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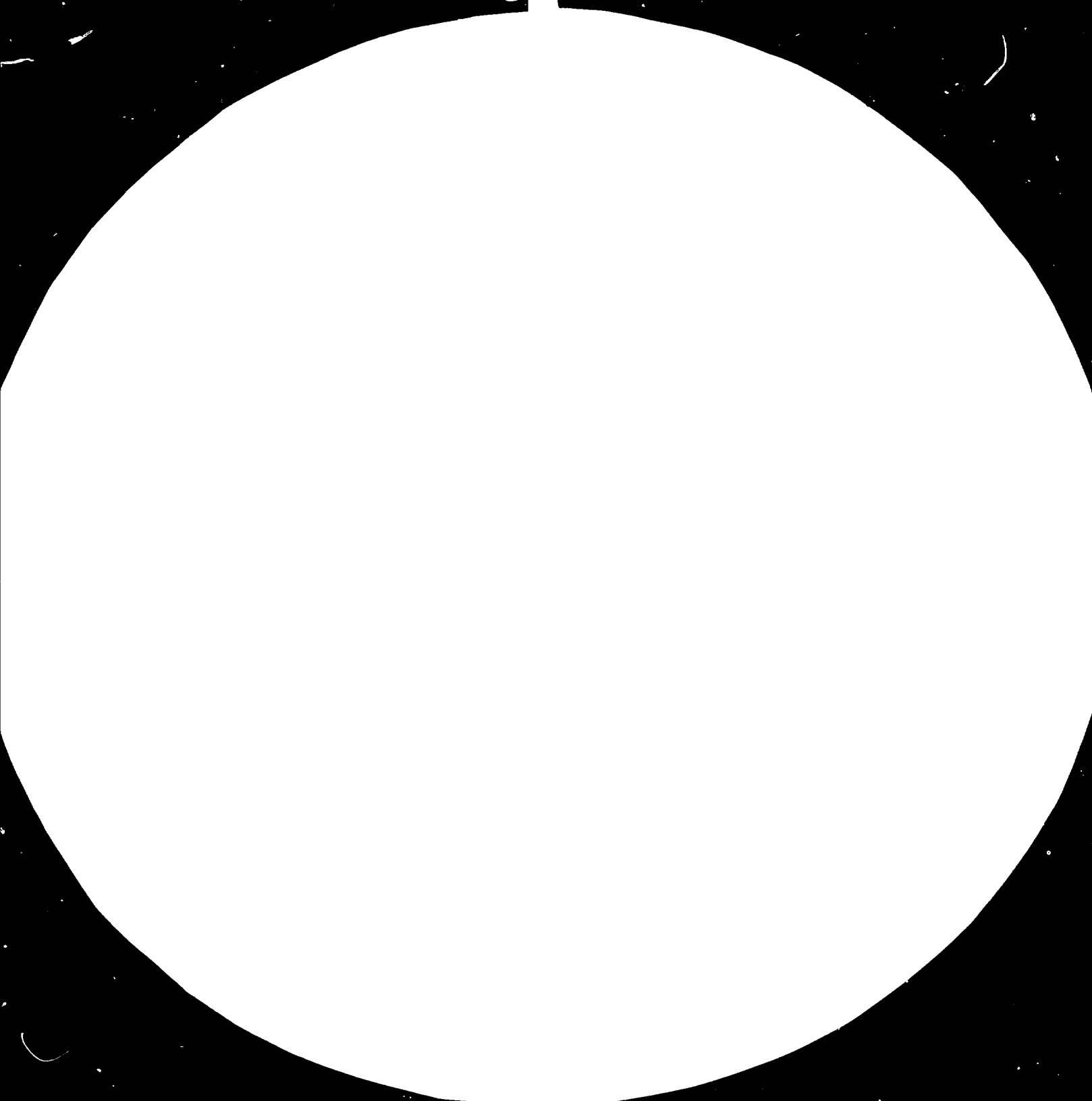
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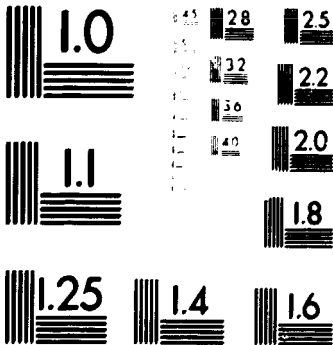
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ESTABLISHMENT OF THE ARAB REGIONAL PACKAGING  
CENTRE  
DP/RAB/83/020

Technical report: Forecasts of packaging material consumption in the Arab countries-planning of general survey\*

Prepared for the Arab Industrial Development Organization  
by the United Nations Industrial Development Organization  
acting as executing agency for the United Nations Development Programme

Based on the work of R. K. Chowdhary  
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SUMMARY AND CONCLUSIONS

1.0.

In the Arab countries, the demand to have efficient, cost effective and modern packaging industries is gaining momentum. In the United Nations Industrial Development Organisation's programme of assistance to the Arab Industrial Development Organisation Baghdad-'Establishment of the Arab Régional packaging Center'-there is a proposal to conduct a survey of packaging and related industries with a view to estimating forecasts of consumption demand and inventories of existing production capacities relating to packaging material and package types in the Arab region. The current mission was undertaken in connection with the planning phase of the main study, and embodied literature survey, discussions with specialists, conducting of a pilot survey to test the methodology for the study, distribution of field work, selection of countries in the 1st phase of the study, formulation of terms of reference for a contracting organisation etc...

On account of the budgetary constraints, initially it is suggested to carry out the study in twelve countries of the region viz IRAQ, JORDAN, MOROCCO, LYBYA, QATAR, SYRIA, SUDAN, TUNISIA, ALGERIA SAUDI ARABIA, EGYPT and LEBANON. The study would be extended to the remaining countries of the region after necessary financial resources are mobilised from other sources. The study would primarily focus attention on forecasting consumption demand for packaging material/ package types needed by the food industry-commodities, fresh produce and processed food; followed by those of the pharmaceutical and consumer goods and other manufacturing interests.

Desk reseach and on the spot field investigations/ in depth interviews of a cross section of the units are recommended as the basic approach of the study. A minimum of 470 interviews of diverse interests coupled with the collection, analysis, collation of information through desk research are envisaged.



It is proposed that the study would be entrusted to a specialised agency to project consumption demand for packaging material and package types by various consuming sectors for the period 1986-90 in each country. Terms of reference for such a task have been formulated.

Experimental study of a pilot nature was conducted in Amman Jordan with the twin purpose of testing the study approach and to assess the respondent's reactions and ability to furnish information according to a pre-structured questionnaire. A set of recommendations on the subject have accordingly been made.

For selection of the sample, a number of countries have trade/ industrial directories as well as list of industries that are available with the respective industrial ministries in each country. These may be referred to. For the processed food industry, the Arab Federation of food industries/ have compiled a directory of the industrial units in the region and it may serve as the sampling frame. For covering other interests, guidance may have to be sought from contact points elaborated in the report.

In view of the importance of the study, it is desirable to commence the field work at the earliest preferably by Dec 1984. The findings of the study forecasts, as well as an inventory of strengths and weaknesses of the packaging industry, it is hoped, would serve as the guide posts for undertaking the development of the packaging industry on an integrated plan basis.

A very limited study of the processed food industry in Amman, attempted during the mission, revealed, among other things, extreme inadequacies of standards of packaging materials, near absence of quality assurance measures at the point of production and lack of trained packaging specialists in the food industries. These may have to be remedied on a priority basis after a complete review of the industry.

## 2.0 - INTRODUCTION

### 2.1 - BACK GROUND :

Arab countries are contemplating to have efficient, cost effective and modern packaging industries in the region, which would enhance and expand the marketability of food and industrial products at the national, regional and international levels. By effecting improvements in the quality and out put of the packaging industries, the current product losses specially those of food products caused mainly due to inadequate packaging are likely to be significantly reduced.

UNIDO'S programme of assistance to the Arab Industrial Development Organisation (AIDO) Baghdad, is to offer technical expertise, fellowships etc to convert the Moroccan packaging Institute (IMEC) into the Arab Regional Packaging Centre (ARPAC). In the programme of activities of the project document, surveys of packaging and users industries with an emphasis on forecasting demands and inventories of existing production capacities of related packaging materials have been proposed as an essential feature of planning for the development of packaging. The specific purpose of the present mission was to organise a study on the forecasts of packaging consumption in the Arab countries as a fore-runner to the main survey on the subject. Among other things, it was also considered to be expedient to conduct a pilot survey with a view to testing the methodology, the approach; and assessment of the respondent's reactions.

### 2.2. JOB DESCRIPTION :

Terms of reference as proposed by UNIDO are enclosed as Appendix I, together with a copy of the briefing note of MR. J. BELOPACSTOPPING, officer Agro-industries branch, UNIDO. However, subsequent discussions with MR. Abdelhaq BENNOUNA, DG - IMEC and Director ARPAC lead to an enlargement of the scope of the terms of reference, the same is enclosed as Appendix II. The consultant carried out the mission not only in accordance with the terms of reference but also rendered technical assistance on an ad-hoc basis during and after field visits to the members of the industry as well as to some of the technical staff of IMEC. CASABLANCA.

### 2.3 - PLAN OF WORK

A plan of work was prepared to investigate the various issues of relevance to the main survey of packaging industry in the region. This included familiarity with and evaluation of related material contained in the studies already completed and field investigations to test the methodology and approach of the survey as well as to know the respondents' reactions and abilities to contribute to the information requirements of the proposed study. Discussions with DG (IMEC) were regularly carried out through out the mission both for the purpose of getting his views and also to keep him fully informed about the progress made. Discussions with specialists of AIDO particularly with DR. SLASH, MR. BELKORA and their colleagues; DR. AKRAM KARMOUL, Director, Ministry of Industry and Trade Jordan, DR. ADNAN AWNI, Asstt. Sect. General of Arab Standard and Metrological Organisation Amman, DR. FALLAH Jabre, Secretary General Arab Federation of Industries Baghdad, were held on specific issues of the study. These discussions provided sufficient insight into the problems of the packaging industries in some of the countries and clarified the position about the current facilities for tackling these. Field visits were made to AIDO'S head quarter, Baghdad, Ministry of trade and Industry Jordan-Amman, and Gulf Organisation for Industrial Consulting DOHA Qatar. At each of the places visited, a few industrial units (except in DOHA) were studied, together with visits to the whole sale and retail markets.

A seminar on 'Role of Packaging and Trade exchange was organised by UNIDO and AIDO at Casablanca from July 23<sup>rd</sup> to 28<sup>th</sup> 1984. Delegates from 14 countries participated in the seminar. The opportunity was utilised to carry out in depth interviews with some of the participants in order to know the status of the packaging industry in their respective countries and also to acquaint them with the plan of survey work. In Morocco, the field work was confined to visits to markets in Casablanca; Rabat, Marrakech and Fez - which the consultant visited on some of the weekends. The consultant also attended the meeting of the follow up committee of AIDO/ UNIDO and acquainted the members with certain features of the proposed study.

### 3.0 - DESCRIPTION OF THE WORK CARRIED OUT AND RESULTS

#### 3.1 - EXISTING STUDIES ON PACKAGING AND RELATED SUBJECTS

Literature survey of the studies on packaging and related subjects in the region brought to light the reports of the UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION'S sponsored missions, seminar papers, list of industrial undertakings (in some countries), annual survey of industries (Morocco) a few packaging standards for food items, report on the current situation and future prospects of DAIRY INDUSTRY IN THE ARAB REGION, quarterly economic reviews special reports prepared by the economic intelligence unit ltd London - on Iraq, Egypt, Bahrain, Qatar, Oman, Yemens, Aigeria, Morocco, S. Arabia, Mauritania, Syria, Jordan, Sudan, Somalia, Djibouti, U.A Emirate. A majority of seminar papers are in Arabic and do contain information on some problem areas of the packaging industry. Some of the authors do make an attempt to portray the status of the segment of the packaging industry they deal with - by analysing facts and figures pertaining to their fields of operation. A selection of the papers available at IMEC-are catalogued at appendix III. It is observed that the data and findings contained in some of these could be of use in the desk research component of study. It is advisable to have the summary of the statistical tabulations and some key problem areas reflected in these papers in English. The information when collated with other findings could be of immense use in contributing to the quality of the study.

3.2 - The reports of the missions sponsored by UNIDO earlier dealt with different terms of reference and as such bear an indirect relation ship with the present mission. In all, there had been four such missions in the recent past. The study on plastic packages for agricultural products does attempt projections of consumption demand for plastics for the year 1985 and the findings can be taken into consideration only after relating the underlying assumptions made <sup>there in</sup> with those that may be made for the forecasts of other packaging materials for the proposed study.

These reports among other things, contain valuable information on some of the basic qualitative features of the packaging and processed food industries in the region. The analysis and evaluation of the information contained in these reports attempted to study the characteristics of the packaging and package users industries in the region.

The spotlight on features such as excessive dependence on imports of packaging material/package types, relatively low level of technical skills, near absence of national advisory services in the field of packaging and processed food industries, inadequate packaging specifications, staggering losses of fresh produce - fruits and vegetables, slow progress of standardisation for packaging and quality assurance ...etc has helped in designing questionnaires to elicit information. It has also been recognised that the respondents, particularly those in the private sector do not feel comfortable in sharing information about their enterprises with any external agency specially those sponsored by the government. Accordingly the tone of the questionnaires is pitched low to avoid any embarrassment to the respondents and simultaneously foster response so as to serve the purpose of the study. A set of questionnaires - one each relating to the packaging - material and converting, other industries; processed food industries and commodity/ fresh produce has been designed. These may be seen at appendices. IV, V & VI respectively.

These questionnaires have been tested during the pilot study conducted in Amman Jordan.

Experience has shown that it is more appropriate to elicit information on different aspects of the industry including current and likely demand for consumption of packaging material and the factors influencing it through in depth interviews and observational studies. The basic structure of the questionnaire is to be kept in view as the interview progresses.

Any chronological filling of the questionnaire in the presence of the respondent limits his response and free flow of thoughts. It is best to record the points during interview and fill the questionnaire immediately on termination of the interview. The temptation to leave the questionnaire with the respondent for its subsequent despatch or collection and or its substitution by a mail questionnaire survey should be avoided. It may suffice to mention that the attempts made by the Arab Federation for Food Industries to solicit information on a few key problems experienced by their closely held members through mail questionnaire survey did not meet with desired response.

The federation had to remain content with the basic information relating to the nature of enterprise, authorised capital, principal product range etc of its members. Identical comments have been made by the officials of other federations in the region.

### 3.2 - STATISTICAL SYSTEM :

To extrapolate the growth of the industry, it is important to study the pattern of growth witnessed in the past. Accordingly, it is important to have reliable data more specifically on the value and volume of production and consumption (if available) of the industry. This pre-supposes the existence of a reliable and upto date statistical system at the national level/region level. It is very difficult in the Arab countries to obtain and collect reliable statistics. There has been for some time, a trend to create a statistical system to be unified for all Arab countries. Its tangible form is yet to emerge. As such no published records are within easy reach to study the pattern of growth by industrial origin in the region as a whole.

This pattern of growth can be a useful instrument of prediction of the trends in future. In the Arab countries, with few notable exceptions in the gulf region, it is difficult to obtain and collect reliable statistics. One comes across a variety of countries at different levels of development and economic progress, but with a statistical system yet to be streamlined. The information on packaging industry is still more scanty. Perceiving that AIDO, may be successful in seeking statistical information in respect of agricultural and industrial end products, a request was made to them to collect information from their member countries for the period 1979-1983. A specially designed proforma for the purpose is enclosed at appendix VII. The information when obtained after due analysis, is likely to reflect economic trends by industrial origin and may be of immense use in studying the growth of the packaging industry as a correlate to each of the end use segment's growth .

During the visit to AIDO, the consultant impressed upon the need to obtain this information in advance of the contemplated field study.

GEOGRAPHICAL COVERAGE

3.3 - SELECTION OF COUNTRIES

Detailed discussions were carried out with AIDO and DG IMEC in respect of the extension of the survey to the countries in the region. Top priority has been accorded to the study on the consumption forecasts of packaging material/ package types by AIDO on behalf of the member countries. Keeping in view the budgetary constraints, it was suggested that the study should be confined to the following countries in the first phase.

- |           |                |
|-----------|----------------|
| - IRAQ    | - SUDAN        |
| - JORDAN  | - TUNISIA      |
| - MOROCCO | - SAUDI ARABIA |
| - LIBYA   | - ALGERIA      |
| - QATAR   | - EGYPT        |
| - SYRIA   | - LEBANON      |

The remaining countries can be covered after additional financial resources are mobilised. AIDO/ARPAC are looking into it. Details about the factors that influenced the geographical coverage of the study appear else where in the section on "Report on the mission to Baghdad, Loha & Amman".

3.4 - CONSENT OF GOVERNMENTS

AIDO does not envisage any policy level difficulty in carrying out the survey in any of the countries named above. In fact the agreement to conduct <sup>the</sup> survey tacitly exists and is a follow up of the recommendations of the member countries of AIDO. To seek fresh mandate of the concerned governments prior to the commissioning of the study, in AIDO'S <sup>opinion</sup> is not called for.

3.5 - CONTACT POINTS

The need to seek logistic support and basic assistance in each country for the desk and field research components of the study is of paramount importance to the success of the venture. AIDO, will equip the survey team with due authorisation and high level effective contacts both formal and informal for facilitation of work. In addition, the contacts made by the consultant <sup>and</sup> developed during the field visits and with the

Delegates to the seminar on 'role of packaging in trade exchange' may also supplement the efforts. A list of such contacts, together with those made by UNIDO consultants on earlier missions has been consolidated and is enclosed at appendix IX. This may serve as a reference material to be <sup>used</sup> should the need arise. The consultant is confident that AIDO enjoys sufficient good will with its various contacts - viz the respective Ministries of Industry and Trade, in different countries to provide necessary support to the activity. The cooperation experienced by the consultant in Baghdad, Doha and Amman from AIDO'S contacts confirms the contention that AIDO'S contact points will be helpful to a considerable extent. At the present moment, it is difficult for AIDO to address communications to specifically designated officers but their contacts are with the Ministry of Industry in each country. They in turn would be requested to nominate specific officers to assist in the survey work.

### 3.6 - COVERAGE OF INDUSTRIES AND THEIR NATURE

There is a general consensus among all well informed opinion and specialists, that food packaging is not only necessary for marketing and distribution reasons but is an essential part of the preservation and protection process. Forecasts of demand for consumption of packaging materials and package types for the prepared food, fresh produce and commodities are of utmost importance and should be accorded the highest priority in the sectoral studies. In the scheme of coverage of industries, this fact should be borne in mind and a higher weightage may be accorded to the food industries commodities, fresh and prepared food, next in importance are the pharmaceutical and consumer goods industries followed by petro-chemical and other industries. With this background, some of the countries are prepared and seeking new packaging materials, modern and sophisticated technology to keep abreast of the trends obtaining else where in the world. With an access to capital finance, the countries are seeking investment opportunities mainly in the areas of food that not only may give them an opportunity to reap the benefits of a growing market but at the national level be able to reverse the trends of staggering losses suffered by the fresh produce - fruits & vegetables, fish, meat & dairy products. In this search, the need to bridge the gap between packaging materials to be developed & their availability in the region is considered to be economically most prudent. A variety of packaging materials for packaging of processed foods are already in use including plastics. Shelf life studies



and deterioration caused in organoleptic qualities are not yet on the quality testing schedules of the producing units. Not any organised attempts appear to be in evidence to assess, particularly in respect of plastic containers, the migration of volatile additives and residual reactants into food.

Information on such critical features of the processed food industry may have to be sought.

### 3.7 - SAMPLING FRAME AND SELECTION OF SAMPLING UNITS

The information on various industries is scattered amongst several sources which may have to be tapped for the purpose of selection of the sampling units to be covered for detailed investigations. For the industrial units engaged in the production of processed and preserved food, a compendium in the form of directory has been published by the Arab Federation for Food Industries. The listing encompasses a majority of food processing interests in different countries and can serve as an appropriate sampling frame (Universe) for selection of sampling units. Stratified sampling techniques with size of the stratum determined according to the authorised capital can be effectively deployed. Simultaneously cross section of the non-members of the federation also may have to be covered. The information about them, it is learnt, is available with the respective industry's department in each country. In addition, there are directories of industries for S. Arabia, Jordan, Syria that are kept at IMEC and can be used as a sampling frame. There are not many packaging material producing units in the region. It is suggested that complete enumeration/coverage of these visits may be attempted. For the units engaged in the manufacture of package types/ converting, package printing, and ancillaries, sampling may have to be resorted to particularly in respect of plastic converting and printing units that are fairly numerous and are scattered. Other attempts are being made to obtain these from the respective governments through AIDO/ARPAC.

A cross section of other users of packaging viz the commodity/fresh produce producers, exporters of fruits and vegetables, and other non-food manufacturing interests not covered else where, may have to be canvassed in consultation with the respective Departments of Agriculture and industry in each country. It is prudent to have these lists through

the efforts of AIDO/ARPAC. An illustrative list of all industrial units viz packaging material producers, converters, food processing units, government departments and corporations of significance, textiles and other consumer goods manufacturing units etc. Prepared by IMEC for Morocco considered to be useful for selection of sample.

### 3.8 - NUMBER OF UNITS/INTERVIEWS PROPOSED

The size of the sample is a function of the degree of homogeneity/heterogeneity prevailing among the units to be studied. The larger the degree of heterogeneity in the universe the larger the size of the sample. Basically, the heterogeneity amongst the countries stems from the variations in capital invested type of management, the nature of technology environmental factors, level of economic development, national priorities & strategies, infrastructure of skills and communication network, transport facilities, resource availability, political compulsions etc. All the twelve envisaged for the survey are at different levels of economic development and social aspirations. Each of the country is a separate economic entity in many diverse aspects and needs to be studied in depth in the context of the study. In view of the prevailing heterogeneities, it is difficult to determine the size of the sample on a regional/ or pooled basis. Nor, it is possible to determine it on a more reliable objective basis in each country primarily on account of the prevailing deficiencies in the statistical system and the consultant's inaccessibility to documents detailing the nature and number of industries in the entire region. Well informed opinion and specialists more familiar with the region had to be consulted to reflect on the degree of heterogeneity experienced in the industrial set ups in each country. These coupled with the consultant's own experience during the current mission, study of the processed food directory, his visits to the region in the past present budgetary constraints, have provided guidelines to arrive at interviews to be conducted in each of the country. These, it must be stated are guidelines and are based on subjective judgement that supports that these may suffice to enrich the study. These are as under :

IRAQ :	45	SUDAN :	20
JORDAN :	45	TUNISIA :	40
MOROCCO :	45	SAUDI ARABIA :	50
LIBYA :	40	ALGERIA :	40
QATAR :	15	EGYPT :	50
SYRIA :	40	LEBANON :	30

### 3.9 - TIME PERIOD FOR FIELD WORK

On the basis of pilot study, it is estimated that on an average two interviews can be completed on each working day. Accordingly 225 specialist/ team days are estimated to complete the work. Since, the study would entail extensive travel both within and between the countries, it is advisable to depute two teams to work simultaneously & to spread themselves into two geographically proximate regions under the coordination/guidance of the DG IMEC (Director ARPAC). Allowing 10 percent of the time to be spent on internal and between countries travel, and for establishment of contacts, field reports, correspondence and collection of material for desk research, it is envisaged, that on a 25 days a month working schedule. Each team may complete the job within a period of 5 months each - save for any abnormal and unforeseen contingencies.

The above estimation of time are based upon the premises that a major work on selection of units, identification of contacts, advance intimation to the selected units for appointments etc would have been done in advance.

### 4.0 - ALLOCATION OF FIELD WORK-A GEOGRAPHICAL DIVISION OF COUNTRIES

It is left to the discretion of the contracting agency as to how it would desire to get the field survey executed. And how many teams, it may like to detail for the purpose. From the consideration of coordination and logistic support, it is advisable to have two teams working simultaneously in two major geographical clusters of countries. These are as follows:

- SAUDI ARABIA - IRAQ - QATAR - JORDAN - LEBANON - SYRIA -  
and MOROCCO - ALGERIA - LIBYA - TUNISIA - EGYPT - SUDAN.

### 4.1 - COMMENCEMENT OF THE STUDY :

As stated earlier, the countries of the region and AIDO attach a significant importance to the outcome of the study. They deem it as a basic work to equip the concerned authorities in the initiation of further programmes and strategies for the development of the packaging industry in the region. To take full advantage of this enthusiasm that may help foster cooperation, it is advisable to commission the study at the earliest.

It is suggested that the fieldwork may commence in Dec 1984 and

conclude by April/May 1985. The choice of timing is considered well suitable to the industrial and other activities in the region and is away from the fasting month (Ramadan).

## 5.0 TERMS OF REFERENCE

### FOR THE STUDY ON FORECASTS OF CONSUMPTION DEMAND FOR PACKAGING MATERIAL/PACKAGE TYPES IN SHORT AND MEDIUM TERM IN THE ARAB REGION

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#### 5.1 - General Frame Work

5.2 - The ARAB INDUSTRIAL DEVELOPMENT ORGNISATION (AIDO) Baghdad and the United Nations Industrial Development Organisation (UNIDO) have concluded an agreement and are cooperating in carrying out a project entitled "ESTABLISHMENT OF THE ARAB REGIONAL PACKAGING CENTRE".

5.3 - The key objective of the project is to concentrate on the development of efficient, cost effective and modern packaging industries in the Arab Region, which would enhance and expand the marketability of food and industrial products at the national, regional and international levels.

5.4 - Among the proposed activities is the preparation of a forecast of consumption of packaging material and packages for a period of five years - by principal consuming industries/ Segments in each of the country of the region. Surveys to assess the status of the packaging and related industries in terms of capacities, production, price trends, employment, future programmes of development, principal package users industries... are to be conducted in the region.

5.5 - The results of the study are intended to be used to prepare an integrated plan of packaging material and packages and the development of the packaging industry at the respective national and regional levels.

## 6.0 - OBJECTIVES OF THE STUDY

6.1 - To identify the structure of and trends of growth in the agricultural, fishery, food and industrial sectors consuming packaging material and packages for the domestic and export markets.

6.2 - To prepare estimates of consumption of packaging materials and package types in each of the sectors identified above for the year 1985 for each country and for the region as a whole.

6.3 - To attempt forecasts of demand for the consumption of packaging materials and package types and identify factors influencing these trends for a period of five years 1986- 1990.

6.4 - To study the structure of packaging material producing, converting industries - in terms of capacities, value and volume of production, quality control, competition, programme for upgrading packaging standards, skilled man power, price trends and future prospects.

## 7.0 SCOPE OF THE STUDY

7.1 - Geographical coverage of the study will extend to the following countries in the Arab Region.

- |           |                |
|-----------|----------------|
| - IRAQ    | - SUDAN        |
| - JORDAN  | - TUNISIA      |
| - MOROCCO | - SAUDI ARABIA |
| - LIBYA   | - ALGERIA      |
| - QATAR   | - EGYPT        |
| - SYRIA   | - LEBANON      |

7.2 - The packaging will be studied by types according to the materials used and the major areas of application. The following breakdown is given by way of illustration.

Paper and board : Wrapping papers, bags and carrier bags, corrugated boxes and folding cartons; tubes, fibreboard cases and fittings, fibre drums, multilayer paper sacks.

METAL : Cans, boxes, aerosols, aluminium foil, collapsible tubes, closures, metal strapping and banding, barrels, drums and pails.

Glass : Bottles, jars, vials and ampoules.

Plastics : Films, laminates, bags, pouches, sachets, sacks (film and woven tape) moulded and blown bottles, jars, pots, thermoformed trays, blisters and fittings, cushioning materials and fittings, caps and closures, drums, crates, boxes.

WOOD : Boxes, crates, kegs, pallets and containers

INCLUDING

PLYWOOD

BASKETS : Of "Palm leaves, twines and cane"

TEXTILES : Sacks and bags, baling materials

7.3 - The study should primarily cover the following end use areas as relevant but essentially the food industry. The emphasis on end use may vary from country to country depending upon the factors favouring production mechanism.

- Fresh fruits and vegetables
- Frozen and refrigerated fish
- Canned and bottled food
- Fresh meat and poultry, eggs
- Cereals and pulses, sugar
- Dates and other dry fruits
- Beer, wines, spirits, fruit juices, soft drinks including carbonated.
- Confectionary, chocolate and sugar candy
- Coffee, tea
- Soap and detergents
- Granular, powdered and liquid chemicals
- Ready made garments, textiles and hosiery articles
- Pharmaceutical products
- Electrical and electronic products
- House hold durables - refrigerators, air conditioners, washing machines, food processors, etc...
  
- Leather and leather products
- Office stationery
- Office equipment
- Hand and electrical tools
- Other manufactured items.

The above named countries have different production and distribution emphasis on account of certain interests/characteristics of products produced and logistic differentials influencing handling, storage, transportation and packaging. Accordingly, the structure and style of packaging industry may differ from country to country, the items listed above (3.3) whenever imported may come in pre-packed forms from the country of origin. Specific information on such aspects needs to be collected.

#### 8.0 INFORMATION NEEDED

8.1 - The forecasts and basic assumptions affecting the future trends of consumption should be well explained together with a reference to the probable changes considered to be important for bringing about rapid and sudden shifts in the growth rate witnessed in the past.

8.2 - It is important to forecast overall consumption of packaging material and package type and its quantification by industrial and agricultural uses and related supply position, anticipated trends of growth and likely gaps in the supply position for the next five years period 1986-1990.

8.3 - Production capacities, quantitative production and value of production through local supplies with a share of the market of each principal manufacturer and volume of imports separately for packaging material and package type in 1984.

8.4 - Major technological developments in material specifications, substitution of materials, conversion processes anticipated in the forecast period 1986-1990 may specifically be mentioned.

8.5 - Price trends for major packaging material witnessed in the past five years and the factors influencing these.

8.6 - Profile of each of major package consuming (end use) industry, its size - production volume and value during 1979 - 83 and quantitative forecast to 1990.



- Types of packaging materials used in quantities and values in 1984 and demand for each types during 1986-1990..
- Main packaging specifications, dimensionel characteristics.
- Factors and assumptions underlying forecasts of production of industrial products and related packaging demand;

## 9.0 SURVEY METHODOLOGY

A combination of desk and field research approach will be used for the study.

### 9.1 - DESK RESEARCH

- 1/ Statistical information in respect of the concerned country where ever available country papers, plan documents etc...
- 2/ Technical reports relating to the subject
- 3/ Secondary data published by chambers of commerce, trade associations, research bodies.
- 4/ The desk research will be conducted by the consultants at home office after obtaining as many references as possible from AIDO and ARPAC and the national sources. The collected data will be analysed and presented to reflect the findings relating to the objectives of the study.

### 9.2 - FIELD RESEARCH

In depth interviews of respondents sampled from packaging material producers, material converters, package user and Government departments on progress in each country are considered indispensable. Efforts are in progress to procure list of organisations (sampling frame) to afford selection of the sampling unit for the in depth study. The sampling frame is only a guide line and the consultants are free to further enlarge it if felt necessary during the investigations to serve the over all interests of the study. The following programme of in depth interviews is considered as essential for each country.

- IRAQ	45	- SUDAN	20
- JORDAN	45	- TUNISIA	40
- MOROCCO	45	- SAUDI ARABIA	50
- LIBYA	40	- ALGERIA	40
- QATAR	15	- EGYPT	60
- SYRIA	40	- LEBANON	30

10.0 - COUNTERPART SUPPORT

Counter part support will be the responsibility of the DG IMEC (Director ARPAC) Casablanca. In view of the fact that the survey work extends to a number of countries, contact points under the coordinating guidance of AIDO had been identified for providing assistance in terms of seeking access to official and non official sources/documents for collecting related information, support for facilitating interviews.

11.0 - UNIDO SUPPORT

The Director General IMEC Casablanca Morocco, who is responsible for ARPAC Project, will be arranging for support that will consist of administrative and logistic, local transport facilitations and cooperation relating to access to official and private sources of information. UNIDO will also provide for an association of a Packaging Expert - who besides his own expertise, had done enough ground work in the preparatory phase of the study. Support of a technical nature in the form of advice in working methods of systems suitable to local conditions and participation in operations to ensure that the progress of the survey is within the general framework of the objectives - will be provided by DG IMEC assisted by UNIDO'S Expert during the field work.

12.0 - DEADLINES FOR AND FORM OF PRESENTATION OF RESULTS

12.1 - The report is to be presented by a deadline fixed and indicated in the agreement to be concluded between the Consultants and UNIDO.

12.2 - The results will be presented in the form for a general mission report. This report must outline the basic methodology employed and specifically define the local conditions encountered in the various programmes and operations in order to facilitate the determination of margins and/or probable errors in the results.

13.0 - TIMING, WORKING LANGUAGE, BRIEFING AND REPORTING

13.1 - The whole programme involved in this subcontract will be carried out from Dec 1984 and Aug. 1985. 5 months have been estimated for the field work and 2 months for home office work.

3.2 - The working language in the field will be English, however knowledge of Arabic, the language widely spoken will be a great advantage.

13.3 - The final report as well as its preliminary draft will be presented in English, its eventual translation into Arabic/French as the case may be, will be the responsibility of ARPAC/AIDO.

13.4 - The mission shall be preceded by a two days briefing at the UNIDO headquarters in VIENNA just before the commencement of the work in the field. On conclusion of the mission in the field and preparation of a draft final report, a two days debriefing will also take place at the headquarters mainly to discuss the report and eventual clarification of details as required.

13.5 - The final report on the study (forty copies) will be sent to UNIDO headquarters before. Further advice will be offered to the consultants, regarding the rules concerning these reports.

#### 14.0 - SPECIAL ASSIGNMENTS

During the mission, it was desired that the consultant should undertake two special assignments viz I the dimensioning of the problems of the packaging industry in Jordan and preparation of terms of reference there of for further work and II a position paper to serve as a background reference for the formulation of an integrated plan for the development of the packaging industry for the Arab Region. Both these assignments have been completed and the outcome may be seen in self contained notes in the sections that follow.

##### PROBLEMS DIMENSIONING

14.1 - Standardisation for Packaging Material and Package types for processed food Jordan.

##### 14.2 - BACKGROUND

The Arab Industrial Development Organisation Baghdad (DR. Slash - DG ) desired the consultant to formulate the terms of reference for some of the packaging problems in Jordan. The consultant accompanied by of MR. Hammi chief documentation & information IMEC Casablanca took the opportunity to fulfil this requirement during the mission connected with the planning phase of the survey of packaging industry and had the pleasure of

Discussing in details certain aspects with DR. Akram KARMOUL - Director of Industry, Ministry of Industry and Trade, Jordan, M/S Salah Eddin TAHA, Director Standardisation, eng Fouad MERWAH, eng SALAMCH, eng QATARNEH, DR Adnan AWNI, Assistant Secretary General Arab Organisation for Standardisation and Metrology, and his colleagues M/S Hamed ELMOUN ALAMEDDIN - Hassan SAUDI. Besides, observational studies on food packaging were made by undertaking field visits to four factories - in Amman to evaluate and assess the intensity of the problems faced.

#### 14.2 - FINDINGS

Extremely inadequate facilities exist for testing the suitability or otherwise of the packaging materials. The factories rely on the specifications given by the suppliers of packaging material. In process quality control for packaging materials are conspicuously lacking. It is crucial that this gap was immediately bridged. It is true that ASMO is endeavouring to formulate standards of packaging materials and package types for the region through ARPAC (Arab Regional Packaging centre) Casablanca and in days to come, ARPAC with their laboratory facilities & expertise will be able to deliver the goods. During the investigational study, the urgency of formulating packaging standards for food was greatly expressed by all concerned. It was pointed out that Jordan was keen to formulate national standards for packaging materials and package types for the food industry immediately. Keeping in view, such an expressed nature of urgency and the felt needs of the food industry, the following terms for reference are suggested - by way of helping the Jordanian Directorate of Standardisation to, undertake further work.

#### 14.3 - TERMS OF REFERENCE :

I/ To assess the packaging and package related standards already issued or under preparation and orient the national standards organisation with the necessary technical information on promotion and implementation of the standards.

II/ Select international and national standards from experienced countries that may be of relevance of to Jordanian situation, discuss, and adopt with suitable modification.

III/ Help set up the committees for standardisation in the field of packaging and elaborate/prepare few draft standards that could be recommended.

IV/ Conduct and help conduct training programmes and in plant training on observance of standards, test procedures & testing and avoidance of waste.

V/ Elaborate an integrated plan for packaging standards for processed food in conformity with economic priorities and needs of the country - these may include priorities for.

a/ Effective substitution of imports of material or certain processes.

b/ Elimination of non - essential imports.

c/ Packaging standards for exports - for certain selected food items.

VI/ To attend on ad hoc basis to the problems faced by the Directorate of standards in the areas of stockage handling nationals etc...

#### EXPERTISE NEEDED

A consultant mission for a period of 10/12 weeks is envisaged to accomplish the above terms of reference. A packaging expert experienced with the standardisation task relating to the food industries in the developing countries may be able to attend to the task proposed. AIDO/ARPAC may be able to arrange for this mission either through their own financial resources or through UNIDO.

15.0            INTEGRATED PLAN FOR THE DEVELOPMENT OF PACKAGING  
INDUSTRY IN THE ARAB REGION - A POSITION PAPER

15.1 - BACKGROUND :

The first Arab Regional Consultations held in CAIRO in 1973 under the joint auspices of IDCAS (currently known as AIDO) and UNIDO recommended unification of efforts towards the development of the packaging industry in the region and a few other essential steps needed for the growth and progress of the industry. The development of efficient, cost effective and modern packaging industries in the Arab Region, it is felt, would enhance and expand the marketability of food and, industrial products at the national and international levels. The packaging industry in the Arab countries is at its infancy and is hard put to satisfy the demands expected out of it. The constraints such as lack of raw materials, inadequacy of technical manpower, technology, processes, expertise - are some of the factors responsible for relatively a low profile of the industry. There thus exists an urgent need to remedy the situation and attempt an integrated growth of the packaging industry in a manner that permits and enlarges the scope for utilisation of indigenous resources of material, know-how, processes, technical manpower, etc. to the maximum extent in each country and brings about a balanced growth of the industry in the region.

15.2 - TECHNOLOGICAL GAP :

In the industrialised countries, the decade of seventies marked a substantial advancement in the development and application of packaging science, designs, technology- to contribute effectively to the marketing efforts of producers in association with the changing life styles of consumers, and to help preserve and distribute the industrial, agricultural products with utmost speed and economy. The user industries demand to wring top performance of packaging at the lowest cost. The trends to rely heavily on the use of traditional packaging material are changing fast.

Packaging specifications have been and are further influenced by hybrid package. In other words, it is not just glass, paper & board, wood, metal or plastics, but a variety of combination-coatings, co-extrusions adhesive and heat laminations/ Bondings of materials that would deliver optimum performance. As factor and energy costs spiral upward, the production processes have been turned/are turning further to save energy and effect utmost economies by reducing waste and improving productivity. Similar trends are discernable in the sphere of industrial packaging which is changing rapidly to keep costs in line. Packaging and package type have become more systems oriented. The total packaging system is reflecting products/ packages that have been value engineered, that involves interaction between package and material handling, in plant protection in storage, facilitating product flow to the operators work stations. The technology is directed towards creation of a total package that ensures conservation of energy use, optimum use of packaging materials at the minimum labour cost.

In some of the developing countries as well, one witnesses the upswing of packaging technology to produce containers that have a bearing on its longevity and its reuse capabilities. To ensure that packages are adequate in providing the required level of protection and possess ability to accelerate the speed in distribution mechanism, economical reproduction, are considerations finding favours with the producers and users of packaging. Conventional single material and package firms are undergoing modifications through incorporation of economical combinations. Polyethylene laminated hessian sacks, top-bottom metal and sides fibre board containers, plywood - paper board boxes; coextruded films, bag in a box, retort pouch, aseptic packaging and laminated films, etc have already appeared on the packaging scene in these countries. However, such innovations and modernisation have so far only scratched the surface and very wide technological gaps do exist. In many of these countries, the technology and machinery for combination package, uni material package have been obtained from industrialised countries. These machineries are suitable for pre-specified tolerances of material's dimensional and other properties. Pressures of rising prices, shortage of right materials, have lead to polarisation of quality of package induced by

characteristic variation in materials and low machineability.

### 15.3 - UPSWING IN DEMAND

The mood of the people in the Arab World is different from what it had been a decade ago. It is becoming more demanding and outward - reaching. No more they seem to be content with the continuation of products availability in forms and styles of recent years. Coupled with such positive and favourable trends is the desire of almost all the countries to achieve a break through in industrialisation of their respective countries, re-inforce and modernise existing capacities, set up new units and promote regional and international trade for the products and produce of the region. There is an increasing concern, noticeable in government departments to set-up an infrastrucure that can help minimise enormous food losses, accelerate the pace of industrial development, expand markets and promote exports. The packaging industry is an important link in facilitating the achievements of many of the above mentioned objectives.

With the quickening of the pace of industrialisation in the region and generation of the right emphasis to preserve and protect food, formulation of strategies for export marketing etc, the demand for various packaging materials and package types is likely to have an upswing not only in the quantities demanded but also in the quality standards. Number of the countries of the region have limited access to indigineous packaging material needed to satisfy their growing demand and experience a wide gap between the national supplies and the level of demand. This gap, they are at present bridging through import of raw materials and in certain cases even through import of finished packages. Often such imports have to be made from industrialised countries, where the rising price spirals, restrictions on minimum order size and quantities, uncertainties relating to the receipt of supplies on time, prolonged order lead time and rising freight and insurance charges, bring about an enormous pressure and strains on the operation of the industry and compel it to lock up its substantial reserves in building up inventories of material for a period ranging from 3 to 6 months of its requirements. Much of these economic strains can be reduced in intensity by coordinating and developing the packaging industry in a manner to yield distinct and profitable advantages to the entire region.



#### 15.4 - BALANCED GROWTH

It is true that national priorities and considerations favour creation of facilities to achieve self sufficiency and self reliance for each country for everything it consumes. But economic and technical realities favour the process of industrial development according to the basic advantages a country is endowed with in commencing, expanding and harnessing the rewards of such expansion through demand multiplication and market expansion. The economic cooperation in trade and commerce among the member countries of the European Economic Community and its growing popularity and success, is a successful example of bringing prosperity to every member country and has resulted in a balanced development of the agricultural and industrial sectors in the region. The concept of mutual dependance has greatly replaced the limited concept of exclusive reliance on self sufficiency. Countries with different political systems and cultures and atvarying level of economic progress; have joined themselves in a common economic bond to benefit the region as a whole.

In the Arab Region, with a common and basic desire for economic advancement and mutual bonds, the climate is right for attempting inception of industries at places that confer the maximum economic advantages of production and potential demand satisfaction. Decisions relating to the balanced development of the packaging and related industries investment opportunities, capital investment and capacities required, mobilisation of financial resources, training and skill orientation of technical manpower search, evaluation and procurement of appropriate and related technology, standardisation of processes and quality control measures - will no doubt have to be made on the basis of objective information and feasibility studies. There is no gainsaying the fact that there is a need to prepare an integrated plan for the packaging industry - a plan that foresees the demand prospects of packaging material and package types in the next five to ten years and is able to spell out concrete and practical programmes, investment out lays and type of technology needed in each of the sector of packaging industry well related to

the programmes and plans for the development and growth of the end use industries of packaging materials. It should also elaborate technology that spotlights a host of new systems, equipment, materials particularly for the food packers that are in conformity with the movement of technology in the world system and simultaneously can be adopted in the region.

#### 15.5 - INFORMATION NEED

Packaging industry's arteries are numerous and include producers of basic materials - metals, paper, glass, textiles, wood, plastic and a range of units engaged in the conversion of basic material and or combination of materials, packaging and printing machinery, package testing equipment, and material handling equipment. To exercise the right options and make decisions in accordance with the felt and most urgent needs of the region or requires logically an array of information on the status of the industry for each of its major segments, current capacities, investments, production volumes and values, nature of technology and its efficiency, factors influencing price trends of raw materials, wages and other inputs, sources and quantum of raw material standards and specifications, other ancillaries required, facilities for quality control and improvement. Simultaneously the out look for future in terms of forecasts of consumption demand by sectors viz agricultural and agro-industry based products, chemicals and other manufactured items, demand for exports, future projection of industrial and agricultural production, national income and trends in per capita consumption are to be studied and evaluated. On introspection, in a majority of the member countries, one discovers that the availability of some basic statistical information, more particularly relating to the packaging industry is either not available or wherever available, with few exceptions, is in a form that fails to fully facilitate the process of planning. In particular, the data on forecasts of consumption demand for packaging material and package types in relation to those of the production/supplies of industrial and agricultural sectors, their respective price trends and the national programmes and policies to expand and improve the supply base of these industries - are essentially needed.

On the export front, information on aspects of nature and composition of distribution system in the destination markets, type, style and design of packaging required for different products, legal requirements, shipping and carrier regulations, handling and storage system, expected package behaviour to withstand journey and storage hazards etc., are called for.

It is encouraging to note that the member countries of the region fully realise the importance of having the basic and fundamental information not only in respect of the packaging industries but for all the industries. A few of them have already moved ahead to streamline, their statistical system and others may be in the process of doing so. In view of the urgency and importance of the subject, AIDO is endeavouring to collect the information for every member country on different aspects of packaging that may help formulate an integrated plan for the future development of the industry.

#### 15.6 - UNIDO'S ASSISTANCE

At the request of AIDO, the United Nations Development Organisation VIENNA is assisting in the establishment of the Arab Regional Packaging Centre at Casablanca. In the programme of activities for the assistance, is included the task of estimating the demand forecast of consumption of packaging materials and package types by principal end uses for the next five years, in the region. Simultaneously the activity envisages to evaluate the status of the packaging industry and assess its ability to meet the demand for consumption of packaging materials and package types with or without further replenishment of capacities, modification and introduction of technology, know-how etc. It is also intended to identify influences - technical, technological and commercial that can stimulate the growth of the packaging industry in harmony with the economic and industrial development in the major sectors of the region.

### INFORMATION COLLECTION AND SURVEY OF PACKAGING INDUSTRY

In a normal course, the availability of historical data on production and consumption of packaging material and the related products would suffice to project and predict to a reasonable extent the forecasts of consumption demand and trends expected in future, but in the absence or very limited availability of the information on the packaging industry and the region's desire to achieve a rate of growth on different economic fronts for excess of the rate experienced in the past, it is important to assess the current situation, evaluate its ability and preparedness to absorb change in the content of new policies, programmes and strategies for the development of the package users industries. It is equally important to estimate quantitatively future demand for packaging materials and packages and relate these to the existing sources of supplies and subsequently identify investment opportunities and effect investments in those sub-segments of the packaging industry that may be called upon to respond rapidly to the demand of the users industries more particularly in the food area. As mentioned in the foregoing, there exists an information gap on the various facets of the industry. To bridge this gap, there is a need to conduct a study that aims to highlight certain vital aspects of the industry. The study envisages a methodology of desk and field research for collection of relevant and related information. While the desk research component may be confined to the collection and analysis of the data contained in the published and unpublished reports, special studies, statistical information the field research component is intended to elicit information from a sample of packaging material producers, package manufacturers package users including agricultural and industrial producers and traders, government departments, trade associations. Through well informed opinion, information may be obtained on certain quantitative as well as qualitative features of the packaging industry including those relating to package performance/failures, quality of material; manufacturing processes deployed, work flow, quality control facilities and their implementation.

### STUDY TEAM AND TERMS OF REFERENCE

The survey of the packaging industry in the region is proposed to be conducted through the technical assistance programme of UNIDO by entrusting the assignment to a consulting firm well experienced in undertaking such highly specialised studies. The Director ARPAC shall provide coordinating guidance to the consulting firm in order to ensure that the study progress is well within the broad frame of the terms of reference. The planning phase of the study has already been initiated by UNIDO by deputing an expert on the subject, who, among other things, have tested the survey methodology by eliciting information from pre-selected units and also identified sources of sampling frames, desk research. It is proposed to utilise the services of the expert and use his experience and maintain a continuity during the field work of the study. The expert will also be orienting the ARPAC staff on certain finer features of the survey - to enable them to update information in future, its analysis and use for planning and decision making purposes.

### 15.7 - USE OF SURVEY RESULT

In the foregoing, broad objectives of the study have been outlined. Essentially, the estimation of consumption demand of packaging materials, package types would serve as a valuable input for the preparation of plans for a balanced growth of the industry in the region, in future. The study results, in their wider perspectives may provide information on those operational aspects of the industry, that may require immediate attention and demand remedial effecting measures for effecting improvements. In a seminar on the "Role Of Packaging In Promoting Trade exchange", organised by UNIDO/AIDO at ARPAC Casablanca in July 1984, the participants expressed their strong support to the proposal of conducting the survey and were of the opinion, that the findings of the surveys may help them immensely to carve out strategies for future development of the packaging industry.

In addition to the information on consumption forecasts of packaging materials, this study may uncover areas such as :

- 1/ The nature and intensity of the need to develop new prototype package that are more cost effective than those already in use or introduce necessary modifications wherever needed.
- 2/ The need for the establishment of technical specifications for different types of packages, their monitoring and quality control.
- 3/ Specific information needs of package users, transport firms, trade distributing agencies exporters, and the nature of technical/advisory support services they require.
- 4/ Identification of specific fields for further research and development particularly aimed at achieving progressively higher utilisation of local material, processes, and to seek ways and means of reducing dependence on imports from outside the region.
- 5/ Identify specific areas requiring skill upgradation through training programmes, study missions to packaging industries within and outside the region.
- 6/ Formulate projects specifically oriented to bring about improvements in packaging designs, styles, materials. specifications for the food industry according to the needs of the industry in the region.
- 7/ To determine areas where consumer protection measures can be adopted through information labelling and other legislative measures.
- 8/ Identify areas and determine the intensity of agricultural commodity and fresh produce losses and initiate programmes to minimise the incidence of such losses through the support and development of better packaging and related systems.

- 9/ Unfold areas in packaging materials viz wood, pulp, board, plastics, rubbers, glass, metals, textiles, ceramics that need priority attention for productivity improvements. For instance, productivity improvement studies in paper and board making materials, pulping processes, stock preparation, better utilisation of paper and board making machines - processes & reliability through production planning and control, proper maintenance and sequencing production, reduction in wastes during production and finishing processes including coating and lamination.
- 10/ Reveal aspects relating to the quality and adequacy of unit/retail packs more particularly relating to the food products. These include.
- Metal cans and composite containers,  
glass containers, folding cartons,  
moulded trays, plastic containers,  
bottles and trays, films, pouches,  
laminated closures, etc.
- 11/ For exports of fresh and processed agricultural commodities, a review of existing packaging practices and techniques both for transport and unit packs is essential. For improving packaging specifications, the information provided by the survey findings, may prove to be highly useful to expand the region's major exports to convertible currency countries of Western Europe, Canada, U.S.A., Japan, and promote trade among the member countries.
- 12/ Nearly all packaging materials - in varying proportions according to the demand pattern of the different countries are imported as raw material. The feasibility of developing trade exchange programmes between the member countries to promote trade of packaging material, develop plans for renewable resources, may greatly benefit the region and may in long run reduce dependence on imports from outside the region.

Blue prints on the imports of packaging material for each country with possible sources of supply within the region may promote trade of packaging material.

13/ Scope for modernising or rennovating packaging equipment together with expansion and replacement programmes may follow from the findings on the status of technology in the region.

15.8 - ARPAC/ and the national committees in packaging would be in a better position to initiate and develop with mutual assistance and cooperation future programmes to help stimulate the growth of the packaging industry in respective countries and in the region.



16.0 REPORT ON THE MISSION TO BAGHDAD (IRAQ) DOHA (QATAR)  
AND AMMAN (JORDAN)

Period : Aug 7th to Aug 25th 1984

- 16.1 Objectives :
- I/ To discuss the strategy for the survey of packaging industry with DR SLASH AIDO and his colleagues.
  
  - II/ To familiarise with the work on the packaging & users industries that had already been done by AIDO, Gulf Organisation for Industrial Consulting DOHA.
  
  - III/ To undertake a pilot study in Amman Jordan.
  
  - IV/ To attempt problem dimensioning of packaging industry in Jordan and prepare specific terms of reference for a consultant's mission (AS PER DESIRE OF AIDO and at the request of JORDAN Ministry of Industry & TRADE).
  
  - V/ To identify sources and collect information on aspects that could be useful for selection of industrial units for the main survey and also to search sources of information for the desk research component of the study on consumption forecasts of packaging material.
  
  - VI/ To seek AIDO'S guidance and views on the countries to be included in the survey and to attend to matters relating to contact points for coordination and logistic support for the main survey.

16.2 - CONCLUSION : I/ DR SLASH and his colleagues were in agreement with the methodology and the approach of the survey including the contents of the questionnaire. The need to focus attention on the forecast of consumption demand for packaging material for the food industry was greatly emphasised. Apprehensions were expressed about the availability of time series - historical data relating to the packaging industry particularly in the form that could afford valid information on its growth pattern and factors influencing it.

II/ AIDO is contemplating to entrust the assignment for undertaking the survey of Packaging Industry in the Gulf Region to the Gulf Organisation for Industrial Consulting, Doha Qatar. Due to budgetary constraints, UNIDO/AIDO'S collaborative venture may initially have to be limited to the following countries. Three of the gulf countries were also included to reflect on the status of the industry in the gulf region.

JORDAN	ALGERIA	)	
MOROCCO	EGYPT	)	
LIBYA	LEBANON	)	
SYRIA	SAUDI ARABIA	)	Gulf Region
SUDAN	QATAR	)	
TUNISIA	IRAQ	)	

The remaining countries would be covered subsequently after the necessary financial resources needed are mobilised.

The consultant emphasised the desirability of entrusting the packaging survey work to specialists who had had the right experience in the field and possess a great deal of knowledge about the packaging industry.

Some of the basic points of the survey and the work already done on the subject in Mexico, Ethiopia, Brazil, India were mentioned as a reference. Information was exchanged with DR. WAGIH of GOIC on the subject. Their questionnaire may be seen Appendix X. Their emphasis seems to be on mail questionnaire survey rather than on in depth interviews/desk research, approach.

III/ AIDO would be glad to provide contact points in various countries and do not envisage any difficulty in this direction.

IV/ Tentatively, the field work of the survey may commence in Dec 1984. A review of the budgetary provisions made for the study has been recommended in the context of enlarged scope of the study and coverage of a number of countries.

V/ Pilot survey to test the methodology, the quality of information and the incidence of response etc was successfully attempted through in depth interviews, and observations on the spot. A brief note on certain specific features was prepared and is attached.

VI/ Listing of industries are available with the Ministry of Industry in the respective countries.

Director of Food Industries in the Arab Region - 1983 compiled by the Arab Federation of Food Industries is a useful guide for selection of units in the processed food industrial segment. Some of these directories and lists have been obtained and are kept with IMEC.

VII/ AIDO desired the consultant to help dimension the packaging problems of the Jordanian Packaging Industry. Ministry of Industry and Trade Amman, referred the consultant to Directorate of Standards for the purpose. A self contained note on the problems dimensioning and the related terms of reference for subsequent work has been prepared.

VIII/ The need to extend the mission to Saudi Arabia and Sudan surfaced during the discussions. More particularly the need to visit S. Arabia was greatly emphasised by DR FALAH JABR - Secretary General, Arab Federation of Food Industries- quoting discussions in the follow up committee meeting held in July 1984 at Casablanca. It is learned that Saudi Arabia Consulting Organisation had done extensive work in the field of packaging and could be of considerable value during the planning phase of the study. A visit to Sudan may reflect on the packaging problems of the less developed countries in the region.

IX/ A few units in Baghdad were visited by the consultant as per desire of AIDO.

Ad-hoc advise was offered where ever needed. A couple of Industrialists visited the consultant in the hotel for follow up advise which was offered. It is worth mentioning that facilities for quality assurance and testing of packaging material in the processed food industries (for the units visited) are lacking. The incidence of excessive use of material predominate, together with high incidence of degradation of packaging material in storage.

The need to formulate packaging specifications, standards and introduction of quality control/assurance measures <sup>for</sup> packaging material, optimum use of the material... could be areas of further intensive work.

X/ G.O.I.C'S department for sectoral development is responsible for the development and promotion of the existing industries and preparation of complete studies for new projects for which investment opportunities have been recognised. In addition, it has plans to study the standards and specifications approved by member states and contemplates to unify these. It also co-ordinates methods of benefiting from standards and specifications approved by specialised international organisations.

17.0 - PILOT SURVEY OF PACKAGING AND FOOD INDUSTRIES  
IN JORDAN AUG 18th - 25th 1984

17.1 - BACKGROUND :

As a fore - runner to the main survey, it was considered appropriate to conduct a pilot survey with a view to test the methodology and assess response. Accordingly some of the principal food producing industrial units in Amman - Jordan were selected for the pilot study. The choice of Jordan for the pilot study followed a request from the Jordanian Industry & Trade Ministry. In addition to the collection of information through desk research, field studies were extended to the following industrial units & organisations.

I/ Arab Mineral Water Co Amman.

II/ Jordan Fruit Juice Co Amman.

III/ Agricultural Food Products Factory Tomato Paste, Pickles-  
Amman.

IV/ Tin Container Manufacturing Co Amman.

V/ Amman Chamber of Industry (MR. YASIN SHAHZADA).

VI/ Arab Organisation for Standardisation & Metrology -  
DR. ADNAN AWNI Assistant Secretary General & his colleagues.

VII/ Directorate of Standards - MR. SALAH EDDIN TALAH & his  
colleagues.

VIII/ A few selected stores selling pre-packed processed food.

IX/ And Director Ministry of Industry and Trade, Govt of  
Jordan, (DR. AKRAM KARMOUL & his Colleagues).

17.2 - FINDINGS :

The attempts to solicit information in a pre-structured form from the end use industries and to test the approach met with success. The frank and precise response from almost all the respondents is indicative of the importance which the subject is enjoying in the food industry. The in depth interviews and the in - plant observations made - lead to the following conclusions.

- I/ Majority of the packaging materials/ types are imported with specifications formulated by the suppliers.
- II/ Facilities do not exist to verify these specifications and assess the degradation levels suffered by the packaging materials during journey & storage.
- III/ Instances of excessive use of material have been observed. The case exists for effecting economies for optimum use of packaging material.
- IV/ No periodic studies for conducting shelf life of the products packed are being carried out by the manufacturing units.
- V/ Considerations for cost-effectiveness in the production phenomenon are given the least importance. In one of the factories - the scrap rate of tin plate used for the manufacture of metal containers is very much out of proportion with the standard practices.
- VI/ None of the units is having any trained packaging technologist to test packaging material specifications. The familiarity with standards of packaging with one notable exception (Mineral Water Co) appears to be extremely low.
- VII/ Storage conditions for stocking of packaging material and filled packages are extremely inadequate and can be improved by application of better techniques of storage and training of personnel.
- VIII/ The principle of 'first come first go' is missing in stores of many of the units visited. Unnecessary aging of material can be avoided by improved methods of storage and inventory flow.

- IX/ Each of the units visited expressed the need to have access to advisory services of problem solving nature in the field of packaging.
- X/ There is a need to study the extent of fresh fruits & vegetable losses in the distribution system. It is possible to minimise these losses by effecting improvements in packaging and related systems.
- XI/ Turn over of the skilled workers is very high. Accordingly the units face acute shortage of skilled man-power.
- XII/ Most of the units are working at 50/55 percent of the installed capacity. This evidently increases the cost of production. Efforts to expand markets for better utilisation of capacities are needed.
- XIII/ Open air storage of tomato paste concentrate in plastic containers in the concerned unit may lead to degradation of product. The extent of degradation suffered there of to be investigated further.



17.3 - OPERATING RESULTS :

The operating results of the units survey-ed in Amman have been summarised and are enclosed at appendix XI. It would suffice to mention that through in depth interviews, it is possible to collect information even on some of the more sensitive areas of an enterprise. Desk research information was also collected from Jordan's Ministry of Industry and Trade, in respect of agricultural and industrial production. A specimen of the readily available information is enclosed at appendix XII. It is possible to get more detailed information in physical terms by spending more time with the Ministry. Jordan has also brought out a brief review of its economy and selected industrial projects for implementation. This document affords an insight into the type of things to come. A few of the publications/documents collected during the study are listed below. These are kept at IMEC.

- 1/ Arab Federation for Food Industries. Annual Directories for Arab Food Industries 1982, 1983.
- 2/ Arab Federation for Food Industries 'current status of the Jordanian Food Industries and future development.'
- 3/ MR. ALI DAJANI Chamber of Industry 'Jordan Exports'
- 4/ Arab Federation for Food Industries - Food Industries in Democratic Republic of Yemen 1982.
- 5/ Arab Federation for Food Industries Current status of the Iraqi Food Industries and its future development 1981.'
- 6/ Directorate of Industry, Ministry of Industry and Trade in Jordan brief review of Jordan Economy and selected industrial projects for implementation 81, 82.

7/ Directorate of standardisation, Ministry of Industry and Trade Jordan.

JORDANIAN STANDARDS

1937/ 9  
1980/ 75  
1980/167  
1980/172  
1980/174  
1980/206  
1981/207  
1981/210  
1981/224  
1982/22/7  
1983/324  
1984/372  
1984/373

8/ Arab Industrial Development Organisation.

Listing of available documents on packaging in the Arab Region.

17.4 - RECOMMENDATIONS :

I/ It is vital to introduce quality control measures for packaging material and train technicians on the subject.

II/ The managements of the food processing units should be required to provide basic material testing facilities or else be provided facilities from the centralised laboratories. The centralised facilities of Royal Scientific Society should gear towards testing of packaging material. A greater use of the facilities existing at ARPAC can be made use of.

III/ Packaging Standards for Food need to be progressively developed. The subject has been treated separately.

IV/ ARPAC facilities for packaging material testing and training are not well known among the manufacturing units, and should be brought to notice of the users. (Some samples of material & finished products were obtained for further testing by ARPAC).

V/ In plant studies on cost control and improvements of productivity in the use of packaging material are recommended.

VI/ Creation of facilities for lamination of paper, foil & polystyrene with flexible material and its printing upto 6 colours within the country may result in value addition within Jordan. Substitution of tin containers by less expensive substitutes is another area worth exploring. Small units to manufacture corrugated fibre board boxes with capacities ranging between 50 to 60 tonnes per month and their location near the points of production with an investment outlay of 30 to 40 thousand dinars are distinct possibilities.

VII/ A national plan for import of packaging material in Jordan for the next few years and identification of sources within in Arab Region may be formulated.

VIII/ For fresh fruits and vegetables the use of expands polystyrene boxes need to be re-evaluated from the point of view of cost - benefit analysis.

Comparison with water proof corrugated fibre board boxes of higher capacities vis a vis those of polystyrene boxes, made out of composite material wood & CF board - may reveal/throw further light on the economics of per kg of product packed, handled,

transported and stored.

IX/ There is a need for in plant training of technicians on principles of packaging & packaging economies.

## 18.0 - RECOMMENDATIONS

### 18.1 - Coverage of Countries for the Study

On account of budgetary constraints, it is suggested that the study may be initially confined to cover twelve countries viz Iraq, Jordan, Morocco, Libya, Qatar, Syria, Sudan, Tunisia, Saudi Arabia, Egypt, and Lebanon.

The remaining countries viz Djibouti, Mauritania, Somalia, Yemen, and Palestine may be covered in the next phase after the necessary financial resources are mobilised. G.O.I.C is already proposing to extend the study to Bahrain, Kuwait, UAE and Oman.

### 18.2 - Review of budget

It is recommended that budgetary provisions for the study may be reviewed in the context of the extended scope of the study. It may be possible to meet the financial commitments out of the joint budgetary provisions of UNIDO/AIDO earmarked for the activity and the savings that may accrue from other activities stipulated in the project document.

### 18.3 - Priority of Industries

The focus of the study should be primarily directed to forecast sectoral demand for packaging materials/packaging types for the food industry-commodities, fresh produce and prepared food, followed by those for the pharmaceutical and consumer goods industries.

### 18.4 - Study Approach

Desk research combined with on the spot field investigations / interviews of a cross section of the target audience/industrial units and informed opinions are suggested as the approach to the study.

### 18.5 - Sample size number of interviews

A minimum of 470-490 interviews distributed over different countries/industries with in each, are envisaged for the field research investigations of the study. The selection of sampling units may be

done on the basis of stratified sampling with stratification according to the authorised capital or some other worthwhile criterion.

Interviews of the members of informed opinion group such as heads of industry's department, chambers of commerce export/import agencies etc... may be conducted by selecting the members on a purposive selection basis in consultation with the Directorate of industry in each country.

#### 18.6 - Packaging material producing units

Units engaged in the manufacture of basic packaging material are few in the region. A complete coverage of these units is suggested.

#### 18.7 - Charateristics of packaging and package user's industries

Information on certain basic characteristics of the packaging and user industries may be obtained. Information on aspects such as quality control measures, trained man power, material specifications, sources of raw material, plans for diversification-may be collected. Attention to questionnaires designed for the purpose is invited.

#### 18.8 - Distribution of field work-grouping of countries

The countries proposed for the study may be grouped into two-three geographically convenient clusters-for distribution of field work. For example, the grouping of countries consisting of S. Arabia, Iraq, Qatar, Jordan, Lebanon, Syria and Morocco, Algeria, Libya, Tunisia, Egypt and Sudan may be more advantageous from the points of view of travel convenience and cost. Each cluster of countries may be assigned to a team of two members (One senior specialist and a Junior one) who should possess the right experience of conducting packaging surveys.

#### 18.9 - Time period and final report

The field work may be initiated in Dec 1985 and preferably be concluded by April/May 1985.

The choice of the timing is considered more conducive in the context of a relatively higher pace of industrial activity and more agreeable climatic conditions. The field work is expected to last for a period of five months. AIDO/ARPAC would very much welcome to have the final report by middle of Aug. 1985.

## 19.0 - TERMS OF REFERENCE FOR CONTRACTING FIRM

Suggested terms of reference for the contracting firm who may be assigned the contract have been formulated vide section 50 of the report.

### 19.1 - Briefing and mid term assessment

AIDO/ARPAC be invited to the briefing meeting. For assessing the interim progress particularly in view of the difficult logistic situation in the region it is desirable to have tripartite (UNIDO/AIDO contracting firm) review meeting when the field work is half way through. This may help overcome any bottleneck that may be hindering progress.

### 19.2 - UNIDO'S assistance during field study

In view of the diverse nature of the study and the fact that a number of countries at different level of economic progress are involved it is suggested that UNIDO may depute a consultant to ARPAC who may assist Director ARPAC in coordination and <sup>work</sup> complement the efforts of survey teams in desk research. The consultant should also collect validating data on the field work through "inter-penetrating sampling technique" to help improve the quality of the work and determine the confidence level of the forecasts.

### 19.3 - Coordination of work

DG (IMEC) Director ARPAC, it is suggested should act as a coordinator of the study. It is desirable that the survey team is accompanied by an Arab speaking member belonging to the region to facilitate the field work. AIDO/ARPAC may organise for such a support.

### 19.4 - Indepth interviews

Indepth interviews are regarded as the core of field investigation. The temptation to leave the questionnaire with the respondents for its subsequent receipt should be avoided.

Physical act of completing the questionnaire in the presence of the respondent should be avoided. It is preferable to write down his responses as the interview progresses. It generally takes 2.5 to 3 hours to complete an interview including the observational study

of the unit sampled.

#### 19.5 - Sampling frame

For selection of the sample amongst the processed food industries, the directory of Food Industries in the Arab Region may serve as a useful sampling frame. This may be supplemented by the list of industries available with the respective industries departments in each country.

Already such lists/ directories are available for S. Arabia, Morocco, Jordan, and Syria with IMEC. Efforts are in progress to obtain these for other countries.

#### 19.6 - Desk research

The survey teams should make efforts to collect published/unpublished reports, position papers, plan documents relating to agricultural and industrial growth-past, present and future - of country visited AIDO had been approached to help collect information on the value and volume of agricultural and industrial production, imports/exports including those of the packaging industry for the period 1979-84 for each country.

#### 19.7 - Import of packaging material

A majority of the countries of the region depend upon imports to meet the requirements of packaging material.

It is suggested that data on the volume and value of imports should be collected for the period 1979-84 for different materials- by country of origin.

Similar data on exports of packaging materials (if any) should be listed by country of destination.

#### 19.8 - Coordination with G.O.I.C.

Under the sponsorship of AIDO, the Gulf Organisation for Industrial Consulting, Doha is planning to conduct a study on the consumption forecasts of packaging material in U.A.E, Bahrain, Kuwait and Oman. A better co-ordination between UNIDO/AIDO team and G.O.I.C. is recommended to make the studies complementary to each other.



19.9 - Mission to Sudan and some less developed countries

Preliminary information on the status of packaging and user industries in Sudan, Mauritania, Yemen RA, Yemen RDP, Djibouti is not available. It would greatly facilitate the survey work in these countries if short mission to Sudan, Somalia and Djibouti was undertaken as a prelude to the main study in these countries.

20.0 - STRENGTHENING OF ARPAC SERVICES

20.1 - Standardisation and problems solving consultancy services

The demand on ARPAC services originating from the member countries, is likely to multiply in days to come. Already the need to evolve national standards for packaging material used in the food industries has been emphasised by a few countries and they are expecting immediate contributions from ARPAC. ARPAC plan of work (appendix XIII) may have to take into account the changing requirements and the new sense of urgencies. Some of the activities of ARPAC viz problem solving packaging development and packaging standardisation services may have to be strengthened immediately.

20.2 - Assistance to set up material testing laboratories

The need to set up material testing laboratories at the national levels is recommended. ARPAC may assist national governments in setting up these laboratories.

20.3 - Marketing and promotion of ARPAC services

The countries visited during the field visit provide enough evidence of the gaps that exist in the field of adequate packaging. There are many industries that are not aware of the facilities and potentials of ARPAC activities nor these services have been marketed and or promoted in any systematic manner. The need to do so through the region's oriented packaging problems and scenes depicted in a film, press features, participation in exhibitions, visits to influential and representative food processing units, seminars and congresses, etc. could promote the interest of packaging manifolds.

A Systematic and sustained approach of marketing ARPAC services may be incorporated in its plan of work.

20.4 - Findings of pilot survey

ARPAC may initiate plans of action on some of the key recommendations referred to in section 17.4 of the report.

20.5 - Expert mission to Jordan

Government of Jordan have requested AIDO for technical assistance in the field of packaging.

The problem was dimensioned and an expert mission for a period of 10 to 12 weeks on packaging standards for food is recommended.

Terms of reference have been set out vide section 14.3

21.0 - PRIORITY ACTIONS

21.1 - List of industries

AIDO/ARPAC are requested to obtain these from respective countries immediately and forward the same to UNIDO.

21.2 - Industrial data

Historical data on the past performance of industrial and agricultural sectors for the period 1979-84 vide proforma and on packaging industry vide appendices VII & VIII respectively may be collected by AIDO/ARPAC.

21.3 - Statistical data/country and seminar papers

Some of the country/seminar papers (mainly in Arabic) are available with IMEC and contain useful information on the quantitative and qualitative features of the packaging and users industries.

Statistical data contained there in may be collected and tabulated with English titles and classifications, <sup>and</sup> be forwarded to UNIDO.

21.4 - Quality control for packaging materials in the food industries

Quality control measures for packaging materials/packaging types are woefully lacking in the food industries. Nor there are trained technicians to do the job. ARPAC plans to conduct seminars on the

subject in Jordan. These need to be followed up by technician level training programmes.

Food industries should also be required to include quality control of packaging material as a part of the total quality assurance activity.

#### 21.5 - Packaging development studies

The incidence of excessive use of packaging material particularly in respect of flexible packaging materials - plastic, paper, aluminium foil, and their laminates appears to be high.

Packaging development and evaluation studies - for optimisation in the use of packaging material for food industries are recommended for items of particular interest to the common man.

#### 21.6 - Packaging standards for food

A concern has been voiced in Jordan that the progress for evolving packaging standards for food is very slow. <sup>The</sup> development of these standards is recommended at the national and regional levels.

Where ever these standards do exist, the implementation in practice is more relaxed-although the standards are made mandatory for adoption. More rigorous measures are recommended for the enforcement of the standards.

#### 21.7 - Certification of packaging material

There is a need to identify/ create and equip material testing laboratories and packaging centers at the national levels- as the satellite centres of ARPAC. A criteria for accrediting these laboratories as certification laboratories for packaging material should be evolved and qualifying laboratories are recognised accordingly. The food industries must get their packaging materials certified during the next 5 to 10 years, till the packaging standards are well entrenched.

21.8 - Productivity improvements

The concern for cost/waste control/production economies are very low.

The productivity standards achieved in the industrial sector are far below than those obtained else where. In plant studies and the introduction of productivity measures, improved methods, incentives for achieving higher productivity, are recommended. For instance, currently high incidence of degrading of packaging material in storage can be effectively minimised through method improvements, adoption of better storage techniques and maintenance of proper inventory flows.

UNITED NATIONS

APPENDIX I

TERMS OF REFERENCE



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

UNIDO

27 April 1984

PROJECT IN THE REGIONAL ARAB STATES

**JOB DESCRIPTION**

DP/RAB/83/020/11-52/31.7.E

INTERNAL

**Post title** Consultant in Packaging Surveys

**Duration** 3 months

**Date required** April 1984

**Duty station** Casablanca, the Kingdom of Morocco, with possibility of travel in the Arab States

**Purpose of project** To convert the Moroccan Packaging Institute (IMEC) into the Arab Regional Packaging Centre (ARPAC). The specific purpose of this mission is to organize a study on the forecasts of packaging consumption in the Arab States for the short and medium term.

**Duties** The consultant will be assigned to the Moroccan Packaging Institute and organize his activities in consultation with the Project Manager, who is also Director General of the ARPAC. The consultant will be specifically expected to:

1. Collect and analyse the existing reports on the demands of packaging materials and packages in Arab countries, prepared by the Moroccan Packaging Institute and the Arab Industrial Development Organization (AIDO), as well as any other existing documents in connection with the subject.
2. Prepare terms of reference for the enlargement and/or completion of the existing data and studies by a consulting firm to be contracted later on.
3. Give advice and co-operate in related studies in specific Arab countries if called for by the Project Manager, and time is permitting.

The consultant will also be expected to prepare a final report, setting out the findings and recommendations to the Arab Industrial Development Organization 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 technologist with a university degree or equivalent experience, and specific experience in the organization and/or execution of packaging surveys.

**Language** English (French and/or Arabic an asset)

**Background information** The Arab Industrial Development Organization, as implementing agency for the Arab Governments, and UNIDO as executing agency for the United Nations, are jointly carrying out a project with the aim of establishing an Arab Regional Packaging Centre.

For this purpose the Moroccan Packaging Institute (Institut Marroccain de l'Emballage et du Conditionnement - IMEC) is undertaking an extension and up-grading of some important capacities in order for it to be converted into ARPAC. 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 their areas of responsibility. However, an integrated workplan was commonly elaborated by AIDO and UNIDO in consultation with the United Nations Development Programme (UNDP).

The study of forecasts of packaging demands, as a first step for planning the development of the packaging industries in the Arab countries has been awarded high priority by AIDO.

14 June 1984

Briefing Note

Project No: DP/RAB/83/020 - Establishment of the Arab  
Regional Packaging centre  
Post: 11-52 - Consultant in Packaging Surveys  
Name of incumbent: Mr. Ram K. Chowdhary  
Date of debriefing: 7 June 1984  
Main subjects discussed

One copy of the project document as well as one copy of the work plan which was elaborated later, were given to the consultant. The project 's background, aims and UNDP/UNIDO inputs were discussed.

Regarding the project management Mr. Chowdhary was informed that Mr. Abdelhaq Bennouna, Director General of the Moroccan Packaging Institute was assigned to AIDO as Project Director and assumed responsibility for the whole management of the project in consultation with the backstopping officer at Vienna, due to the non existence of a UNIDO assigned Chief Technical Adviser in the field.

The participation of AIDO in the financing of the project with 50% of the total, consequently US\$ 600,000 in addition to the UNDP US\$600,000, was discussed in connection with AIDO's own administration of the concerned inputs without UNIDO interference on the related financial management - in spite of the co-ordination and mutual support of the AIDO and UNIDO sponsored activities.

In connection with the scope and duties of the mission the consultant was informed about the existence of some reports on studies related to forecasts of packaging consumption in specific Arab countries. Regarding the studies previously carried out under AIDO sponsorship, the backstopping officer recommended that Mr. Chowdhary should travel to Baghdad together with Mr. Bennouna, in order to get acquainted with the related reports which exist at AIDO headquarters and to discuss the respective conclusions and recommendations with Dr. Shlash, Head of the Sectoral Studies Department to whom Mr. Bennouna directly reports.

AIDO's operational support to the consultant's mission, such as in obtaining the agreement and co-operation of the Governments of some Arab Countries regarding carrying out packaging surveys in their territory, could be simultaneously discussed and agreed upon. In this connection reference was made to the request for the nomination of National Arab Packaging Committees and with an exact address of each one's secretariat for ease of future contact on a continuous basis.

Mr. Chowdhary was specifically instructed to take priority action on the preparation of the terms of reference for the study of the forecasts of packaging consumption in the Arab Countries as a whole, by a consulting firm. He was given copies of similar terms of reference

which were already elaborated for Mexico and Brazil, as well as of the related final reports. Bearing in mind the need for the co-operation of several specialists to carry out the surveys in various Arab Countries and Mr. Chowdhary's experience of similar surveys in India, the backstopping officer would support the consultants performance of the concerned survey tasks in some of the countries, in co-operation with the consulting firm if requested by the Project Director.

The backstopping officer recommended that an extensive and very detailed briefing with Mr. Bennouna be undertaken as soon as the consultant arrives in Casablanca. Regarding the question of his communication in French speaking Arab Countries, Mr. Chowdhary mentioned the fact that he had also spoken Arabic during his early youth and may be able to manage to speak it again.

Mr. Chowdhary will travel directly from Bombay to Casablanca in about two weeks time and come to Vienna only for de-briefing at the end of his mission. The present briefing was carried out in connection with his debriefing after a mission in Mexico.



J. Belo  
IO/AGRO

cc: Mr. Petitpierre, RR, UNDP Morocco  
Mr. Bennouna, Director General, IMEC  
Mr. Chowdhary, c/o UNDP, Rabat, Morocco  
Ms. Mennel  
Ms. Kubka  
Registry



APPENDIX II  
- EXPANDED TERMS OF REFERENCE

ARPAC PROJECT

Date : July 3<sup>rd</sup>, 1984  
From : R.K. CHOWDHARY - Consultant in Packaging Surveys  
To : Mr Abdelhaq BENNOUNA - Director Genral I.M.E.C./Morocco

The undersigned had the privilege to meet the Director General on the 28<sup>th</sup> June, 1984 and discussed in details the mission objectives and the output expected out of the present assignment. These are set out as under :

A/ DEMAND FOR PACKAGING MATERIAL AND PACKAGES :

Study, analyse and assimilate the work already done on the subject at the national and regional levels. In the context, reference material / reports of missions carried out by M/S STURE V. OSLUND, SAMIR EL SAYED, ALLEN JONES, ALEXANDER SOLTAN and JOHN SALISBURY were referred to as illustrations :

B/ SURVEY OF PACKAGING INDUSTRY AND DEMAND FORECASTS :

Elaborate detailed terms of reference for a survey of packaging industry to be carried out in the region with a view to unfold in particular :

- a) current status of the packaging material and package producing/ manufacturing / user industries .
- b) demand forecasts for packaging material / packages in the next 3 to 5 years in each country by end use and establishment of norms of consumption.
- c) highlight strategies - technical, technological and commercial to meet the targets of demand forecasts.
- d) identify measures to upgrade packaging technology.

C - INTEGRATED PLAN FOR DEVELOPMENT OF PACKAGING INDUSTRY -  
FRAME OF REFERENCE

To prepare a draft frame of reference for formulation of an integrated plan for the development of the packaging industry in the region. Specific emphasis on the need for conducting packaging surveys as an information input for the plan is to be highlighted and amplified.

D/ PILOT SURVEY OF PACKAGING INDUSTRY

To conduct a pilot survey for a selected segment of the packaging industry in one of the member countries. This survey, among other things, may prove to be useful as a forerunner to the main survey. D.G. MR BENNOUNA suggested the name of Jordan for the survey work.

E/ RESOURCE CONTACT POINTS FOR SURVEY

For the main survey work, as well as for effective coordination in future, it is important to locate resource points for collection of information on the packaging and related industries in the member countries.

It was opined that the consultant should prepare a programme of visits to some of the member countries with the intention of preparing the ground for the main survey. During these visits, possible resource points like Chambers of Commerce / Government Departments / Institutions, Consultant Bodies, etc... may be identified to help accelerate the pace of field research component of the survey. These contacts may also be beneficial during the subsequent phase particularly at the time of launching the main survey by a contracting firm and the consultant with coordinating guidance from the D.G. MR BENNOUNA (who was gracious enough to welcome the approach).

Appendix III

SEMINAR ON ROLE OF PACKAGING IN PROMOTION OF TRADE EXCHANGE

ILLUSTRATIVE LIST OF PAPERS

- 1/ Role of packaging in the marketing of processed fish - Arab fish industry union.
- 2/ Plastic packaging for food industry in Iraq - AIDO, DR. SAMI
- 3/ Packaging role in promoting and exporting food products - DR. F.JABR - Arab federation for food industries.

COUNTRY PAPERS OF :

4. Morocco : Metal and glass packaging
5. Algeria : Packaging in Algeria
6. Mauritania : Present status and future needs.
7. Jordan : Packaging in Jordan.
8. Role of packaging in industrial products, agricultural and agro-industrial products.  
(fresh fruits and vegetables) FALI A & JAWAD Morocco - office of commerce & export.
9. Corrugated fibre board boxes for transporting and exporting agricultural and agro-industries products - IBRAHIM AL LARJIS IMEC.
10. Printing - establishment of a new project - NAMIR ABDELAL of Rania juice Jordan.



6. SOURCE OF SUPPLY	<u>LOCAL</u>		<u>IMPORTS</u>	
	Qty	Value	Qty	Value

7. COUNTRY OF IMPORT :	<u>MATERIAL TYPE</u>	<u>Quantity</u>	<u>Value</u>
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

8. Percentage Wastage in Production  
(Process Waste , Storage, ....)

9. QUALITY CONTROL FACILITIES

	<u>GOOD</u>	<u>AVERAGE</u>
LABORATORY	<input type="checkbox"/>	<input type="checkbox"/>
Trained Technicians	<input type="checkbox"/>	<input type="checkbox"/>
Control Systems	<input type="checkbox"/>	<input type="checkbox"/>

Percentage rejection                      Average

10. List five factors that can further improve quality standards of packaging and the assistance you need thereof :

11. SALES TURN OVER BY MAJOR CUSTOMERS

A. Total                      ,                      VALUE

B. Customer Group

Food                      ,  
Chemical  
Cosmetics  
Phar  
Others

12. ARE YOU SATISFIED WITH SPECIFICATIONS OF PACKAGING MATERIAL ;

	YES	NO
PURCHASED	<input type="checkbox"/>	<input type="checkbox"/>

If 'no' what improvements do you suggest

13. Relationship of PACKAGING COST TO  
your PRODUCT (ex. factory) cost

- Retail / Unit PACKS (if applicable)

- Transport/Bulk  
Packs

14. Nature of PACKAGING Problems encountered

Package failures :

INSUFFICIENT SPECIFICATIONS

NON OBSERVANCE OF SPECIFICATIONS

PACKAGING COST HIGH

Others (pl. Specify)

15.-YOUR PLANS FOR MODERNISATION

Renovation of PLANT AND EQUIPMENT  
during next 5 years :

-When was the last renovation done :

16. DO YOU PLAN TO EXPAND DIVERSIFY YOUR ACTIVITY

YES  NO

if yes please specify how and when

17. Your forecast of production  
for the next five years  
and rate of growth

1st      2nd      3 rd      4th      5th

18. IS THE PACKAGING COST RISING IN YOUR REGION  
WHAT FACTORS ARE RESPONSIBLE FOR THIS RISE

High MATERIAL COST :

- " PROCESSING COST
- " IMPORT DUTY
- " PRODUCTION WASTE
- " WAGES
- " ENERGY COST
- " LOW PRODUCTIVITY
- " OTHERS PLEASE SPECIFY

19. Do you have trained and qualified specialist  
in PACKAGING (pl. specify)

20. What types of complaints you receive from your Customers

21. Forecast of Demand

for consumption of PACKAGING  
Material / next five years  
PACKAGES

MATERIAL / PACKAGES

year	Qty	Value
1st		
2nd		
3rd		
4th		
5th		

APPENDIX V  
SURVEY OF PACKAGING INDUSTRY

COMMODITIES / FRESH PRODUCE

1. NAME AND ADDRESS

2. COMMODITIES / FRESH PRODUCE  
 HANDLED EVERY YEARS

	<u>PRODUCT</u>		PACKAGE TYPE IN USE	PACKAGE TYPE <u>QTY</u>	<u>VALUE</u>	SOURCE LOCAL/IMPORT
	<u>Qty</u>	<u>Value</u>				
Cereals						
Pulses						
Sugar						
Salt						
Oil						
-						
-						
-						
-						
-						

3. Annual EXPORTS

	<u>ITEM</u>	<u>Qty</u>	<u>Value</u>	Type of Package and Size	PACKAGE Qty - Value	COUNTRIES EXPORTED TO
	1-					
	2-					
	3-					
	4-					
	5-					

4. Type of PACKAGING

PROBLEMS ENCOUNTERED  
 (Please Elaborate)

Material  
 Design  
 Construction/  
 Strucutre  
 Packaging Vost  
 Damage / losses  
 Others (specify)

DOMESTIC/MARKET

EXPORT

5. What are your plans for improving packaging for exports and domestic  
 Market







- Edible Oil
- Beverages
- Other Alcoholic drinks
- Carbonated Drinks

3 - ANNUAL EXPORTS                    ITEM                    QUANTITY                    VALUE                    COUNTRIES EXPORTED TO

- 1/
- 2/
- 3/

Domestic Market

Export

4 - Type of Packaging Problems (please elaborate)

Design ...

MATERIAL  
Construction/Structure  
Damage / losses :

PACKAGING COST  
Others (please specify)

5 - What are your plans to improve packaging standard for exports and domestic market

6 - DAMAGE / SPOILAGE RATE  
OF YOUR PRODUCTS

7 - What type of PACKAGING STANDARDS YOUR PRODUCTS COMPARE TO (Please specify with reference to the standard)

Your Country

Importing Country

Regional Standard

8 - Relationship of PACKAGING COST TO EX-FACTORY COST OF PRODUCT

Product

Packaging cost as Percentage of product cost

1/  
2/  
3/  
4/

9 - In Plant facilities for QUALITY CONTROL, and Percentage acceptance rate

Good

Average

Percentage Acceptance :

10 - ANNUAL CONSUMPTION OF TRANSPORT BULK PACKAGES

	Quantity	VALUE	SOURCE OF SUPPLY	
			Local	IMPORT
			(with country of Origin)	
			Qty	Value
Corrugated BOXES				
Wooden CRATES				
Wooden Boxes				
SACKS PLASTICS				
SACKS PAPER				
SACKS TEXTILES				
STEEL DRUMS				
PLASTIC - DRUMS				
- JERRYCANS				
- PAILS				
Glass Carboys				
PALLETS				
Others (please specify)				

11 - How do you assess PACKAGING MATERIAL QUALITY AND SPECIFICATION AT THE POINT OF PURCHASE AND ACCEPTANCE RATE

12 - Future Forecast of Production 1st Year

Product

1/ Qty  
Value

2/ Qty  
Value

3/ Qty  
Value

13 - Future Forecast of Consumption of Packaging 1st Year  
Material / Package Type

1/ Qty  
Value

2/ Qty  
Value

14 - ANY OTHER SUGGESTION / COMMENT

2nd

3rd

4th

5th

- 76 -

2nd

3rd

4th

5th







Appendix VIII

RESPONDENT

COUNTRY .....

ORGANISATION .....

PACKAGING MATERIAL PRODUCTION/ IMPORTS

<u>Year</u> <u>Material</u>	<u>PACKAGING MATERIAL PRODUCTION/ IMPORTS</u>					
	1984	1983	1982	1981	1980	1979
1. <u>Wood Qty</u> (000 Cu Metres)						
Value (Million)						
2. <u>Paper and Board Qty</u> (000 Tonnes)						
Value (Million)						
3. <u>Metal</u>						
<u>Tin Qty</u> 000 tonnes						
Value (Million)						
<u>Al/focl Qty</u> (000 tonnes)						
Value (Million)						
<u>AL-Sheet Plate Qty</u> (000 tonnes)						
Value (Million)						

.../...

Material \ Year	1984	1983	1982	1981	1980	1979
<u>M. Steel drums &amp; Pails Qty</u> (000 Tonnes) Value ( million)						
4. <u>Glass</u>						
5. <u>Plastics</u>						
etc...						

LIST OF SPECIFIC CONTACTS WHO COULD ASSIST IN THE  
SURVEY WORK

- |  |  |
|--|--|
| IMEC for over all assistance Casablanca  | MR.A. BENNOUNA DG  |
| Arab Industrial Development  | MR. A. BELKORA P.D.G.  |
| Organisation Baghdad Iraq  | DR. SAMI R. Secretary General.   |
| 2. Arab Federation for Food Industries<br>P.O. Box 13025 ALWIAH Baghdad<br>telephone 7760195 | DR. FALAH S. JABR Secretary General                                      |
| 3. Arab Federation for Engineering Industries<br>P.O. Box 509, Baghdas<br>telephone 7186204  | MR. MUSTAPHA A.K. SALIH -<br>Secretary General                           |
| 4. Arab Federation for pulp<br>Paper Industries Baghdad                                      | MR. I.A. AL JARJIS<br>Secretary General.                                 |
| 5. Gulf Organisation for<br>Industrial Consulting<br>P.O. Box 5114, Doha Qatar               | 1/ DR. MOHAMED WAGIH BADAWI<br>2/ MR. ABDEL RAHMAN MEDANI                |
| 6. Ministry of Industry and Trade<br>Amman Jordan<br>telephone 663191                        | 1/ DR. AKRAM KARMOUL - Director<br>2/ MR. IBRAHIM KAKISH                 |
| 7. Arab Organsiation for<br>Standardisation and Metrology<br>P.O. Box 926161 Amman Jordan    | 1/ DR. ADNAN ANNI - Assist Secretary<br>General.<br>2/ MR. HASSAN SAOUDI |

<u>COUNTRY</u>	<u>CONTACT</u>	<u>ADRESS</u>
15/ Tunisia	MR. SALAH EL FASSI	Assistant Director in the Ministry of Industry 10, rue Av. Janvier Tunis.
16/ Algeria	DR. SLASH	Arab Industrial Development organisations P.O box 26, Allendele Paradouydra Alger - Algeria.
17/ Sudan	MR. TAIB MOHAMED EL KARAC	Packaging Manager, Blue nil Khartoum Co P.O Box 385 Khartoum.
18/ R.D. Yemen	MR. NASSER SAID ABDELLAH	General Manager Yemenite Cie of Cosmetics Adan.
19/ Saudi Arabia	MR. MOHAMED MUSTAPHA RACHIDI	Trading head - Ministry of Industry. P.O Box 5926 Jeddah
20/ Oman	MR. KHAMISS MOBARAK EL KAYOUM	Industrial engineer Ministry of Trade and Industry P.O box 550 Oman.
21/ Labanon	MR. JEAN ABOU NANM	National packaging committee Beirut.
22/ Mauritania	MR. SONA OULD ADIB	General Manager of S.I.P.E. P.O Box 438 Novarchni
23/ Palestine	MR. ADELLAH HAJANI	Engeneer - Karmal studies and Consultants Institution Amman, Jebel Lovaydibah P.O Box : 28190 Amman.

- |  |  |
|--|--|
| 8. Jordan Chamber of<br>Commerce Amman   | MR. ALI DAJANI- President and<br>Chairman National Committee for<br>Packaging                                |
| 9. Amman Chamber of Industry<br>P.O. Box 1800<br>telephone 44569               | MR. JASIN I SHAHZADA - Assistant<br>Director.  |
| 10/ Directorate of Industrial<br>Entreprises and Programming<br>Tunis, Tunisia | 1/ MR. HABIB LAOUSSI - Director<br>2/ MR. H. TOUMI - Deputy Director.  |
| 11/ National Centre for Industrial<br>Studies Tunis                            | 1/ MR. S. MARRAKCHI - Deputy Director<br>General<br>2/ MR. B. MOHAMED- Chief Division<br>of Food Industries. |
| 12/ Nation Society of Cellulose<br>& Alfa Paper Socopapiers<br>Tunis - Tunisia | MR. N. JAZIRI - Director   |
| 13/ Ministry of National Economy<br>Tunis - Tunisia                            | 1/ MR. BELAID - Director General<br>2/ MR. A. CHABOUNI - Director of<br>Food Textiles & Other Industries.    |
| 14/ Arab Federation of Fish Producers  | Telex 3327 a' fish ik Bagdad Iraq  |

استبيان  
حول المنتجات الصناعية المستهلكة لعمود  
ومستحبات الدهان والسقفية بدول الخليج العربية

\*\*\*

Questionnaire  
on the Industrial Enterprises  
Consuming Packaging Materials  
in the Arab Gulf State

Name of Country	: .....	اسم الدولة	: .....
Organization/Inter- prise/Company	: .....	المؤسسة / المنشأة / الشركة	: .....
Main Activities	: .....	الأنشطة الرئيسية	: .....
Date of completing the Questionnaire	: .....	تاريخ استكمال الاستبيان	: .....
Reply to this Questionnaire may be addressed to		الرجاء ارسال الرد على هذا الاستبيان على العنوان التالي	
Mr. Hanif Jassim Dabbin Assistant Secretary General GIPC, P.O. Box: 5114 Doha - Qatar		السيد / محمد حاتم ديبين الأمين العام المساعد مطبة الخليج للاستشارات الصناعية ص.ب : 5114 الدوحة - قطر	

ملحوظة : يمكن ارفاق مزيدا من الابحاث والمعلومات المكتملة .

N.B: Additional pages may be used as necessary.

1. GENERAL INFORMATION		1 - بيان عامة :
Firm Name	: .....	اسم المنشأة :
Main Activity	: .....	النشاط الرئيسي :
Address	: City : .....	العنوان : المدينة :
	: Country : .....	: الدولة :
Cable Address	: Telex : .....	العنوان البرقي : التلخيص :
	: Tele. : .....	: الهاتف :
Date of Formation	: .....	تاريخ التأسيس :
Date of Starting Production	: .....	تاريخ بدء الانتاج الفعلي :
Ownership	: .....	الملكية :
	Max. Priv. Gov.	حكومي خاص مختلط
Capital	: .....	رأس المال :
Total Number of Employees	: .....	اجمالي عدد العاملين :
Production Mix.	: .....	شكله الانتاج :
Designed Capacity	: .....	الطاقة التصميمية :
Actual Capacity	: .....	الطاقة الفعلية :
Sales Volume	: .....	حجم المبيعات :
Technology used in Production	: .....	تكنولوجيا :
	: .....	الانتاج :
Standard Specifications Applied	: .....	المواصفات :
	: .....	القياسية المطبقة :
Date	: .....	التاريخ :





مواد ومنتجات التغليف والتغليف المستخدمة  
PACKAGING MATERIALS

المصدر ومناخه Source Address محلي / مسمود Local/Imported	المواصفات Specifications الشكل / الأبعاد Shape/Dimensions	سعر الوحدة Unit Price	الوحدة Unit			الكمية المستخدمة Quantity	المادة Material
			عدد No.	حجم Volume	وزن Weight		





JORDAN JUICE CO.

Forecast :

1st year	2.6 million JD
2nd "	2.8 " "
3rd "	3.0 " "

Suggestions :- Need facilities for testing of packaging material

- Import duty on natural pulp for fruit juices should be scaled down from 50% to 5 percent.
- 6 colour printing facilities should be available in the country.

Future growth : Owner is willing to put up a 6 colour printing unit in Amman.

AGRICULTURAL PRODUCTS MANUFACTURING CORPORATION AMMAN  
ESTABLISHED IN 1974

Installed capacities : Tomato paste/line : 2 500 tonnes fresh Tomato/month  
Jams : 30 tonnes/month  
Pickles & hammos : 40 tonnes/month

Utilised capacity : 50 percent

Source of Raw Material (packaging) : Tinsplate imports  
300 tonnes/year for captive consumption.

Sales Turnover : \$ 4 million  
1983

Product mix :	410 gm pack tomato paste	60%
Current	5 kg " "	10%
	2 kg " "	10%
	200 gm " "	20%

Production 1983 : 3 000 tonnes

Employment : 100  
Managerial - 1 Supervisory 6  
Skilled -50 Unskilled 43

Quality control : Inadequate facilities for testing of packaging material  
main testing done by visual inspection.  
- 2 person in quality control.

Raw Material

Specification testing : no facilities available

Packaging cost to :

Cost of product :

410 gms tomato	paste pack	- 25%
2 kg	" " "	- 15%
5 kg	" " "	- 11%

Forecast of packaging 1st year	300 tonne tin plate
material 2nd year	350 tonne tin plate
3rd year	370 tonne tin plate
4th year	400 tonne tin plate
5th year	420 tonne tin plate

Problem areas : -Lack of trained staff

-Scrap generation in the can making unit is very high  
6 percent.

-No advice available for problem sowing areas.

-Low paid staff no incentive to work.

-Low level of skill.

Metal Can Manufacturing co : Established in 1976

Installed capacity : 1.5 million cans single shift basis.

Utilised capacity : 5 million cans

Source of raw material : Import of tin plate from U.S.A. & Japan.  
( packaging) 2 000 tonnes annually.

Sale Turnover : \$ 3 million.

Product mix : Coffee cans - 5%  
Cans for ) - 95%  
Chemical industry )  
Closures )

Employment : Managerial 11 supervisory 8  
Skilled 30  
Unskilled 10

Quality control : Dept. headed by foreman

Raw material specifi- No facilities  
cation testing

Problem area : Migratory foreign workers/lack of technical  
staff.

Trained packaging : One person trained on the job.  
specialist.

Forecast : Ist to 3<sup>rd</sup> year :\$0.60 million & every year.  
and there after\$102 million every year.

Exports : IRAQ & SYRIA.

Suggestions : Require training for our skilled man power.  
Centralised facilities for material testing  
are required.

MINERAL WATER CO : AMMAN - ESTABLISHED IN 1978

- Installed capacity : ( 36 million litre)
- Utilised capacity : 24 million litres
- Source of raw material: PVC food grade from Belgium 700 tonnes per annum  
(packaging) for manufacture of bottles.
- Sales turnover : 1 million JD of mineralwater bottles.
- Product mix : 95 percent in bottled water;
- Shelf life : One year

Employment :      Managerial 13  
                      Skilled     22  
                      Unskilled  8

Quality control: Drop test on bottles  
                      weight of empty bottles  
                      integrity test for PVC bubbles

Integrity of seal test for closures.

Raw material : no facilities specification  
packaging

Weight of empty bottles : 52 mgs

Production cost :             80-90 fils per bottle  
of bottles filled

Relationship of :             20-25 percent is packaging cost  
product to packaging cost



Mineral Water Co. (contd.)

Forecast : 1st year 1100 tonnes

Packaging 2nd year 1100 "

Material 3rd year 1200 "

Exports : Saudi Arabia 7.5 million litres

Other packaging material used : Corrugated fibre board boxes  
and shrink film, quantities not  
available.

Problems areas : Cost of Bottle is high.

Compression strength of CF box is weak.

-- THE VALUE OF AGRICULTURAL AND INDUSTRIAL PRODUCTION --  
-----  
(IN MILLION JD)

	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
Fish :	43.6	64.6	76.6	85.3
Tobacco:	4.0	3.0	3.0	1.1
Vegetables :	353.4	375.7	413.4	409.4
Fruits :	89.7	161.4	156.0	159.6

INDUSTRIAL PRODUCTS

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>% change</u> 1982 over 1981
Tobacco & Cigarettes	226.9	255.2	249.9	- 2.1
Cement :	159.5	168.5	137.8	- 18.2
Soapy detergents & Soap	416.1	443.2	390.2	- 12.0
Plastic :	308.3	354.5	345.5	- 2.5
Food Industries :	218.0	198.6	213.6	7.6
Carbonated Drinks :	253.3	271.4	142.5	- 47.5
Alcohols :	127.9	174.9	184.5	5.5
Paints :	308.3	354.5	345.5	- 2.5
Medicine:	274.0	272.1	-	-

SOURCE MINISTRY OF INDUSTRY AND TRADE JORDAN AMMAN

APPENDIX XIII

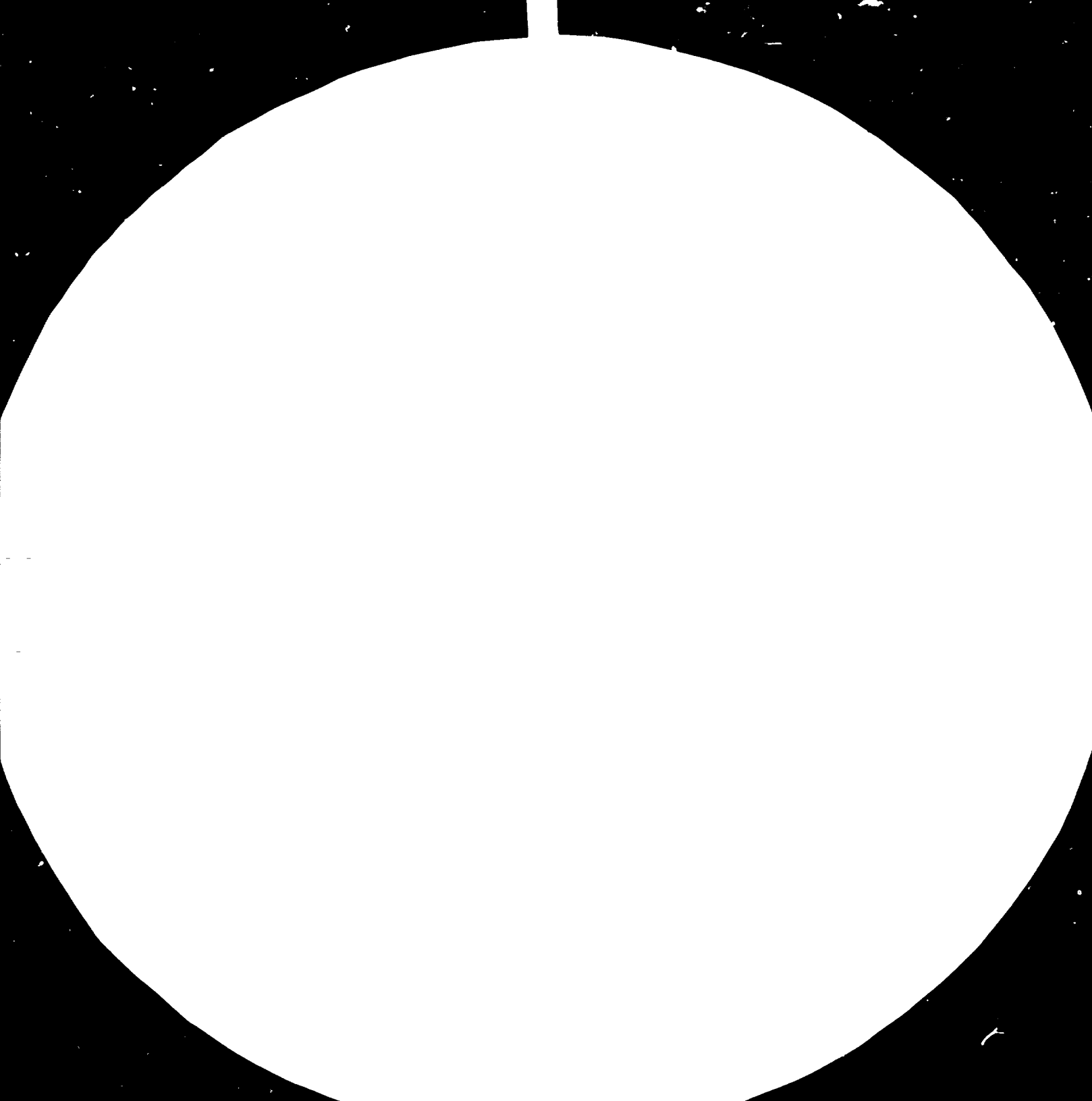
Annex to the Project Document  
of

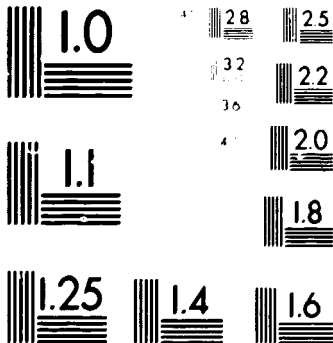
DP/RAB/83/020/A/01/37

Establishment of the Arab Regional Packaging Centre

PROJECT WORKPLAN

11 January 1984





MICROCOPY RESOLUTION TEST CHART  
 NATIONAL BUREAU OF STANDARDS-  
 STANDARD REFERENCE MATERIAL 1010A  
 ANSI and ISO TEST CHART No. 2



B. Workplan details by activity

<u>Activity</u>	<u>Location</u>	<u>Starting date and duration</u>
1. Seminar on packaging technology for selected food products and ways and means of regional co-operation	Amman	14 April 1984 six days
1.1 Selection of host organization and working out the programme	Baghdad	January 1984 one month
1.2 Selection of regional lecturers and one UNIDO consultant	Casablanca / Baghdad	February 1984 one month
1.3 Invitation of participants from the Arab countries	Baghdad	February 1984 two weeks
1.4 Collection of lectures and other training aids	Various	March 1984 one month
1.5 Carrying out of the seminar	Amman	14 April 1984 six days
1.6 Preparation of the report, conclusions and recommendations	Casablanca	May 1984 one month
2. Seminar on packaging design and marketing (export of agricultural and agro-industrial products)	Casablanca	23 July 1984 six days
2.1 Preparation of programme and side memoire	Casablanca/ Vienna	February 1984 one month
2.2 Selection of regional lecturers and one UNIDO consultant	Casablanca/ Baghdad	March 1984 one month
2.3 Invitation of participants from the Arab countries	Baghdad/ Vienna	March 1984 two weeks
2.4 Collection of lectures and other training aids	Casablanca	May 1984 one month
2.5 Selection of participants; travel and DSA arrangements	Casablanca/ Vienna	May 1984 one month
2.6 Carrying out of the seminar	Casablanca	23 July 1984
2.7 Preparation of the report, conclusions and recommendations	Casablanca	September 1984 one month
3. Course on technical specification, economic analysis and quality control of packages and packaging materials	Casablanca	12 November 1984 ten days
3.1 Preparation of programme and aide memoire	Casablanca	April 1984 one month
3.2 Selection of regional lecturers and one UNIDO consultant	Casablanca/ Baghdad	May 1984 two months
3.3 Invitation of participants from the Arab countries	Baghdad	May 1984 one month

	<u>Activity</u>	<u>Location</u>	<u>Starting date and duration</u>
3.4	Collection of lectures and other training aids	Casablanca	September 1984 one month
3.5	Selection of participants; travel and DSA arrangements	Casablanca/ Baghdad	September 1984 one month
3.6	Carrying out of the course	Casablanca/	12 November 1984 ten days
3.7	Preparation of the report, conclusions and recommendations	Casablanca	December 1984 one month
4.	Seminar on opportunity and parameters of joint ventures for packaging industries and regional and inter-country co-operation	To be decided later on*	March 1985* six days
4.1	Preparation of programme and aide memoire	Casablanca/ Vienna	September 1984 one month
4.2	Selection of regional lecturers and one UNIDO consultant	Casablanca/ Baghdad	October 1984 two months
4.3	Invitation of participants from the Arab countries	Baghdad/ Vienna	October 1984 one month
4.4	Collection of lectures and other training aids	Casablanca	January 1985 one month
4.5	Selection of participants; travel and DSA arrangements	Casablanca/ Vienna	January 1985 one month
4.6	Carrying out of the seminar	See above *	March 1985* six days
4.7	Preparation of the report, conclusions and recommendations	Casablanca	April one month
5.	Seminar on food packaging for local and export markets * Location, date and organizational timetable to be fixed later on	*	*
6.	Course on packaging technology and transport packaging techniques	Casablanca	15 July 1985 six days
6.1	Preparation of programme and aide memoire	Casablanca/ Vienna	December 1984 one month
6.2	Selection of regional lecturers and two UNIDO consultants	Casablanca/ Baghdad	January 1985 two months
6.3	Invitation of participants from the Arab Countries	Casablanca/ Vienna	January 1985 one month
6.4	Collection of lectures and other training aids	Casablanca	April 1985 two months
6.5	Selection of participants; travel and DSA arrangements	Casablanca/ Vienna	May 1985 one month
6.6	Carrying out of the course	Casablanca	15 July 1985 six days
6.7	Preparation of the report, conclusions and recommendations	Casablanca	September 1985 one month



	<u>Activity</u>	<u>Location</u>	<u>Starting date and duration</u>
7.	Course on packaging technology and transport packaging techniques * Location, date and organizational timetable to be fixed later on	*	*
8.	Two study tours of 8-10 participants each, to food processing and packaging research centres, industries and international exhibitions. * Programme and organizational timetable to be fixed later on	*	*
9.	Fellowships in packaging technology, manufacturing techniques and quality control	Various	October 1984 Continuous
10.	Fellowships in quality control, design and production techniques - Implementation dates of each fellowship will be pending the receipt of the nomination forms	Various	April 1984 sixteen months
11.	Establishment of a regional packaging community network		
11.1	Request of nomination of each Arab Country National Packaging Committee	Baghdad	January 1984
11.2	First reminder for the nomination above	Baghdad	April 1984
11.3	Second reminder for the nomination above	Baghdad	June 1984
11.4	Meeting of the National Packaging Committees * Location and date to be fixed later on	*	*
12.	Publication of a quarterly packaging bulletin in Arabic.		
12.1	Purchase, delivery and installation of equipment	Vienna/ Casablanca	January 1984 nine months
12.2	Preparation and printing of the bulletin	Casablanca	October 1984 Continuous
13.	Elaboration of a thesaurus in Arabic for classification of packaging information data.		
13.1	Preparation of the thesaurus in Arabic, in consultation with related specific institutions	Casablanca	April 1984 12 months

	<u>Activity</u>	<u>Location</u>	<u>Starting date and duration</u>
	13.2 Publication of the thesaurus	Casablanca	April 1984 four months
14.	Production of an audio-visual packaging training course in Arabic		
	14.1 Search of a consulting firm for the technical elaboration of the course	Vienna	February 1984 three months
	14.2 Preparation of the texts in Arabic	Casablanca	May 1984 three months
	14.3 Execution of audio-visual course	Casablanca	August 1984 five months
15.	Production of a film on food packaging in Arabic	Vienna/ Casablanca	February 1984 eleven months
	- same schedule as for activity 14.		
16.	Preparation of technical guidelines for regional packaging standards for Arab countries in the fields of transport packaging and food packaging		
	16.1 Establishment of a standardization work programme in co-operation with ASMO	Amman/ Casablanca	April 1984 one month
	16.2 Selection of packaging standards of priority interest for adaptation to the Arab countries.	Casablanca	May 1984 two months
	16.3 Final elaboration and proposal of specific packaging standards, in consultation with ASMO and concerned Arab federations.	Casablanca/ Amman/Baghdad	August 1984 Continuous
17.	Surveys of package demands and inventories of existing production capacities of related packaging materials		
	17.1 Collection of available reports and other data on the subject in co-operation with national and international organizations	Casablanca	April 1984 two months
	17.2 Planning of a general survey covering interested Arab countries	Baghdad/ Casablanca	May 1984 three months
	17.3 Carry out surveys in specific Arab countries within the frame of the general survey above.	Various	August 1984 five months

	<u>Activity</u>	<u>Location</u>	<u>Starting date and duration</u>
18.	Packaging materials and packaging machinery exhibition		
18.1	Preparation of the organizational programme and framework	Casablanca	March 1984 two months
18.2	Promotional and operational activities for the realization of the exhibition	Casablanca	May 1984 sixteen months
18.3	Realization of the packaging materials and packaging machinery exhibition * Precise date to be fixed later on	Casablanca	*
19.	Production of films on transport packaging and training courses on packaging technology in Arabic	Casablanca	January 1985 six months
20.	Techno-economic studies on opportunities for the development of specific packaging industries	Baghdad/ Casablanca	January 1985 Continuous

NOTE: Periodical revisions will be made in joint meetings of the co-ordination committee. The next meeting will take place in Casablanca during July 1984.

Appendix XIV

-- EXECUTION OF MISSION --

-----

- 27.06.84           Arrival Casablanca
- 28.06.84           Briefing at the Moroccan Institute of Packaging - discussion  
on Project Objectives with MR. A. BENNOUNA - DG, terms of  
Reference.
- 29.06.84           Briefing at UNDP office Rabat.
- 03.07.84           Review / analysis and familiarisation with mission reports  
of UNIDO'S experts.  
Discussions with MR. BASSIT : Head surveys & research IMEC.  
                  MR. HAMI : Chief documentation and information  
                  MR. CHAABANI : Head instruction and training deppt.  
                  MRS. BENNANI : Economic surveys and promotion.  
                  MR. SEGHROUCHI : Normalisation marketing deppt.
- 08.07.84           Review of statistical system Morocco.
- 10.07.84           Discussion with MR. BENNOUNA on survey methodology, coverage  
contact points, sampling frame desk research, revised terms  
of reference.
- 11.07.84           Participation in seminar specification for metal cans for  
packaging of vegetables and fish.  
Discussion with canning expert MR. FRANCOIS BOCHATON - on his  
views on metal can industry in Morocco.
- 12.07.84           Follow up actions - formulation of questionnaire programme of pilot  
&  
13.07.84           survey

16.07.84 Meeting with MR. PETIT PIERRE- Resident representative at Rabat.

18.07.84 Meeting with MR. BENNOUNA - DG IMEC pilot survey, problem dimension in Jordan ARPAC general activities.

23.07.84 Discussion with MR. J. BELO UNIDO & participation in seminar (role of packaging in promotion of trade exchange).

24.07.84 - Attended meeting of AIDO coordination committee and presented  
,  
the approach of the study on forecast of packaging material.  
to  
,

27.07.84 - In depth interviews of participants to the seminar.

28.07.84 Discussion with DR. F. JAHR - secretary general Arab Federation for Food Industries.

31.07.84 Literature survey and analysis of Directories - desk research

03.08.84 Visit to Rabat UNDP - Embassy of IRAQ

07.08.84 Field visits to Baghdad, Doha  
to  
26.08.84 & AMMAN

27.08.84 Analysis of data collected.

30.08.84

04.09.84 Meeting with MR. BENNOUNA - DG IMEC - Reporting on field visits and G.O.I.C.

07.09.84 DO

14.09.84 Meeting with MR. BENNOUNA on findings of mission  
Discussion about follow up work.

15.09.84 Analysis of data. Drafting of report.

18.09.84 Meeting with resident representative UNDP and DRR - Rabat

20.09.84 an oral presentation of on findings and recommendations.  
And follow up action - DG IMEC.

21/09/84 Discussion with IMEC Deptt - Heads MR. SEGHROUCHI, MRS.BENNANI on some relevant recommendations of the mission.

