in packaged condition, not only for local trade but also export. At the moment some of the operations are done manually and with the help of semi-automatic machines. This is impeding productivity. Automation in packaging is considered vital for mass production, optimum utilization of man-power, finances and resources.

The country has a number of engineering industries and has facilities for training in engineering sciences. What is required is the technical know-how and necessary guidance.





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