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ESTABLISHMENT OF THE ARAB REGIONAL PACKAGING CENTRE

DP/RAB/83/020

REGIONAL ARAB STATES

(R) DEMOCRATIC YEMEN. ↑

Technical reports | Survey on Packaging*

Prepared for the Government of the People's Democratic Republic of Yemen
by the United Nations Industrial Development Organization,
acting as Executing Agency for the
United Nations Development Programme

Based on the work of Aleksander Soltan,
expert in packaging

United Nations Industrial Development Organization
Vienna

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ABBREVIATIONS USED IN THE REPORT

- AIDO : Arab Industrial Development Organization, based in Baghdad, Iraq
ARPAC : Arab Regional Packaging Centre, based in Casablanca, Morocco
ASMO : Arab Standards and Metrology Organization, based in Amman, Jordan
IMEC : Moroccan Institute of Packaging, based in Casablanca, Morocco
NPC : National Packaging Committee. Bodies established in various Arab countries, acting as liaison focal points between the ARPAC and its members .
PDRY : People's Democratic Republic of Yemen
UNIDO : United Nations Industrial Development Organization, based in Vienna, Austria, acting as executing agency for the Project.
UNDP : United Nations Development Programme

Abstract

Project title : Consultant on Packaging Surveys

Project number : DP/RAB/83/020/11-72/31.7.E

Purpose of the Project : To survey packaging industries and techniques in the People's Democratic Republic of Yemen and determine fields where technical assistance could be provided within the framework of the ARPAC Project.

Objectives of the Mission : To assess the present status of packaging industries in the country, analyse existing packaging techniques in various industrial sectors and formulate recommendations for their improvement.

Duration of the mission : Two months.

List of key words

Aluminium foil, carton, corrugated board, development, flexible material, laminate, packaging survey, polyethylene, polypropylene, PVC, plastic film, saving, seminar, substitution, testing, training, PDR Yemen.

1. INTRODUCTION

1.1. Project Background

The growing awareness of the Arab countries of the importance of developing packaging industries resulted in the unification of their efforts towards this goal and creation of a regional packaging focal point stimulating this process.

The Arab Industrial Development Organization (AIDO) in its capacity as an implementing agency for the Arab Governments and UNIDO as an executing agency for the United Nations Development Programme, are jointly carrying out a project with the aim to establish an Arab Regional Packaging Centre (ARPAC).

In the framework of the project a number of important activities have been already taken up during the last two years, like regional seminars, study tours, identifications of technical assistance needs and promotional missions aiming at strengthening communication network between the ARPAC and the member countries. For that purpose National Packaging Committees (NPC) are to be established in each country. One of the immediate objectives of the Project is to render consultancy services to Arab countries to assist them in developing their own packaging industries.

This report describes the work carried out by an UNIDO Consultant in the field of packaging in the People's Democratic Republic of Yemen. It is a part of the UNIDO Project DP/RAB/83/020/A/01/37 concerned with the establishment of the Arab Regional Packaging Centre (ARPAC).

1.2. Official arrangements

The mission was carried out within the frame work of the ARPAC project and was preceeded and followed by the briefing at the ARPAC headquarters in Casablanca.

The Consultant entered the field on 11 June 1986 after being briefed in UNIDO, Vienna by Mr. K. SEPIC, Head, Agro-industries Branch ICD, Mr. R. CHOUDHARY (in absence of Mr. J. BELO) and Mr. J. LEITE, Personnel Recruitment Services.

In Casablanca the mission activities started on 12 June with the visit to IMEC and thorough briefing on the 1983-86 ARPAC activities given by Mrs. TAZI, Administrative Assistant. On 16 June a comprehensive session was held with Mr. A. BENNOUNA, Project Director reviewing the work accomplished so far within the ARPAC project and the guidelines for its future programme of activities .

On 17 June the Consultant paid a visit to the UNDP Office in Rabat and discussed with Mr. E. Dierckx. de CASTERLE, Resident Representative a.i. the issues related to the ARPAC project and the forthcoming mission to PDR Yemen. The rest of the time was spent on studying the PDR Yemen country file and preparing the mission's strategy and preliminary programme.

The Consultant arrived to Aden on 21 June and visited the next day UNDP Office, meeting Mr. T. Ben Amara, Deputy Resident Representative . The programme of the mission was discussed with Mr. J. Mohamed, IPO charged with UNIDO project. On 22 June Consultant visited Ministry of Industry, Trade and Supplies, where he was introduced to Mr. F.H. Yehia , Assistant Deputy Minister for Planning and Mr. J. Bahader, Assistant Deputy Minister for Production.

He was also introduced to Mr. M. Noaman, Head of Efficiency and Standards Section, who was assigned as a counterpart to the Consultant.

The Consultant's office was installed at the Ministry premises and all required administrative assistance provided.

The mission was very well taken care of and supervised both by the UNDP Office and the Ministry to the full satisfaction of the Consultant despite considerable time and work pressure.

Without the friendly co-operation and substantial support of the above mentioned persons the completion of the mission objectives would have been very much slowed down. Thanks are also due to the staff of the Efficiency and Standards Section of the Ministry for the extensive assistance in fulfilling the Consultant's duties.

The Consultant carried out his activities according to the mission programme (Appendix 2 refers) and left for Casablanca on 24 July 1986.

In Casablanca the conclusions and recommendations were discussed with the newly appointed General Director of IMEC Mr. ZAKI Ali and the ARPAC Administrative Assistant Mrs. TAZI A. The draft Technical Report was finalized and submitted to the UNDP in Rabat. In Vienna the Consultant was debriefed and returned to Warsaw on 16 August 1986.

1.3. Terms of reference

The terms of reference, as stipulated in the Consultant's Job Description (Appendix no. 1) are:

- 1) Study the development of industries in liaison with the authorities concerned:
 - Food products
 - Standardization of packages
 - Transport packaging and other problems related to transport;
- 2) Analyse the existing industry and its problems with regard to packaging;
- 3) Determine fields where technical assistance could be provided within the framework of the ARPAC Project.

Regarding the matters which have arisen from the briefing at ARPAC, the following additional points have been added to the terms of reference:

- 4) Assess the situation concerning establishment of the PDRY National Packaging Committee, as stipulated by the Governing Council of AIDO at its 2nd Session, and sensitize the authorities towards this goal.
- 5) Examine the organization and functioning of the Industrial Information and Documentation Centre under the Ministry of Industry, Trade and Supply, with the view of including this unit in the ARPAC information network.

2. Conclusions and Recommendations

2.1. Conclusions

a) Packaging industry in PDRY is at an early stage of development; apart from polyethylene film and bags, polypropylene copolymer crates, and paper bags, which are made in the self-contained factories, the rest is either manufactured at the user's place in the package making sections (Metal cans), on the product line (tetra pak cartons, P S cups) or imported in the form of packaging materials and ready made containers, (plastics films, paper tinfoil, bottles, crown corks, folding boxes, corrugated fibre board boxes, paper and plastic sacks).

b) Importation of packaging materials and containers constitutes a predominant form of packaging supply, the annual value exceeding US\$ 5 million (over 28% of the total export earnings in 1985, or at least 7.7 % of the country's import bill for the same year.

c) The quality of the locally made packages is not satisfactory and there are no facilities to assess its level. The quality of imported packaging materials and containers varies according to the reliability of the foreign supplier. In some cases it is definitely inferior but no claims could be made since technical specifications cannot be verified locally from the above mentioned reasons. The orders are not based on the carefully selected grade and properties of packaging materials (tinplate, corrugated fibreboard) or package constructions specifically tailored to meet the requirements of the products to be packed, therefore the choice is far from being most suitable technically and economically. There is an ample margin for reducing the cost of imported packaging media through the professional formulation of the technical specifications supported by the necessary knowledge of packaging technology.

d) There are no official statistics on food losses and damages of goods during the transport and storage due to the inadequate packaging but according to the verbal informations gathered during the visits to the manufacturing and distributing organizations, they vary from 2 to 30%. This indicates the urgency of improving packaging in PDRY and examining transport, storage and handling techniques of the packed products.

e) Packaging infrastructure (information, training, testing, promotion, planning and co-ordination) has not yet been developed in PDRY. In order to increase and strengthen the country's own packaging expertise it is imperative to start and continue the aforementioned activities. These objectives should be implemented in close co-operation and assistance of the Arab Regional Packaging Centre (ARPAC), established by AIDO with the assistance of UNDP/UNIDO.

2.2. Recommendations

In order to improve packaging economy and techniques in PDRY the following recommendations are formulated, based on the mission's findings and conclusions outlined in the report.

2.2.1. With regard to the production and use of packaging

a) To develop domestic production of packaging materials and containers.

For this purpose the following technical assistance inputs are recommended :

i) To work-out the programme for further development of the production of plastic packaging, based on the Al-Gundi Plastics Factory, including manufacture of bottles, light weight containers (e.g. for powdered detergents) thermoforming (cups, trays etc) and laminates.
One expert for two months.

ii) To carry out the following feasibility studies as a matter of urgency :

- production of glass bottles and jars ;
- production and conversion of corrugated fibreboard,
- production of crown corks.

For the first two studies one expert for three months is proposed. For the last one, one expert for one month.

Note : Since in some of these subjects assistance from other sources is being considered by the Ministry of Industry, the selection and priorities of the suggested feasibility studies is left to the discretion of the PDRY Authorities.

iii) To expand domestic production of metal cans for food preserves, especially for fish and horticultural produce, increasing can quality and variety.

One expert for three months.

iv) To study the viability and economics of setting-up a central packing station at the Public Meat Corporation in Aden (the sole meat distributor in PDRY). For background information see section 3.2 Findings.

One expert for two months.

- v) To study the magnitude and causes of food losses and damages of goods during the transport, storage and handling due to improper packaging and recommend necessary improvements.
One expert for two months.

2.2.2. With Regard to the Packaging Infrastructure

- i) To assist in starting-up and developing activities of the National Packaging Committee, founded during the Consultant's mission in PDRY. The terms of reference for the NPC are outlined in the Appendix no. 3.
One expert for six months.
- ii) To expand activities of the Industrial Information and Documentation Centre, to include collection, storage, computer aided processing and dissemination of the information in the field of packaging .
Subject could be covered by the expert anticipated for the recommendation 2.2.2. (i) above.

3. Substantive section

3.1. Achievement of immediate objectives of the mission

- 1) To study the development of industries in liaison with the authorities concerned :
- Food products,
 - Standardization of packages,
 - Transport packaging and other problems related to transport.

The food and non-food industries of Democratic Yemen have been studied by the consultant in terms of :

- visiting 19 industrial corporations and units, representing roughly 70 % of the country's industrial potential by value. The detailed findings are outlined in the subsection 3.2. of the Report. The ad hoc advice has been given during the visits.

- surveying statistical data, collected mainly by means of interviews with the factory managers and relevant sections in the responsible Ministries.

Basic information on the development of food and other industries was drawn from the current 5 year National Development Plan.

The findings were reflected in the recommendations on further technical assistance to Democratic Yemen in the field of packaging (section 2 of the Report refers).

Particular attention was paid to the standardization of packages which is at its infancy here. Thorough briefing was given to the newly formed Efficiency and Standards Section of the Ministry of Industry, Trade and Supply, on the international co-operation in packaging standardization as well as ways and means of building up the PDRY own activities in this field. A special seminar was devoted to the subject of food packaging organized on 14 July 1986. The outline of the seminar and the list of participants are attached (App. 7).

Aspects of transport packaging were touched upon during the visits to factories and discussed with personnel responsible for shipping their goods to various parts of the country. There exists a specific situation in PDRY regarding logistics, whereby most goods are manufactured in the Aden area and distributed to other Governorates by trucks lengthwise the country. This poses extreme hazards to the transported goods and needs special attention as far as packaging and formation of unit loads is concerned. These problems were discussed at the seminar on Food Packaging held on 14 July, and relevant recommendations are envisaged in the section 2 of the Report.

- 2) Analyse the existing industry and its problems with regard to packaging.

The visits carried out to 19 factories as well as meetings with the managerial staff of the ministerial departments and trade organizations responsible for the development of industrial and trade sectors, provided ample information and data which allowed

for the analysis of the packaging problems in the existing industry of the country. Major findings, conclusions and recommendations have been formulated and are outlined in the section 2 and subsection 3.2 of the Report.

3) Determine fields where technical assistance could be provided within the framework of the ARPAC Project.

Based on the investigation of the PDRY industries with regard to the packaging needs, the proposals were formulated for further technical assistance in :

- preparing the programme for expanding plastics packaging industries,
- carrying out feasibility studies on establishing local production of corrugated fibreboard, glass packaging, crown corks, expansion of the metal cans for processed food,
- surveying the magnitude and causes of food and agricultural produce losses due to inadequate packaging, transport and storage and recommend necessary improvements,
- executing a study on the establishment of a central packing station for the meat and meat products in Aden,
- expanding Industrial Information and Documentation Centre to include packaging subjects and adapt to the computer aided information system to be introduced by ARPAC,
- assisting the National Packaging Committee in developing its activities both locally and internationally.

4) Assess the situation concerning establishment of the PDRY National Packaging Committee and sensitize the Authorities towards this goal.

The matter raised by the consultant at the meeting with Mr Salem Ahmed Basabrin, Deputy Minister of Industry, met with full understanding and support to the effect that the candidatures for the chairman and the members were suggested on the spot and the confirmation in writing has followed (Appendix no. 4 refers).

It was stressed that in the first phase of establishing a packaging infrastructure in PDRY, creation of an interministerial body as a counterpart to the ARPAC would take too long in view of required procedures and insufficient sensitivity of some sectors to the problems of packaging. At the present stage adequate representation in the NPC of the Ministry of Industry, which has been recently enlarged to also embrace foreign and home trade and supplies, would form sufficient platform of co-operation with ARPAC.

5) Examine the organization and functioning of the Industrial Information and Documentation Centre with the view of including this unit in the ARPAC information network.

Two working sessions have been carried out with Mr M.A. Assakkaf, Director, and his staff, aiming at the identification of basic information sources on packaging as well as methods and equipment necessary for its processing in accordance with the ARPAC information network proposals.

The views were also exchanged with regard to the choice of the computer equipment and its compatibility with the other computer aided systems already existing in the region and elsewhere.

The links with the ARPAC activities were ascertained by co-opting Mr Assakkaf to the NPC as one of the members.

3.2. Findings

A) General remarks

The PDRY Third Five Year Plan (1986-90) stipulates high growth rates of main productive sectors in Democratic Yemen, viz :

Industry	- 72 % or average of 11.5% per annum
Agriculture	- 42 % or average of 7 % per annum
Fisheries	- 27.6% or average of 5 % per annum

This should be achieved through the introduction of new capacities, the achievement of higher productivity levels, better utilization of the existing facilities, more efficient use of the raw materials and improvement of the quality of locally manufactured goods.

The fulfillment of the above directives will largely depend on the improvement of the packaging techniques and economics. At present, in order to package the goods manufactured by the main productive sectors, most of the necessary materials, containers and auxiliaries have to be imported, at a rate of not less than USD 5 million per year. This figure represents over 28% of the country's total export earnings in 1985.

The analysis of packaging component in the visited factories as well as package manufacturing companies (Appendix no.5 refers) indicates that most of packaging containers are imported ready made (bottles, cartons, corrugated fibreboard boxes, woven sacks, partly metal cans and plastic bags). Commendable exceptions are packages for dairy products, tomato paste, emulsions and paints, and plastic crates for bottles. On the other hand package manufacturing plants (tin cans, paper bags, plastic pouches, plastic crates) are in fact converting imported packaging materials (tinplate, natron paper) or plastic granules (LDPE, HDPE, PS, PPco-polymer).

In consequence manufacturing industries (including fisheries and agricultural sectors) are almost entirely dependent on the hard currency allocations from the Government as far as packaging supplies are concerned. Stringent import curbing policy on one hand and the profoundly insufficient local production of packaging on the other have in turn far reaching economic implications, the most important being :

- tendency by manufacturer to sell the least processed products (thus losing the value added) ;
- inadequate protection of goods during their transport and distribution ;
- lack of the product's market sales value, largely dependent on attractive packaging.

The analysis further points-out that in the five years planning period packaging supplies will have to raise average by appr. 54 % in the three main productive sectors, having in mind that the increase by 1 % of industrial production requires 1.15 % increase in packaging supply. Special attention will have to be focused on packaging of the following goods, either newly introduced or with a significant increase rate :

- biscuits and candies, detergents, cement and asphalt (as new products) ;
- crustacea (42 % increase)
- poultry (38 % ")
- vegetable (12 % ")
- fruits (10.4 % ")
- eggs (9.5 % ")

The increase and improvement of the local production of packaging materials and containers would require substantial allocations for package manufacturing and converting machinery in the PDRY investment budget. Similarly, upgrading of packing techniques in various industrial plants is dependent on the importation of suitable packaging lines. This policy however shall bring in the long run substantial savings in the national packaging bill, increased productivity and employment, and improve product marketability. Anticipated developments in the field of transport (increase of land transport by 50 %, air transport by 18 % and increase of speed of dry goods loading and unloading in maritime transport by 25 %) would require tangible rationalization of materials handling through standardization of packaging, forming of unit lads, palletization and containerization.

B- Detailed observations:

1. Milk products (There is only one dairy factory in PDRY, covering ca. 20% of the country's needs)

Pasteurised and UHT milk are packed in the Tetra Pak laminated carton imported from Sweden in rolls, on two lines, appr. 16 thousand liters per day.

Youghurt, sit and liquid type, packed in PS cups sealed with the printed and lacquered Al foil, on the Illig form-fill-seal machines (5 tons per day).

Fresh cottage cheese packed, by hand in PE bags and heat sealed (ca. 3 Tons per week). The bags are imported.

All packaging materials are imported from hard currency markets totalling appr. 320 Th. USD per annum.

It is suggested that in order to reduce the total import bill, the following measures are considered :

- a/ To examine the viability of introducing cheaper packaging systems for milk: e.g. Block Pack carton packaging (FRG) and UHT milk processing and packaging system (in pouches) marketed by Finnpack (Finland).
- b/ To reduce the dimensions of the PE bags for cheese by 30% and switch to the local supplier (Al Gundi Plastic Factory). Also the shelf life of the UHT milk should be tested. The simple storage tests made by the consultant showed that four days after the date of purchase of the cold stored milk 1/3 of it was sour. Investment in the UHT technology and expensive packaging system is justified only when the product withstands a long shelf life even without cold storage.

2. Eggs

Eggs are packed in the pulp trays and double wall corrugated fibreboard boxes. Both imported.

One box contains 12 trays of 30 eggs each and is provided with ventilation holes. Corrugated fibreboard is made of testliner, and waste paper flutting. Glueing is insufficient, leaving lot of

surface unbonded . The ventilation holes are situated in such a way that the vertical edges of the box are weakened.

Inferior quality of the corrugated board and inadequate construction of the box make this packaging not suitable for the cold storage and transportation of eggs. Technical specifications for corrugated boxes should be verified and the quality control at the point of delivery introduced.

Domestic production of the corrugated fibreboard from the imported liners and flutting cartons, together with the converting equipment should be considered, in order to reduce the import bill exceeding USD 1.5 million.

3. Horticultural produce.

The largest distribution centre for fruit and vegetables is situated in Aden and is equipped with the modern cold stores and long distance trucks collecting the produce from 23 harvest centres situated in the near by Governorates. Main crops are potatoes, onions, tomatoes, carrots, cucumbers, cauliflowers, cabbage, bananas and citrus fruits (in the winter season). Annual turnover - 68 th. tons.

Potatoes and onions are packed in the open-weave plastics sacks (annual consumption 200 th. sacks), the rest of produce is mainly transported in the plastics rectangular containers. Quality losses of fresh produce occur as a result of mechanical hazards during the distribution, microbiological decay, overripening and loss of moisture. For example the acceptable amount of loss of moisture is for cucumber 4% and for lettuce 11% .

A well designed packaging can regulate moisture losses so that microbiological decay caused by a high humidity may not occur and at the same time the acceptable loss of moisture on the total distribution period is not exceeded .

During the physical distribution the package has to protect the produce from the mechanical, physical and climate hazards. This means that when a package has to be designed at first a study into the nature and the level of the different hazards in the total distribution chain has to be made.

As far as the packaging and distribution of horticultural produce in PDRY is concerned technical assistance from the FAO has been requested and is currently under implementation, and emphasis is rightly put on the product development which should be followed by the improvement of packaging.

Therefore no specific recommendations are proposed at this stage by the Consultant regarding packaging for fresh fruit and vegetable, however an overall study on the transport conditions in PDRY in relation to packaging is considered vital.

4. Fish :

Fish represents the basic wealth of the country. The annual catch exceeds 80 th. tons out of which only 2% is processed and packed in metal cans.

There are fish canneries in PDRY: in Shuqra and in Mukalla they both produce mackerel in tomato sauce and tuna in oil .

Frozen fish is delivered from port of Aden by truck, already pre-packed in corrugated boxes in the ships.

After defreezing the fish is de-headed, sliced, put into the cans and pasteurized. The Shuqra factory uses the three-piece cans mostly imported from Japan in two parts:

bodies with fixed ends and tops. They are in one size (Ø 85 mm) made of the electrolytically tinned plate and packed in corrugated boxes, used afterwards as outer packaging for ready made preserves. The Mukalla cannery is equipped with the can making unit, manufacturing the same size cans.

The attention should be drawn to the following weak points in the canning process as observed by the Consultant:

- Rough handling of filled cans before cooling should be avoided otherwise the seams may be damaged.
- The cleanness of cooling water should be checked since it may contaminate the contents of the cans through the expanded seams.

- In tropical conditions cans should not be cooled down to less than 50°C, therefore they should be stacked loosely.
- Quality testing of the incoming tin plate and empty cans should be introduced, including thickness of the plate and its coatings, pin-holes in the coating, corrosion and seam quality testing.

As far as can production is concerned it is suggested that a feasibility study on the development of domestic can making facilities, supplying cans to the fish canneries as well as tomato paste and other food processing plants in the future. Importation of ready made cans is unacceptable in the long run, draining the country's hard currency resources.

5. Tomato paste:

Tomato paste is produced mainly from the concentrated pulp imported in metal drums. The paste is in packed in the Ø 55 mm tin cans made in the factory on the Karges-Hammer line from the 0,21 electrolytic tin plate. The tin plate sheets are imported already lacquered and lithoprinted.

Worth mentioning is the carouselle type can tester, suitable for the following can dimensions :
Ø 50-102 mm and h=50-123 mm (embracing also the fish can dimensions). The filled cans are packed by hand in the corrugated boxes 96 cans per box, bottom sealed with the selfadhesive PVC tape and top closed by means of crossing the flaps.

This last method is not commendable since it does not prevent from unnoticeable opening, damages the flap construction and allows for the box deformation. The top and bottom seal should be made by means of glueing the inner and outer flaps and sealing with the self adhesive tape along the flap ends (once in the middle alongside the box and twice at the end edges)

Centralizing the production of metal cans for tomato paste and processed fish should be considered .

6. Soft drinks and beer :

This vital segment of food industry produces annually appr. 80 mln bottles of soft drinks and beer based on western know how.

All bottles are of a returnable type, therefore annual supplementary imports should not exceed 10% . Bottles are closed by means of crown corks, also imported. They are made of tin plate, printed and provided with the internal sealing compound.

The anticipated 65% increase in food production in the coming 5 years calls for urgent feasibility studies on the glass packaging and corks production in PDRY . Also quality of the locally manufactured plastics bottle crates should be scrutinized. The users claim high rate of the crate damages which cannot be explained only by the rough handling.

7. Meat :

Most of meat is imported and centrally distributed through the Public Meat Corporation in Aden. It is delivered by ships mainly prepacked but also in carcasses. Appr. 11th tons of red meat (1/3 fresh, the rest frozen) and appr. 7th tons of poultry .

The prepacked meat is put in 1lb and 2lbs cubes into plastic bags which are placed in the 10 kgs corrugated boxes, cross strapped with the PP strap.

In order to diversify the meat products and reduce the price it is suggested to study the viability and economics of setting-up a central packing station at the Public Meat Corporation in Aden.

8. Plastics packaging:

The following types of plastics packaging are manufactured PDRY :

Low Density and High Density Polyethylene bags for food and non-food products (ca. 300 metric tons of imported granulate, at a annual value of ca. 270th. USD.

Injection moulded bottle crates (ca. 100 metric tons of PP Copolymer at a value of ca. 100 th. USD).

According to the opinion of the users, the quality of crates should be improved-their durability is considerably less than declared in the technical specifications.

There is an urgent need for expanding domestic production of plastics packaging, especially bottles, laminates and thermoformed items in view of the planned growth of biscuits, cosmetics, detergents and food products.

9. Industrial Information and Documentation Centre (IIDC)

The Consultant visited the Centre and assessed its organization and functioning in view of including this unit in the ARPAC information network.

The IIDC was established in 1983 under the Ministry of Industry . The centre consists of three basic units, namely: a documentation unit, an information unit, a printing and publishing unit, and a special library.

The documentation unit is responsible for the collection, selection, processing and storage of information contained in published and unpublished materials.

The information unit is responsible for the dissemination of scientific, technological and techno-economic information to users in the industrial and related community. These users are mainly engineers, technicians, economists and managers in the Ministry of Industry and its affiliated factories. Also included among the users are investors and the higher education community especially the Faculties of Technology, Agriculture and Economic .

This unit renders three types of services namely : a current awareness service, a selective dissemination of information (SDI) service, and an inquiry service.

Both the documentation and information units use a manual system for storage and retrieval of information.

The printing and publishing unit is responsible for printing and publishing of materials issued by the information unit.

The library contains 5000 books and documents titles and subscribes to 60 periodicals covering engineering, technology, pure sciences (mainly chemistry) and techno-economic subjects. There is also a small film library.

IIDC and External Information Sources:

Besides the IIDC collections and stored information, the information unit depends in rendering its inquiry service on links with external information sources. These constitute mainly regional and international information centers and data banks. Of the regional sources one may mention, as an example, the - data banks of the Arab Industrial Development Organization (AIDO) and the Gulf Organization for Industrial Consultancy (GOIC) and information departments of Arab Industrial Associations . Example of international sources with which IIDC has links are: UNIDO's Technological Information Bank (INTIB) and the World Intellectual Property Organization (WIPO). Communications with these sources take the form of telex messages and air-mailed letters.

Regarding local information sources, IIDC is trying to build links with the existing documentation units and centers especially the Agricultural Documentation Centre and the Educational Documentation Department which, like the IIDC, are all in their infancy.

The IIDC was chosen by AIDO to be the local node in their information network.

The IIDC is equipped with the U-Bix 180 Z copying machine, Northwest Microfilm microfiche reader and the Geha 2800 electronic offset press (office type).

As a conclusion it should be pointed out that the Centre has conditions to include in the near future packaging information services, co-ordinated on a regional level by ARPAC. For this purpose the detailed extension programme comprising personnel training, work plan, information sources, and equipment (including micro-computer) is needed. Special attention should be drawn to the compatibility of the computer equipment with that already installed or earmarked for the ARPAC packaging information network, and for the members of the packaging information system established by the International Trade Centre UNCTAD/GAIT in Geneva, which is based on the IBM PC XT computer set.



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

UNIDO

PROJECT IN THE ARAB STATES

26 July 1985

JOB DESCRIPTION

DP/RAB/83/020/11-72/31.7.E

Post title Consultant in Packaging Surveys

Duration Two months

Date required As soon as possible

Duty station Morocco
Democratic Republic of Yemen

Purpose of project The project's main objectives are to train Arab industrial engineers and technicians. Furthermore, technical assistance has been agreed upon within the framework of the ARPAC project.

Duties The consultant will organize his activities in consultation with the Project Director of ARPAC. He will be specifically expected to:

1. Study the development of industries in liaison with the authorities concerned:
 - Food products
 - Standardization of packages
 - Transport packaging and other problems related to transport;
2. Analyse the existing industry and its problems with regard to packaging;
3. Determine fields where technical assistance could be provided within the framework of the ARPAC project.

The consultant will also be expected to prepare a final report setting out the findings of the mission and recommendations on further action which might be taken.

Applications and communications regarding this Job Description should be sent to:

Project Personnel Recruitment Section, Industrial Operations Division
UNIDO, VIENNA INTERNATIONAL CENTRE, P.O. Box 300, Vienna, Austria

Qualifications

Packaging specialist with a University degree or equivalent experience and specific experience in the execution of packaging surveys.

Language

English (Arabic and/or French an asset)

Background information

The Arab Industrial Development Organization in its capacity as an implementing agency for the Arab Governments and UNIDO as an executing agency for the United Nations Development Programme, are jointly carrying out a project with the aim to establish an Arab Regional Packaging Centre (ARPAC):

For this purpose the Moroccan Packaging Institute (Institut Marocain de l'Emballage et du Conditionnement - IMEC) is undertaking an extension to and up-grading of some important capacities in order to be converted into ARPAC, and other project activities are taking place simultaneously in selected countries of the Arab region.

The financing of the project as a whole is shared by AIDO and UNIDO, with a clear separation of each one's areas by responsibility. However, an integrated workplan was commonly elaborated by AIDO and UNIDO in consultation with the United Nations Development Programme (UNDP).

Provision of expertise in sectorial fields of packaging technology, economics and design according to the needs of specific countries within the Arab region is considered as important project issue.

The implemented programme and Itinerary of the Mission

DATE	ACTIVITY
June 9-10.86	Briefing at UNIDO, Vienna
June 11	Arrival to Casablanca
June 12-20	Moroccan Institute of Packaging IMEC Briefing and preparation for the mission in PDR of Yemen at the headquarters of the Arab Regional Packaging Centre ARPAC.
June 21	Arrival to Aden
June 22	Visit to the UNDP Office in Aden, Meeting with Mr T. Ben Amara, Deputy Resident Representative, setting up preliminary program of the mission with Mr J. Mohamed, JPO UNIDO.
June 23	Visit to the Ministry of Industry, Trade and Supply . Meeting with Mr F.H. Yehia, Asst. Dep. Minister for Planning and Mr J. Bahader Asst. Dep. Minister for Production. Working out programme of the Mission and a schedule for factory visits with Mr M. Noaman, Head of Efficiency and Standards Section.
June 24	Visit to the Public Organization for Dairy Products. Meeting with Mr Ali Noman, General Manager. Visit to the Al Gundi Plastics Factory. Meeting with Mr M. Ahmed, General Manager and Mr M. Kassim, Development Manager.
June 25	Visit to the National Cigarette and Match Industry Co. Ltd. Meeting with Mr Salem A. Al Ammari, General Manager and Mr Hussein Ali Ghanem, Technologist. Visit to the Yemen Rubber Manufacturing Co. Ltd. Meeting with Mr Hassan Abdullah Haddad, General Manager and Mr Ali Abdullah Yamani, Head of Maintenance.

DATE	ACTIVITY
June 26	<p>Visit to the National Chamber of Commerce and Industry. Meeting with Mr Abdulla Salem Al Khader, Director General</p> <p>Visit to the Aden Emulsion and Paint Co. Ltd. Meeting with Mr A.K. Saleh, General Manager and Mr E.A.Wahab Shaher, Technical Advisor</p>
June 28	<p>Visit to the Mansura Textile Factory. Meeting with Mr S. Sharaf Sallam, General Manager.</p> <p>Visit to the National Brewery Corporation. Meeting with Mr M. Saleh Salem, Acting General Manager and Mr H. Ali Awad, Quality Control Manager.</p>
June 29	<p>Visit to the Ministry of Fish Wealth. Meeting with Mr Abdul Bari Fakhri, Asst. Deputy Minister for Planning.</p> <p>Discussing the programme of visits to the fish processing plants.</p> <p>Visit to the Yemen Auto Battery Co. Ltd. Meeting with Mr M. Naji, General Manager and Mr M. Othman Khalifa Production Manager.</p> <p>Visit to the Flour Mill Corporation. Meeting with Mr A.S. Abdul Wali, General Manager</p>
June 30	<p>Meeting with Mr M. Fara Yeslem, Head, Marketing Section in the Ministry of Industry. Assessing figures for 1984 and 1985 of main groups of commodities.</p> <p>Holding working session with the staff of the Efficiency and Standards section, Ministry of Industry.</p>
July 1	<p>Visit to the National Bottling Organization. Meeting with Mr Awaid Saleh Namess, General Manager and Mr J. Hassan Shamsher, Mechanical Engineer.</p> <p>Visit to the National Bags and Belts Factory. Meeting with Mr Y. Bin Sheban, General Manager.</p> <p>Visit to the Arabian Cooperative Corporation for Printing and Paper Bags Factory. Meeting with Mr S. Ahmed Alkaff, General Manager.</p>

D A T E	A C T I V I T Y
July 2	Visit to the Public Organization for Salt. Meeting with Mr Abdulla Ahmed Noman, General Director. Visit to the National Tanning Factory. Meeting with Mr G.G. Alhaj, Production Manager
July 3	Visit to the Industrial Information and Documentation Centre, Ministry of Industry, Trade and Supply . Meeting with Mr Mohamed Ali Assakkaf, Director
July 5	Visit to the Leather Manufacturing Co-operative. Meeting with Mr M.J. Al-Sakkaf, Deputy Director General Visit to the National Clothing Factory, manufacturing shirts. Meeting with Mr M.A. Mana, The Manager
July 6	Meeting with Mr Salem Ahmed Basabrin, Deputy Minister, Ministry of Industry, Trade and Supplies. Reporting of the mission's achievements so far and discussing its further programme. Visit to the Public Meat Corporation. Meeting with Mr Mohamed Abdul Alwassa, Manager for Planning.
July 7	Meeting with Mr Omar Oraby, Act.. Deputy Minister for studies and research the newly appointed Chairman of the National Packaging Committee. Discussing the mission's objectives and findings, terms of reference for the NPC and reviewing the feasibility study on the establishment of the production and converting of corrugated fibreboard.
July 8	Appraisal of accomplished activities, search for additional information and arranging further contacts and visits with the counterpart. Continuation of discussions on the feasibility studies being carried out by the studies section of the Ministry of Industry.

A C T I V I T Y

- July 9 Visit to the Fish Cannery in Shougra (100 Km from Aden). Meetig with Mr A. Salem Al Magramy, General Manager.
The consultant was accompanied by Mr Yasin Taha, Purshase Manager, Ministry of Fish Wealth.
- July 10 Visit to the Tomato Paste Factory in Al Fioush (40 Km from Aden). Meeting with Mr S.B. Saleh Ali, General Manager and Mr S. Ahmed Salem, Export Manager.
- July 12 Visit to the Public Poultry Corporation. Meeting with Mr Ahmed Ali Salhi, Deputy General Manager.
Visit to the General Corporation for Marketing Fruit and Vegetables. Meeting with Mr Said Saleh Mansour, Deputy General Manager.
- July 13 Second visit to the Industrial Information and Documentation Centre. Meeting with Mr M.A. Assakkaf, Director. Discussing information sources, classification and organization of the data base in the field of packaging. Computer aided data processing and choice of equipment were also considered.
Preparations for the seminar on Role of Packaging in the National Economy.
- July 14 Seminar on the 'Role of Packaging in the National Economy' carried out by the Consultant for the representatives of the Ministry of Industry and Managers of the visited factories.
Visit to the Ministry of Fish Wealth. Meeting with the Planning Section and assessing outputs of fish canneries and use of packaging materials.
- July 15 Carrying out consultations at the Ministry:
a) Advising Contracting Section on the choice of packaging materials and machines to pack detergents and toilet soaps.
b) Analysing with Studies Section current position and further steps regarding the feasibility study on the manufacture and conversion of corrugated fibre-board.

DATE	ACTIVITY
July 16	Workshop on the organization, methods and scope of work in the field of packaging standardization, carried out by the consultant to the staff of the Efficiency and Standards Section of the Ministry of Industry.
July 17	Visit to the Ministry of Agriculture. Meeting with Mr H. Ahmed Nasser, Deputy Director, Section for Statistics. Discussing findings based on visits to the Agricultural Marketing and Poultry Farming Corporations.
July 19	Carrying out a seminar on 'Food Packaging' for the representatives of Ministry of Industry, Ministry of Fish Wealth, Ministry of Agriculture and Managers of the visited factories.
July 20	Drafting Conclusions and Recommendations, and formulating draft Terms of Reference for the DPRO National Packaging Committee.
July 21	Second visit to the National Chamber of Commerce and Industry, Meeting with Mr A.S. Al Khader, Director General.
July 22	Visit to Mr Ali Abdul Kasim Mohammed, Deputy Minister for Trade. Discussing the central meat packing station project. Closing up visits to Mr S.A. Basabrin, Deputy Minister for Industry and Mr F.H. Yehia, Asst. Deputy Minister for Planning, Ministry of Industry, Trade and supply. Discussing findings and recommendations of the mission.

DATE	ACTIVITY
July 23	Farewell visit to Mr W. Bryan Wannop, UNDP Resident Representative in Aden. Presenting conclusions and recommendations of the mission.
July 24	Departure from Aden.
July 25	Arrival to Casablanca
July 28	Visit to ARPAC. Meeting with the Administrative Assistant. Setting-up the programme of work regarding the preparation of the Technical Report.
July 29- August 4	Preparing Technical Report
August 5	Meeting with Mr. ZAKI Ali, the newly nominated Director General of IMEC. Reviewing the ARPAC activities and results of the Consultant's mission to PDRY. Discussing the conclusions and recommendations.
August 6-7	Preparing Technical Report (cont'd).
August 8	Meeting with Mr. E. Dierckx de CASTERLE UNDP, Resident Representative a.i. in Rabat. Submitting draft Technical Report.
August 11	Final meeting with Mr. ZAKI Ali, General Director of IMEC. Preparations for departure.
August 12	Leaving for Vienna.
August 13-14	Briefing in Vienna.
August 16	Leaving Vienna for Warsaw.

Appendix N° 3

To the Technical Report

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National Packaging Committee

(Ministry of Industry, Trade and Supply, PDRY)

TERMS OF REFERENCE

1. Background Information

Progressing industrialization of Arab countries calls for closer co-operation in the field of packaging. In order to create material and intellectual basis for this co-operation an Arab Regional Packaging Centre (ARPAC) has been established by AIDO, with the assistance of UNDP/UNIDO.

One of the immediate objectives of the project, as stipulated by the AIDO Resolution, taken at the Governing Council's meeting in Taif (October 1982), is establishment of the National Packaging Committees in the member countries as their specialized national focal points in this field and at the same time as a regional ARPAC infrastructure. Following this recommendation and having in mind growing awareness of the PDRY productivity sector regarding the role of packaging in the national economy, the National Packaging Committee (NPC) has been formed in July 1986 within the Ministry of Industry, Trade and Supply, headed by the Assistant Deputy Minister for Studies and Research and composed of the representatives of different Departments and Sections playing vital role in the development of basis industrial sectors.

2. Terms of Reference

2.1. On the national level

a) Preparing annual and 5 years' plans of the development of packaging industries (as a part of the national economic planning) which would include :

- estimated demand and supply of packaging materials;
- investment proposals based on the results of feasibility studies concerning development of the domestic manufacture of packaging media.

b) Advising the authorities on the fiscal policies regarding packaging (prices, import tariffs, etc).

c) Formulating drafts of the national laws and regulations on packaging to be submitted to the competent authorities for promulgation ;

d) Preparing, in close co-operation with the industry, draft standards concerning packaging materials, containers and testing methods (i.a. by adopting the existing international standards).

e) Initiating and organizing training activities in the field of packaging.

f) Collecting, processing and disseminating information extracted from packaging publications, conferences, exhibitions, reports, catalogues, research works etc, as well as gathered from factories, corporations, institutes and trade organisations.

g) Assisting in establishing contacts between packaging users and suppliers and in formulating technical specifications ;

h) Preparing grounds for the establishment of the packaging testing laboratory in PDRY and introducing quality control and certification of packaging materials and containers.

i) Promoting the understanding of packaging as a tool of crucial importance in increasing productivity, reducing food losses, upgrading hygiene and standard of living of the population. Promotional activities should include : publications, seminars, lectures as well as presentations and interviews in the mass media.

2.2. On the international level

a) Closely collaborate with ARPAC and the National Packaging Committees in member countries.

b) Take part in the works of the regional and international organizations in the field of packaging like ASMO, ISO, UN Specialized Agencies (UNIDO, ITC) and others.

c) Organize study tours and participation in the international seminars of the PDRY cadres involved in the package production and use.

d) Initiate and assist in contacts between the factories and foreign suppliers aiming at the improvement and modernization of package production and packing processes.

e) Watch the developments in the international laws and regulations concerning packaging and study their effects on the PDRY industry and trade.

3. Suggested Priorities in the NPC Activities

Considering the present lack of the packaging infrastructure in PDRY as well as an early stage of the development of domestic packaging industry, it is advised that the following NPC activities be carried out in a priority sequence :

- Collecting, processing and disseminating information (para 2.1. f);
- Initiating and organizing training activities (para 2.1. e);
- Closely collaborate with ARPAC and the National Packaging Committees in members countries (para 2.2. a);
- Take part in the works of the regional and international organizations (para 2.2. b);
- Assisting in establishing contacts between packaging users and suppliers (para 2.1. g);
- Promoting the understanding of packaging (para 2.1. i);
- Preparing grounds for the establishment of the packaging testing laboratory (para 2.1. h).

4. Organizational Considerations

In order to secure systematic, daily activities of the NPC it is advised that a permanent secretary is assigned to the Committee.

Furthermore a packaging consultant should be attached for six months to the NPC to assist in starting-up and developing the NPC activities and to secure that the up-to-date international packaging knowledge is available to the Committee at the first crucial stage of its existence. The draft Job Description for the expert is attached.

It is considered indispensable that the members of the NPC are trained in the field of packaging by means of participating at various courses, seminars and study tours, organized by ARPAC with the assistance of UNIDO.

JOB DESCRIPTION

Draft Job Description for a Consultant to assist the
National Packaging Committee in P.D.R. of Yemen

- Post Title : Consultant to the National Packaging Committee
- Duty Station : Aden. Travel withing the Country. Visits to AIDO, ARPAC Headquarters and selected NPC in other Arab Countries.
- Duration : 6 Months
- Background : The newly established PDRY National Packaging Committecs is expected to develop the activi- ties in information, training, planning and co-ordination, standardization, testing and promotion. For this purpose the PDRY Government request the assistance of an consultant in starting-up and carrying out the NPC works according to the outlined Terms of Reference.
- Duties : To assist the Chairman and the members of the NPC in :
- A - Preparatory work
- drafting a work programme for the Committee;
 - organization of work and distribution of responsibilities ;
 - working out draft budgets and financial plans ;
 - setting-up contacts and principles of co- operation with the other central state orga- nizations, corporations, factories, research institutions, etc.

B - Substantive Work

- Organizing / implementing seminars on selected subjects concerning technology, design and economics of packaging ;
- Expanding information services by means of completing packaging library, building-up the data base through the retrieval and processing of the available documentation and dissemination of information ;
- Developing planning methods in the field of packaging and introducing them into the national planning system ;
- Preparing grounds for setting-up the packaging testing laboratory offering independent services to the industry and trade ;
- Drafting laws, regulations and standards in the field of packaging ;
- Promoting packaging as a tool in increasing productivity , reducing food losses and upgrading hygiene and the standard of living of the population ;
- Developing co-operation with ARPAC and the NPC in other Arab Countries, in the field of packaging.

QUALIFICATIONS :

Packaging specialist with a university degree. Specific experience in establishing regional and national packaging centres and preparation of development programmes in the field of packaging.

LANGUAGE :

Full command of English in speech and in written.
General knowledge of French and Russian an asset.

Le, 23 Juillet 1986

Le Ministère de l'Industrie, du Commerce et de l'Approvisionnement de la République Démocratique Populaire de Yemen, présente ses compliments au Centre Arabe de l'Emballage et du Conditionnement et l'informe de la constitution du Comité National de l'Emballage et du Conditionnement, pour la République Démocratique Populaire de Yemen, composé de Messieurs:

Omar Ahmed EL ARABI	Président du Comité
Ikbal Yassin BAHADER	Vice Président
Mohamed Ali ASSAKAF	Membre
Aouad Saïd BENGHOUT	"
Mohamed Saïd NOAMAN	"
Ibtissam Mohamed ABADI	"

Et donc, il vous est possible de contacter ce Comité pour ce qui concerne les domaines de l'Emballage et du Conditionnement. Les correspondances devront être adressées au nom du Vice Ministre de l'Industrie, du Commerce et de l'Approvisionnement (Sinâa) à l'attention du Président du Comité selon l'adresse suivante :

Crater P.O. BOX 300 / Aden
Telex: 2273 YD

Avec considerations,

Salem Ahmed BASSABRIN
Vice Ministre de l'Industrie du
Commerce et de l'Approvisionnement

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

Ministry of Industry
Tel. 51181/82/83/Telex No. 273
P. O. Box No. 300
Crater - ADEN



جمهورية اليمن الديمقراطية الشعبية

وزارة الصناعة
تلفون : ٥١١٨١/٨٢/٨٣ / تلکس رقم ٢٧٣
ص. ب. رقم ٣٠٠
كربتر - عدن

Ref _____

Date _____

المرجع ٦٦ / ١١١١١١ / ١١١١١١
التاريخ ٢٣ يوليو ١٩٨٦ م

المركز العربي للتعبئة والتغليف
السلطة المغربية

بعد التحية

تهدي وزارة الصناعة والتجارة والتمون بجمهورية اليمن الديمقراطية الشعبية اطيب تحياتها الى المركز العربي للتعبئة والتغليف، ونحسب ان نعلمكم بانة قد تم تشكيل لجنة وطنية للتعبئة والتغليف لجمهورية اليمن الديمقراطية الشعبية من الاخوة التاليه اسماهم :

- | | | |
|--------------|-------------------|-------|
| رئيسا للجنة | عراحمند العرابي | (١) |
| نائبا للرئيس | اقبال ياسين بهادر | (٢) |
| عضوا | محمد علي السقاف | (٣) |
| عضوا | عوض سعيد بن غوث | (٤) |
| عضوا | محمد سعيد نعمان | (٥) |
| عضوا | ابتسام محمد عبادي | (٦) |

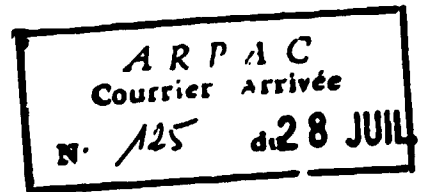
وذلك فانه يمكنكم الاتصال فيما يخص قطاع التعبئة والتغليف باللجنة المذكوره على ان تكون المراسلات باسم نائب وزير الصناعة والتجارة والتمون (صناعة) لعناية الاخ / رئيس اللجنة على العنوان التالي :

((عدن - كربتر ص. ب. رقم ٣٠٠))

برقيا : صناعة

تلکس: 2273 YD SINA

مع تقديري " "



رجا ص

ANALYSIS OF THE PDRY PACKAGING INDUSTRY

1. Value of packaging materials as a % of total production value

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SN	Factory/Product	Total production value in SYD per annum	PACKAGING CONSUMPTION PER ANNUM					Remarks		
			Kind	Local	Import	Value (approx.)			% of total product value	
						SYD	\$			
1	2	3	4	5	6	7	8	9	10	
1	Public Organization for Dairy Products Pasteurized milk UHT milk Yoghurt Fresh cottage cheese	818.000	Tetra Pak multi-layer material		X		284,872	13.8 %	Calculated jointly for UHT and pasteurized milk and with the UHT strip.	
			PS sheet for thermoforming yoghurt cups and covers			X				32,107
			Lacquered printed AL foil to seal the cups			X				
			PE bags for fresh cheese			X				2,350
			Total							
2	National Cigarette and Match Industry Co Ltd Pall Mall Cigarettes (licence) Radfan cigarettes Perim Match	5,000,000	Wrapping paper			X		21 %		
			Boxboard frame			X				
			PP film and tear tape			X				
			Inks and adhesives			X				
			Carton blanks			X				
			Labels and seals			X				
			Corrugated fibre-board boxes			X				
Total						158,600				

1	2	3	4	5	6	7	8	9	10
3.	The Yemen Rubber Manufacturing Co Ltd Rubber shoes and sandals	373,300	Plastic bags	X	X		44,000	4,2 %	
			Corrugated fibreboard boxes		X				
			PP Strap		X				
4.	Aden Emulsion and Paint Co. Ltd Water paints Oil paints Emulsions	2,600,000	Tin cans	X			506,500	7,2 %	Manufactured packaging is used for their own products (see section 2 item 2)
			Tinplate		X				
			Copper wire for seam welding		X				
			Wire for handles		X				
			Total						
5	Mansura Textile Factory Voil cloth Khaki cloth Curtains Bedsheets	1,500,000	Flat carton core		X	1750 (scrap)	3000	0,002 %	
			PE bags	X					
			Baling cloth		X				
			Packing paper		X				
			Steel strap		X				
6	National Brewery Corp. Beer	3,000,000	Bottles		X		227,500	4,6 %	
			Crown corks		X				
			Labels		X				
			Glue		X	58,917			
			Plastic crates	X					
			Total			58,917	227,500		
7	Flour Mill Corporation Flour Bran	350,000	PP woven sacks		X		151,000		
			Sewing thread		X				
			Jute sacks for bran	X					

1	2	3	4	5	6	7	8	9	10
8	National Bottling Organization, Soft drinks: Canada dry Sport Cola Hi Spot (green bottles)	1,800,000	Canada Dry type bottles silk screen printed		X		158,000	15,8%	Only new bottles were calculated
			Crown corks		X		327,000		
			Plastic crates (24 nests)	X		100,000			
			Total				486,000		
9	National Bag and Belts Factory Suitcases Travel bags Belts	400,000	PE printed bags		X		800	20 %	
			Box board boxes		X		5,600		
			Total			80,000			
10	Public Organization for Salt. Edible salt	700,000	PP woven sacks		X		330,000	47 %	
			PE inner liner		X				
			PE bags for retail trade	X		6,000			
11	National Tanning Factory cow skins Goat and sheep skins Upper leather for shoes Lining leather for shoes Chamoix leather	55,000	PE sacks		X		500	13 %	
			Wooden cases lined with asphalt paper	X		6,000			
12	Al Gundi Plastics Factory Injection moulded household articles PP. crates for bottles PE retail bags PE garbage bags PE shopping bags	619,000	House hold articles packed mostly in the reused sacks imported with granulate. Bags bundled with a string				insignificant. Introduction of corrugated fibreboard boxes is planned		

1	2	3	4	5	6	7	8	9	10
13	Leather manufacturing Cooperative Shoes School bags Sport bags	253,400	PE bags	X		5,000	1,000	2.1	
			Corrugated fibre boxes		X				
			Self adhesive plastic tape		X				
			PP strap		X				
			T o t a l			5,000	1,000		
14	National Clothing Factory Shirts (69.000 pieces/year)	180,000	Plastic bags		X	4,360	11,200	4.5	
			Self adhesive transparent tape		X				
			Retail carton boxes, with printed covers for 6 shirts and 2 shirts		X				
			T o t a l			4,360	11,200		
15	Public Meat Corporation Lamb meat) Mutton meat (imported Beef) Poultry (5,000,000	Meat is imported already cut and packed in PE bags put in corrugated boxes. Poultry is packed in the vacuum pouches.		X X			Figures not available One indication can be the import price difference between the meat in carcasses and the prepacked meat The latter is appr. 50% more expensive	

1	2	3	4	5	6	7	8	9	10
16	The Fish Cannery in Shougra Canned mackerel in tomato sauce	950,000	Three piece tinfoil cans Ø85mm		X		646,000	20 %	Cans are imported i.e. from Japan in 2 parts : body and the tops.
	Canned tuna in oil	250,000					34,000		
	T o t a l	1,200,000					680,000		
17	The Fish Cannery in Mukalla Canned mackerel Canned tuns	1,520,000	Three piece tinfoil cans Ø85 mm	X		308,000		26 %	Cans are made locally from the imported tinfoil (see section 2, item 4)
			Labels		X		16,700		
			Corrugated fibreboard boxes		X		288,000		
	T o t a l	1,570,000			308,000	304,700			
18	The Tomato Paste Factory in Fioosh Tomato paste	2,250,000	Three piece tinfoil cans Ø55	X	X		604,000	10 %	Cans are made in the plant from the imported tinfoil and can ends (see section 2 item 5)
			Corrugated boxes		X		55,300		
			Plastic selfadhesive tape		X		540		
			T o t a l				659,840		

1	2	3	4	5	6	7	8	9	10
19	The Public Poultry Corporation								Slaughter house construction planned in the next years, for 5 million chicken per year.
	Eggs production (50 million/year)	2,291,600	Pulp trays		X		82,500	2,7 %	
			Double wall corrugated boxes. Printed		X		160,000		
			Selfadhesive tape		X				
	Fodder production (15th MT / y)	1,558,300	3 ply natron paper sacks. Gusseted, sewn ends. Printed		X		50,000		
	Total	3,849,900					292,500		
	Poultry farming (1 million/y)	1,000,000							
20	General Corporation for Marketing Fruit and Vegetables. Storage (incl. cold storage) ripening, sorting and distribution of fruit and vegetables.	18,000,000 (turnover)	PP Woven sacks (200.000/y) Plastic reusable containers (40.000/y)	X	X	100,000	19,830	0,6 %	
<u>Grand total</u>						SYD 670,027	US\$ 4,825,729 (SYD 1,705,205)		

NOTE : The calculations based on the exchange rate : US\$ 1 = SYD 0.353

2. Production of packaging media in PDRCY

SN	Factory	P r o d u c t			Cost of imported raw materials		
		Kind	Quantity	Value in SYD	in U S \$		
1	2	3	4	5	6	7	8
1	Al Gundi Plastics Factory - Aden	LDPE retail bags	104 MT/Y	108,000	Kind	Quantity	Cost (appr)
		HDPE retail bags			PP Copolymer (injection grade)	(965/MT)	
		LDPE and HDPE shopping bags	78 MT/Y	90,000			
		LDPE garbage bags	44 MT/Y	28,000			
		PP Copolymer injection moulded crates for bottles	120 MT/Y	179,000	File grade : HDPE LDPE LLDPE		(884/MT) (882/MT) (910/MT)
		Total		415,000	Total		540,000
2	Aden Emulsion and Paint Co. Ltd - can making section-	Three piece tinplate cans with wire handle (1US gallon = 3.8 l capacity). Smaller cans without handle of 2 and 1 liter capacity are being introduced.	1 million pieces	211,800	Tinplate		506,500
		Welding copper wire					
		Wire for handles				24,600	
		Total		211,800			531,100
3	Arabian Co-operative Corporation for Printing and Paper Bags Factory Aden	Natron paper gusseted bags in 4 sizes : 42 x 29 x 7 cm 33 x 19,5 x 9,5 cm 25,5 x 16,5 x 6,5 cm 21 x 12,5 x 5,5 cm	300 MT/Y	199,000	Natron paper		Similar output of paper bags is manufactured at the Jazeera Factory for Paper Bags (private sector)

1	2	3	4	5	6	7	8
4	The Fish Cannery Factory in Mikalla Can making section	Three piece tin-plate cans ø85 mm	4.5 mln/y	256,500	Tinplate		871,640
					Labels		16,700
					Auxiliary materials		8,500
					Total		896,840
5	The Tomato Paste Factory in Floush Can Making Section	Three piece tin cans ø55 mm	15 mln pieces	88,456	Tinplate in sheets (lacquered and litho-printed)	300,000 sheets	327,000
					Can ends	30 mln	277,500
		Total		88,456		604,000	
				<u>Grand total :</u>	SYD 1,150,756		US\$ 2,571,940
<p><u>NOTE</u> : The calculations based on the exchange rate : US\$ 1 = SYD 0.353</p>							

Seminar on "The Role of Packaging in the National Economy"
held in Aden on 14th July 1986

I. S Y N O P S I S

1. PLACE OF PACKAGING IN THE PROCESS OF INDUSTRIALIZATION

- a. Production efficiency
- b. Growing distance of distribution of goods
- c. Modernization of retail trade
- d. Expansion of export markets
- e. Development of international co-operation
- f. Changing pattern of social life and habits

2. IMPORTANTCE OF PACKAGING IN THE NATIONAL ECONOMY

- a. Relationship between Gross National Product and packaging consumption
- b. Need for correlated growth of packaging industry with other economy sectors
- c. Packaging and the Government's policies
- d. Development pattern of packaging industry

3. CONSEQUENCES OF THE DEVELOPMENT OF PACKAGING INDUSTRY
AS SEEN BY THE CONSUMER

- a. Increase of product price
- b. Enlargement of industrial and municipal wastes
- c. Misinterpretation of the product
- d. Uneconomic use of valuable raw materials
- e. Disturbance of balance in the nature

4. CONSEQUENCES OF THE DEVELOPMENT OF PACKAGING INDUSTRY AS
SEEN BY THE INDUSTRIALIST, ECONOMIST AND SOCIOLOGIST

- a. Saving food and reducing its cost
- b. Inspiring and enabling to create new products

- c. Increasing efficiency of trade and rationalizing physical distribution
- d. Giving name to the product and selling it
- e. Reducing quantity of solid waste
- f. Saving people's time by eliminating un-productive activities
- g. Improving level of hygiene and aesthetics of the population's life

5. IS IT POSSIBLE TO SLOW DOWN OR TO HINDER PACKAGING DEVELOPMENT ?

EXAMPLES

6. CONCLUSION

II. LIST OF PARTICIPANTS

14 July 86 SEMINAR :

1) IBTISAM OBADI	Ministry of Industry
2) ADEL SALITY	" "
3) MOHAMED SALEH ISMAIL	" "
4) MOHAMED OBADI TABET	" "
5) MOHAMED YEHIA NASHIR	" "
6) FUAD ABDUL KHALEK	" "
7) MANSOOR AHMED MANSOOR	" "
8) ALI GARHOOM	" "
9) ABDULA BA-ABAD	" "
10) AWAD BIN GAUT	" "
11) YASSIN GHANEM	" "
12) ABDUL REHMAN TALEB ALI	" "
13) SALEH BIN SALEH ALI	Tomato paste (G.M)
14) HUSAINA MUHSEN	" "
15) ABDUL WAHAB AHMED MOHAMED	Martyres' Factory (acting G.M)

- | | |
|---------------------------------|--|
| 16) FAHED AHMED NOMAN | Martyre's Factory |
| 17) ABDUL SALAM ABDUL WALI | Flour Mill Factory
(Acting General Manager) |
| 18) AWAD SALEH ALNAMES | Soft Drink Corporation
(Acting General Manager) |
| 19) IBRAHIM ABDUL WAHAB SHAHER | Paint Factory |
| 20) HUSSAIN HADDAD | Rubber Sandals Factory
(G.M.) |
| 21) MOHAMED AHMED MOHAMED | Al-Gundi Plastic Factory
(Acting G.M) |
| 22) MUHSEN SALEH | Beer Factory (Acting G.M) |
| 23) MOHAMED ALSAKAF | Industrial Leather Corporation
(Acting G.M) |
| 24) ISMAIL ABDUL GHABAR MOHAMED | UNDP OFFICE |
| 25) HASSAN AHMED ALSAKAF | Assistant G.M. in
Cigarette Factory. |

Seminar on "Food Packaging, held in Aden on 19th July 1986

S Y N O P S I S

I/- CHARACTERISTICS OF FOOD AS A PACKED OBJECT

1. Living product

- Biologically active (bacterias, fungi, enzymes)
- Ripening during the transport and storage
- Rate of deterioration and texture and their dependence on the environment conditions (temperature, humidity, sun light)
- Shelf life.

2. Variety of shapes and consistency

- Brittleness, softness
- Liquidity and dustiness

II/- TYPES OF PROTECTION THE PACKAGE SHOULD PROVIDE TO THE FOOD PRODUCT

1. Against absorption or loss of :

- water / water vapour
- odour / flavour
- gases

2. Against breakage, squeezing, pouring and sifting

- vibrations
- shocks
- pressure

3. Against penetration of sun light and excessive temperature
4. Against rodents, insects, fungi and mould
5. Against infection, contamination (also on purpose)
6. Against thefts and unauthorized opening

III/- THE REVIEW OF THE PACKAGING MATERIALS, CONTAINERS AND SYSTEMS USED IN PDRY

1. Dairy products
2. Fish
3. Meat
4. Eggs
5. Horticultural produce
6. Soft drinks and beer

IV/- TRENDS IN FOOD PACKAGING

V/- SUMMARY

LIST OF PARTICIPANTS

19th July 86 SEMINAR :

- | | |
|-------------------------|----------------------|
| 1) IBTISAM OBADI | Minsitry of Industry |
| 2) ADEL SALITY | " " |
| 3) HASON BAZOGAIFAN | Beer Factory |
| 4) ALI NOMAN | Dairy Factory |
| 5) MOHAMED SALEH ISMAIL | Ministry of Industry |
| 6) IQBAL MOHAMED MUNIR | " " |

- | | |
|---------------------------------|-----------------------|
| 7) AMIN SAEED OBAID | (Project of Biscuits) |
| 8) AHMED AL-AHDEL | (Cigarette Factory) |
| 9) ITIDAL SALEH AHMED | (" ") |
| 10) ALI SAEED GHALEB | (" ") |
| 11) IBRAHIM ABDUL WAHAB SHAHER | (Paint Factory) |
| 12) SALEM MOHAMED AL KUSHAIR | (Ice Cream Factory) |
| 13) MOHAMED AHMED BAHAKIM | (Spaghetti Factory) |
| 14) ALI AHMED GARHOM | Ministry of Industry |
| 15) ISMAIL ABDUL GHABAR MOHAMED | UNDP OFFICE |