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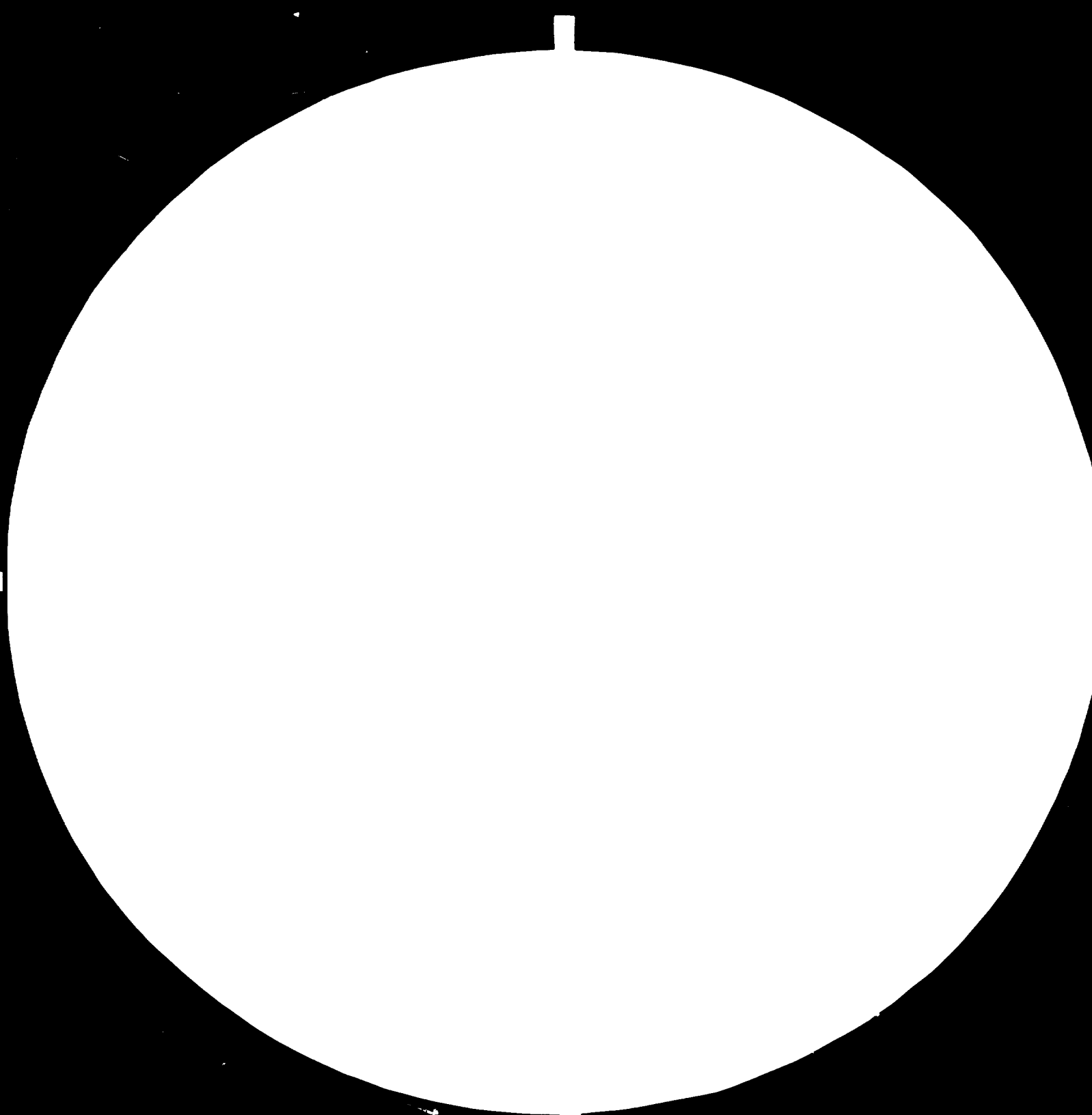
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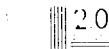
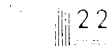
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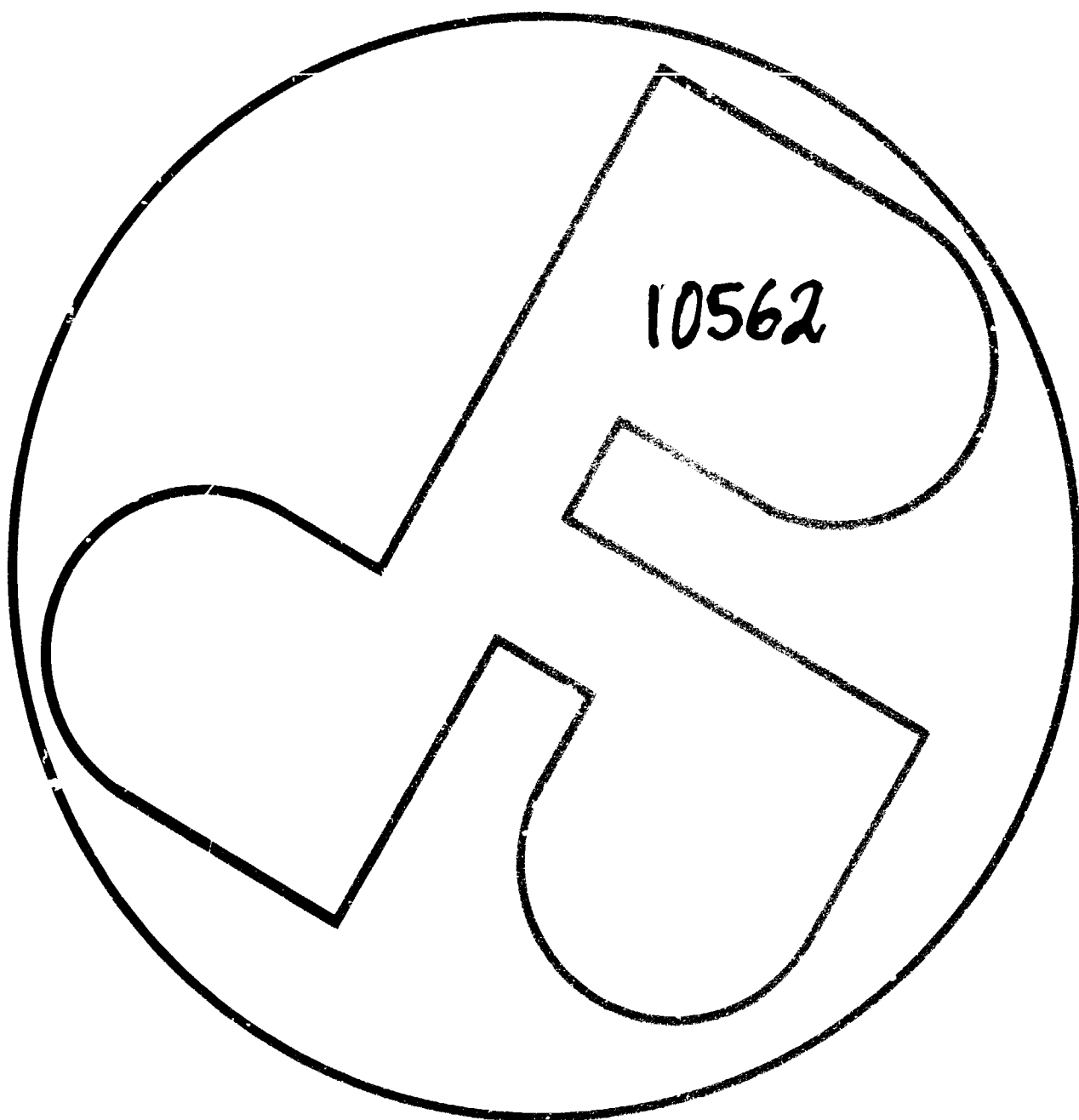


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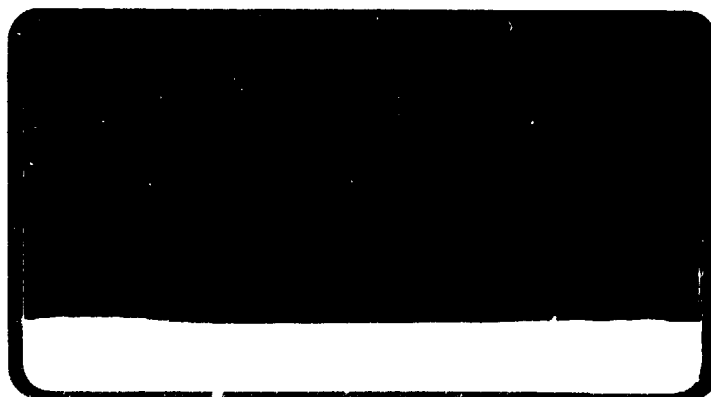
Resolution Test Chart (NBS 1963-A) (ANSI Z39.18-1983)

Resolution Test Chart (NBS 1963-A) (ANSI Z39.18-1983)



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**Pira**  
information  
training and  
techno-economics  
division



10562

M.Y. Gates

UNIDO CONTRACT (DP/MEX) 80/110DR

Organization of the Packaging Information  
Centre of the Mexican Institute of  
Assistance to Industry (IMA)

Final report : January 1981

UNIDO CONTRACT (DP/MEX)86/110DR

Organization of the Packaging Information  
Centre of the Mexican Institute of Assistance  
to Industry (IMAI)

Final report

M Y Gates, Project Leader  
Pira, Randall's Road, Leatherhead, Surrey, England.

January 1981

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packaging

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ORGANIZATION OF THE PACKAGING INFORMATION CENTRE OF THE MEXICAN  
INSTITUTE OF ASSISTANCE TO INDUSTRY

INTRODUCTION

During recent years the Mexican economy has grown in an impressive way. Nearly all types of consumer goods are manufactured locally and, in the industrial area, Mexico is self-sufficient in most of the basic processed materials, in many semi-manufactured products and in a number of the more highly developed and manufactured goods. Mexico is also virtually self-sufficient in the production of oil and refined petroleum. However, the country does not produce enough of the most important commodity of all - food for an ever-growing population. Not only does Mexico not produce enough food, but a large percentage (about 40%) of the supplies available are lost through spoilage and deterioration.

Mexico has recognized that packaging has an important role to play in the protection of raw and processed foods, as well as in the safe delivery of goods of all kinds to customers at home and overseas. The Mexican Institute of Assistance to Industry (IMAI) which has taken over the research and advisory role formerly performed by the Mexican Research Institute for Packaging (IMEE), is being merged with the National Laboratory for Industrial Development (LANFI), thus gaining access to improved facilities and resources.

Mexico has also recognized the need for an effective, efficient and up-to-date centre from which package makers and users can obtain information and data in support of their packaging operations, whether the design of packs, purchase of plant, equipment and materials, operation of packaging systems, testing and quality control, or marketing, sales, distribution and export activities, including information on companies, organizations, standards, legislation, statistics, etc. However, it was clear that the small library and information service, established by IMEE and continued by IMAI, would need considerable development if it were to become the national packaging information centre. In order to help, UNIDO provided funds for the project described in this report.

OBJECTIVES

The objectives of the project were twofold:

- (1) to organize a packaging information centre at IMAI based on existing personnel and equipment
- (2) to plan the future development of the centre

The work was to take into account

- (a) classification and indexing systems used in packaging information centres in other countries
- (b) the development of computer-based and on-line information systems

## METHOD

The work was undertaken in the following steps:

1. Users and their needs

The types of users of the proposed packaging information centre and their needs were discussed and agreed with IMAI. Users included scientific and technical personnel, industrial personnel (e.g. businessmen and managers) and students.

2. Subject coverage

Subject fields to be covered by the centre were listed, discussed and agreed with IMAI. All major subject fields relating to packaging were included from technical, scientific, economic, statistical, marketing, legislation, standardization and management points of view.

3. Information sources

The 'Pira guide to packaging information sources' was updated and given to IMAI. The guide covered directories, statistical sources, textbooks, periodicals, abstracting services, bibliographies, dictionaries, glossaries, organizations, standards organizations, publications dealing with standards and specifications, and legislation.

4. IMAI's information resources

The resources of the IMAI library were surveyed. Discussions were held with the Librarian, with the Head of the Packaging Department and with other IMAI staff to locate other resources within IMAI. Visits were made to the libraries of Cemiq (the Mexican Chemical Information Centre), UNAM (the National Autonomous University of Mexico) and Infotec-Conacyt (the national technical assistance service), and discussions were held with members of their staffs, to identify external information resources available to IMAI.

5. Classification and indexing systems

The larger and more developed packaging information centres throughout the world were contacted to find out what classification and indexing systems they were using. Note was made of the computer-based system used by Pira and of the proposed Anglo-German packaging database.

6. Organization of the packaging information centre

The original project proposal envisaged the establishing of a packaging information centre of a conventional type, with the option of computerization at some later unspecified date. However, three factors led to a major re-orientation of ideas:

- (1) plans were well advanced for the installation of a DEC VAX 11/780 minicomputer in LANFI. This computer was potentially suitable for database construction and information retrieval.
- (2) a major re-organization of the staff structure of LANFI and IMAI was imminent.
- (3) LANFI was participating in a UNIDO project for collecting statistical information on the Mexican packaging industry.

These three factors made the development of an integrated computerized database/databank feasible. With the agreement of the two project co-directors, the project leader concentrated on planning a centre based on the planned VAX 11/780 minicomputer installation, rather than on organizing a centre based on existing (and limited) resources.

7. Training of personnel

The library of IMAI proved to be well organized and run, so there was no need for training of the library staff. Although there was a need for the training of two of the IMAI packaging department staff to use the Cemiq online terminal, it was decided by the project co-directors that it would be better for Cemiq to do this training, to free more of the project leader's time for planning the future of the centre.

8. Future development plan

The project leader had discussions with the LANFI computer co-ordinator to ascertain the capabilities of the planned computer installation, the software likely to be used and the systems analysis/programmer support available. Discussions were also held with various members of the staff of LANFI-IMAI, as well as with the UNIDO team working on a packaging statistics project, to identify information and data handling activities which could be advantageously transferred to the minicomputer. The software available for DEC VAX machines was surveyed to identify potentially useful programs and several information retrieval packages capable of being implemented on minicomputers were reviewed.

A general concept of the future information centre was developed and a plan drawn up to show how it could be implemented, including requirements for staffing, training, equipment, etc.

9. Establishing operational links

Proposals for linking IMAI to other packaging information centres were prepared.

## USERS OF THE PACKAGING INFORMATION CENTRE AND THEIR NEEDS

There will be three main categories of users of the Centre:

1. Scientific and technical personnel, including chemical, electrical, electronic and mechanical engineers, packaging technologists, food technologists, chemists, biologists, biochemists and pharmaceutical chemists.
2. Industrial personnel, including businessmen and managers working in the packaging industry and package using industries.
3. Students from universities and technical colleges.

The first category will require access to all important scientific and technical information and data relating to packaging published throughout the world. This will include:

- a) books and periodicals
- b) abstracting services
- c) online databases
- d) bibliographies
- e) technical and scientific reports
- f) trade literature
- g) patents
- h) standards, specifications and test procedures
- i) conference proceedings
- j) theses

This will need to be supplemented with unpublished information.

The second category will require access to economic, statistical and marketing information relating to packaging, as well as legislation and regulations. This will need to cover at least Mexico and important overseas market areas such as the USA, West Germany, Brazil, Japan, Israel, Venezuela, Spain, Canada and the UK. The type of information required will include:

- a) economic information (trends, forecasts)
- b) statistics
- c) market reports
- d) legislation
- e) regulations

The second category will also require information on sources of supply of packaging materials, shipping containers, retail unit packages, package accessories, equipment and machinery. This will be contained in:

- f) directories
- g) catalogues (e.g. exhibition catalogues, manufacturers' catalogues)

A further need will be for information on the organization and management of packaging operations. This will be contained in:

- h) books
- i) periodicals
- j) conference proceedings

The third category will, depending on their subject specialization and academic level, require material selected from the lists for categories (1) and (2).

The first two categories of users of the Centre will require information in two main ways:

- 1) regularly, e.g. by means of bulletins, newsletters, selective dissemination of information, etc., to keep them aware of current developments.
- 2) on demand, i.e. in response to a specific need. Although some of the users may prefer to search for the information they require themselves, using the resources of the Centre, most will prefer to have the searching undertaken for them. Scientists and technologists often prefer to analyse and evaluate the information obtained as a result of a search themselves, but industrial personnel, who may have urgent schedules to meet, frequently do not have the time, in which case the analysis and evaluation should be done by the staff of the Centre.

The provision of library and information services is not in itself sufficient to solve industrial problems or exploit new technical and market opportunities, so there will be a further need for consultancy and advisory services supplied by suitable experts within or associated with the Centre.

SUBJECT FIELDS TO BE COVERED BY THE PACKAGING INFORMATION CENTRE

The aim of the Centre will be to cover all major subject fields relating to packaging from the technical, scientific, economic, statistical, marketing, legislation and standardization points of view. Manufacture, properties and use of materials, containers and packs will also be covered, where appropriate, as well as the management of packaging operations.

A matrix showing the subject coverage is given below:

	Technical	Scientific	Economic	Statistical	Marketing	Legislation	Standardization	Manufacture	Properties	Use	Management
Materials	✓	✓	✓	✓	✓	✓	✓		✓	✓	
Containers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Design	✓				✓	✓	✓				
Testing	✓	✓		✓		✓	✓		✓		
Packs	✓	✓	✓		✓	✓	✓	✓	✓	✓	
Operations	✓		✓	✓		✓	✓				✓
Equipment	✓		✓			✓	✓				
Handling	✓		✓			✓					
Wastes	✓	✓	✓			✓					
Energy	✓	✓	✓			✓					

A more detailed breakdown of the subject coverage is given in the following sections.



Materials used in packaging

Metals, including foils  
Paper and board  
Plastics, including films  
Glass and ceramics  
Wood  
Textiles and fabrics  
Adhesives, tapes and labels  
Coating and proofing materials  
Laminates

Containers, packages and accessories

Shipping containers:

wooden containers (barrels, kegs, crates, cases, etc.)  
metal containers (drums, crates, etc.)  
fibreboard containers (drums, cases, etc.)  
plastics and rubber containers (drums, crates, etc.)  
heavy duty bags and sacks  
other shipping containers

Retail unit packages:

metal (cans, boxes, collapsible tubes, etc.)  
cartons, small boxes, moulded pulp containers, etc.  
bags and sachets  
plastic containers, skin and blister packs, etc.  
glass and ceramic containers (bottles, jars, etc.)  
aerosol containers  
other retail unit packages

Partitions, inserts, cushioning materials, etc.

Closures, openings and dispensing devices, etc.

Design

Graphics  
Functional design

Testing

Test methods for materials and packages

Test equipment for materials and packages

Packs for special products

Foods:

dairy products

fats and oils

confectionery and bakery products

fruits and vegetables

fish, meat and poultry

frozen foods

dried foods

Drinks:

wines, spirits, etc.

soft drinks

beer and other carbonated drinks

tea, coffee and other beverages

Consumer goods:

cigarettes, cigars and tobacco

textiles and clothing

cosmetic and toilet goods

pharmaceutical and medical supplies

paint, chemicals for domestic use, etc.

glass, china and fragile articles

sports articles and toys

electrical goods

white goods (washing machines, refrigerators, etc.)

furniture

other consumer goods

Industrial products:

machinery and equipment

chemicals including hazardous materials

other industrial products

Packaging operations and equipment

Wrapping

Pouch forming - filling - sealing; strip packaging

Cartoning and casing

Filling and weighing

Taping and sealing

Stitching, stapling and nailing

Strapping and tying

Capping, lidding and stoppering

Labelling, marking and painting

Vacuum and gas packaging

Other operations and equipment

Handling, storage, transport and distribution

Systems and equipment

Retailing of packaged goods

Packaging wastes, disposal and recycling

Waste disposal

Reuse of scrap and reclamation of materials

Recycling

Returnable containers

Energy considerations

Economics

Trends

Forecasts

Statistics

Production

Consumption

Import

Export

Market segment

End use

Industrial structure

Markets and marketing

Markets (by country, by product)

Marketing and market research

Consumer attitudes

Legislation and regulations (national/international)

Health, safety and quality (e.g. food contact, plastics hazards)

Environment (e.g. pollution, waste disposal)

Package sizes and weights

Labelling

General (e.g. product liability)

Standards and specifications (national/international)

Materials

Containers

Design

Testing

Packs

Operations

Equipment

### INFORMATION SOURCES

There are several guides which give details of sources of packaging information, many of them oriented to the needs of developing countries. The UNIDO Guide to "Information Sources on the Packaging Industry" published in 1977, and the three UNCTAD/GATT books on "Promoting Packaging for Exporters" published in 1975, are particularly relevant, though in need of updating.

The Pira "Guide to Sources of Information on Packaging" which was updated especially for this project is attached as Annexe I. It refers to the UNIDO and UNCTAD/GATT publications and updates some of the material they contain.

The number and range of sources of published information on packaging is extensive, reflecting the importance and significance of packaging. However, it must not be forgotten that unpublished information, including resources such as human expertise, can be equally or even more valuable in solving particular problems and care must be taken to include these informal sources in any information service.

## THE IMAI LIBRARY

The IMAI library was established in 1974 with the objective of providing information on packaging and related subject fields. The subjects covered include packaging, design, graphics, printing, transport, exporting, statistics, food technology and engineering. The present collection includes (as at April 1980):

585 books and reference works, including directories

127 periodical titles, of which 25 are currently received regularly, 35 only occasionally. The remainder are no longer currently received.

The collection also includes standards, patents, technical reports, trade literature and other documents, from both national and international sources.

### Staff

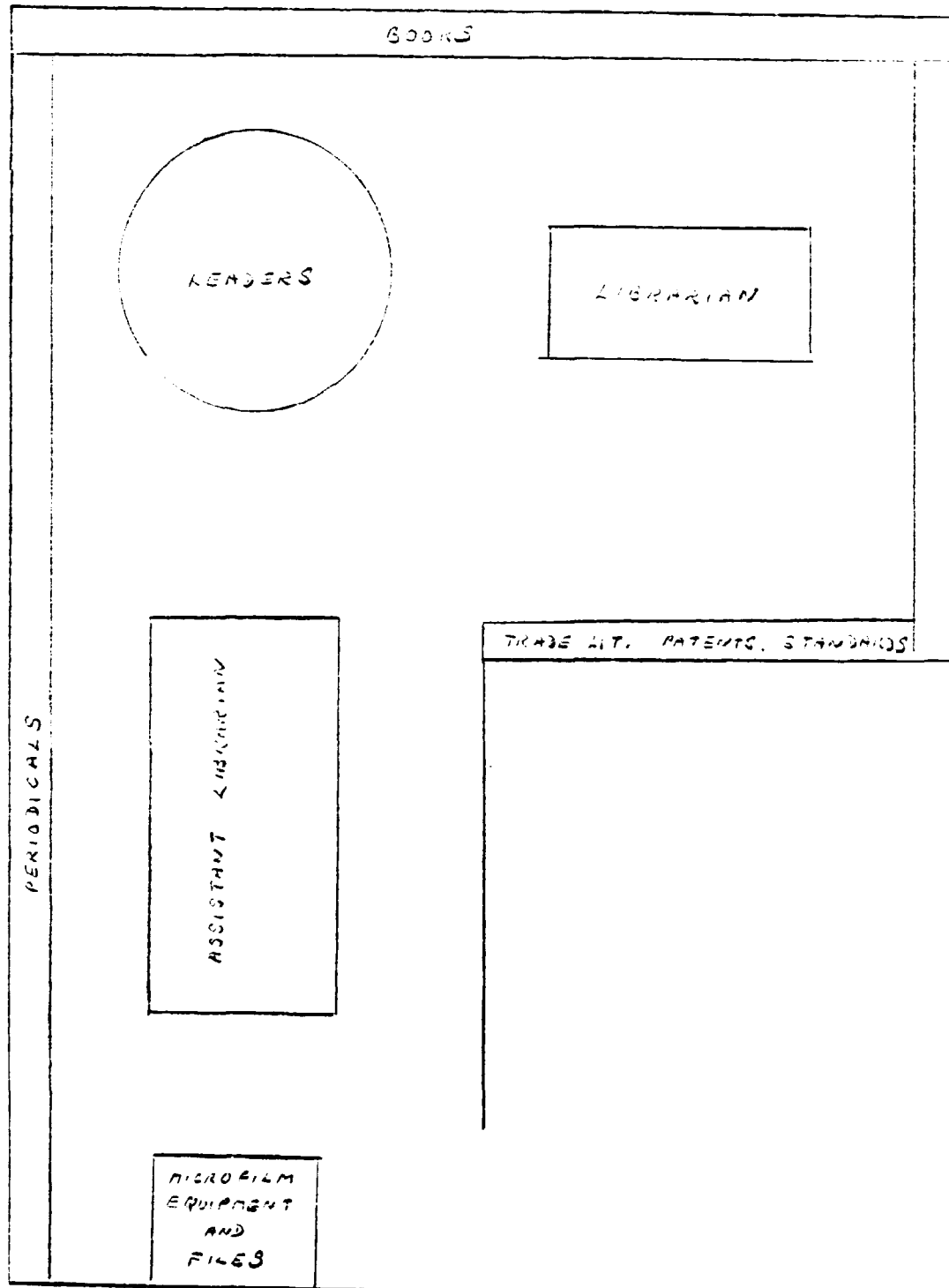
The library has a staff of two: (1) a librarian who is at present following a course of study in professional librarianship, (2) an assistant.

### Accommodation and facilities

The library is housed in an L-shaped room, approximately 6 metres x 8 metres maximum dimensions. The walls are lined with adjustable shelving and the floor area accommodates the librarian, the assistant, card and visible indexes, filing cabinets, microfilm equipment, typewriter and two large tables which are used by readers and by the library staff.

The library has a Kodak Recordak Starfile Microfilmer and a Recordak Magnaprint Reader-Printer Model PE-1A, but no microfiche equipment. It has access to a Xerox 3600 machine which is located within IMAI quite close to the library.

Library layout (dimensions only approximate)



### Classification and indexing systems

The books are classified by the Dewey system. A card index is maintained with multiple entries for authors' names, titles and Dewey classification numbers. Because the library has no duplicator, each index entry has to be repeatedly retyped in order to produce sufficient cards for the multiple entries.

Selected important articles in periodicals, standards, patents, technical reports, trade literature and other documents are indexed by the EPF Faceted Classification system (which has been translated into Spanish). A card index is maintained with multiple entries for authors' names, titles and EPF classification numbers. As with the index to books, all the multiple entries have to be individually typed. A Uniterm index is also being built up. The Uniterms are selected from the EPF Faceted Classification System and there is a card for each Uniterm. These cards are filed in alphabetical order and document numbers are written on them using a terminal digit posting system. Simple Boolean searches can be undertaken manually by comparing postings on the relevant Uniterm cards.

### Shelving and filing systems

The books are shelved in classified order according to the Dewey system. The periodicals are stored on shelves in alphabetical order of title. Standards and patents are filed in box files in numerical sequences according to country of origin. Trade literature is filed in box files in alphabetical order of company names according to country of origin.

### Services provided by the library

#### 1. Library loan service

This service is only available to the staff of IMAI and LANFI. Virtually any item may be borrowed from the library stock, except works of reference, and about 100-140 loans per month are handled on average.



2. Reference service

Reference books and other documents may be consulted in the library by IMAI staff and external enquirers.

3. Photocopying service

This may be used by the staff of IMAI and also by external enquirers who pay 3 pesos per sheet. The proceeds go to IMAI general funds, not to the library specifically.

4. Bulletin

The 'Boletin bibliografico interno' is compiled by the librarian and issued monthly. It contains two sections. The first lists selected articles, indicating the main area of interest, the language in which the article is written and the number of pages it contains. The articles are selected by the librarian, the titles and references are typed and the pages are reproduced by xeroxing. The second section lists new library accessions and is prepared by xeroxing catalogue cards. About 90 copies are produced, 75 for internal users and 15 for external users. While the first section refers to current literature, the second section appears to refer to less recent literature, perhaps reflecting the library's limited funds to buy all important literature as soon as it is published and the need to acquire important but less recent material.

5. Current contents of periodicals

The 'Indice de revistos' is issued monthly. It contains copies of the contents pages of current issues of periodicals received by the library. It is reproduced by xeroxing and circulated to the same people as the Bulletin.

6. Reader assistance

The librarian is available to give assistance to those who wish to use the library. About 40 users per month make use of this service. (Note that there are about 40 technical staff in IMAI).

#### Budget and selection of stock

The librarian does not have a budget for the purchase of stock. He reports to the Jefe del Departamento de Divulgación Tecnológica (Head of the Department of Technological Information Dissemination) who each year asks Heads of other Departments of IMAI for lists of books, periodicals and other documents which they will require in connection with their project work. The librarian compiles a list of all the publications required, with bibliographic details and prices. The decision as to how much money can be allocated and which publications can be purchased is made by the Government, the appropriate department of which orders and pays for the selected publications. These are then delivered to the librarian, who catalogues them and loans them to the Departments which requested them. This method of selection of stock does not enable the library to build up a balanced or comprehensive collection of books and periodicals.

## IMAI'S INFORMATION RESOURCES

### Periodicals

IMAI currently receives 25 periodical titles regularly and 35 only occasionally. This compares with 150 titles received regularly for the preparation of Packaging Abstracts. Not only is the IMAI Library's periodical list small in relation to the total number of packaging journals published worldwide, but even the limited number taken is subject to variation, depending on whether sufficient funds are available to purchase them in any particular year. The periodicals list is attached as Annex II.

IMAI's limited periodical resources could be supplemented by inter-library networking if other Mexican libraries held stocks of relevant packaging periodicals, but unfortunately this is not the case. The Cemiq collection, which is on the same site as IMAI, is strong on chemical subjects, including food technology and other package using industries, as well as paper making, but does not cover packaging as such. Neither does the Infotec library, which is slanted towards the needs of industrial firms, concentrate on packaging, nor do any of the national or special libraries of Mexico cover packaging as a specific subject field. Some details of these libraries are given in Appendix 1.

### Abstracting services

The principal abstracting service received is:

Packaging Abstracts

Relevant abstracting services received by Cemiq are:

Abstract Bulletin of the Institute of Paper Chemistry

Analytical Abstracts

Bulletin de l'Institut International du Froid

Chemical Abstracts

Food Science & Technology Abstracts

### Online databases

IMAI Library does not have direct access to online databases, but a terminal is available within Cemiq which can be used to access Lockheed Dialog, SDC orbit and Data Resources.

#### Other types of literature

The collection of books and other non-serials appears to be well selected, although small. Back-up can be obtained from the Comiq and Infotec libraries in areas where they have better coverage (especially food technology, paper technology, chemistry, standards, US patents, US military specifications, market and economic reports), but there is still a lack of access to some basic reference material.

#### Economic and statistical information

The library holds a range of publications of the Secretaria de Programacion y Presupuesto (SPP) including the Census of Industry, the Annual Statistics and the Monthly Bulletin of Economic Information, all of which give useful information on the Mexican economy. There is a lack of foreign information.

#### Marketing information

The best source of information on the Mexican packaging industry within IMAI appears to be in the Packaging Department where compilations are being made of information on the main packaging industry segments (paper, plastics, glass and metal packaging). This information (which will eventually include comprehensive lists of companies with their products, consumption of materials, end uses of their products, principal customers, production) is not yet complete but is being built up from published and unpublished sources of information. IMAI has recently published a directory of the Mexican packaging industry.

Although the IMAI library contains some overseas directories, it does not have a comprehensive collection and some of the directories are out of date.

#### Bibliographies

IMAI has the UNCTAD/GATT Bibliography, but does not possess special subject bibliographies, such as the Pira Bibliographies.

Recommendations (short term)

1. Ensure that the library has current subscriptions to all the core journals listed in Appendix 5.
2. If funds are available, obtain at least 2 years back issues of the core journals.
3. From January 1981, subscribe to International Packaging Abstracts, which is replacing Packaging Abstracts.
4. Ensure that the library has a complete run of at least 5 years back issues of Packaging Abstracts. (This is mainly a question of obtaining missing issues).
5. Ensure that the library has copies of all the books listed in the 'Textbooks' section of the Pira Guide to Sources of Information on Packaging.
6. Purchase copies of the following reports, available from the American Management Association:
  - a) Company organization for packaging efficiency  
D D Deming. 1962, 128 pp.
  - b) Corporate packaging management  
C Wayne Barlow. 1969, 152 pp.
  - c) The emergence of the packaging executive  
J A Sperling. 1970, 88 pp.
7. Obtain a copy of the Pira Handbook of Statistical Sources. Consider purchasing a selection of the publications listed.
8. Establish a collection of up-to-date packaging directories (see Pira Guide to Sources of Information on Packaging)
9. Establish a collection of up-to-date catalogues of packaging exhibitions.

10. Establish a comprehensive collection of packaging standards, based on the recommendations in the UNIDO report on packaging standards, prepared by Colin Swinbank (note that Infotec has a file of US military specifications)
11. Consider establishing a collection of market and economic reports on countries of major export interest to Mexico.
12. Produce leaflets to publicize the expanded library stock.
13. Consider organizing a seminar for businessmen and industrial personnel on sources of information and their use, in order to stimulate interest in and use of the Packaging Information Centre.

## CLASSIFICATION AND INDEXING SYSTEMS

### Books

There are several general library classification schemes, including the Dewey Decimal Classification, the Universal Decimal Classification and the Library of Congress, Bliss, Brown and Colon systems. They have the advantage of being well known to librarians and are very suitable for shelving books in an order helpful to users who may wish to browse in the library.

IMAI uses the Dewey system for classifying books and there is no reason to make any change, particularly since Cemiq, the other library on site, also uses the Dewey system.

### Journal articles and shorter items of literature

A disadvantage of the general library classification schemes when they are used for journal articles etc is that they tend to lack sufficient detail, particularly in specialized, rapidly-developing subject fields such as packaging.

Some classification schemes specifically designed to cover packaging have been developed, of which the EPF scheme published by the European Packaging Federation is probably the best known. It has been translated into Spanish and is used by the IMAI library as a source of uniterms for indexing journal articles, etc. It is a faceted classification, designed to be easily updated as new subjects emerge.

Some years ago, Pira developed its own detailed classification scheme, but this has now been superceded by a free-language indexing system based on a computer generated thesaurus. This system is only suitable for a machine readable database. For "Packaging Abstracts", Pira uses a very simple classification scheme designed to group abstracts in sections for publication purposes.

Currently ILV in Munich are developing a packaging thesaurus, ISO are developing a standard packaging classification scheme and ITC are developing a classification scheme specifically for developing countries, but none of these is yet complete.

Pira has recently concluded an agreement with ILV to produce an Anglo-German database and these two organizations are intending to adopt the ISO standard packaging classification. Since IMAI will undoubtedly wish to use this new database, which is likely to be the most comprehensive packaging database in the world, it would be worth considering changing to the ISO classification when it is eventually published. Ideally any such change should be made before putting the library catalogue into a computer system.

#### Recommendations

1. Continue to use the Dewey Decimal System for classifying books
2. In the short term, continue to use uniterms derived from the EPF packaging classification for cataloguing journal articles and shorter items of literature.
3. In the longer term, consider changing to the ISO standard packaging classification, when it becomes available, for journal articles, etc.
4. Consider changing to the ISO standard packaging classification for journal articles etc if computerization is planned.



#### ORGANIZATION OF THE PACKAGING INFORMATION CENTRE (SHORT TERM)

It is essential for the success of the proposed Packaging Information Centre that it should be adequately staffed, equipped and marketed right from the start. With its existing facilities IMAI does not have the resources to establish more than a small scale centre offering a restricted range of services comprising the following:

- 1) Library reference service, based on a limited stock
- 2) Library photocopying service, based on a Xerox 3600 machine
- 3) Monthly bulletin of library accessions
- 4) Monthly current periodical titles review
- 5) Directory of Mexican packaging firms
- 6) Compilation of existing Mexican packaging statistics and packaging industry information
- 7) Online information searches.

Items 1 and 2 are already satisfactorily in operation, under the librarian of IMAI. Items 3 and 4 are also produced by the librarian; however they are mainly designed for internal circulation and will need upgrading if they are to be sold on any scale externally. An attractively printed cover, and text produced on an electric typewriter (or better still a word processor) for subsequent photocopying, are minimum requirements. Item 5 has already been produced and should be updated from time to time, say every two years. Some of the information for item 6 is currently being compiled. When completed it should make a useful saleable publication. Item 7 can already be offered, using the Cemiq online terminal, and could be developed into a saleable service.

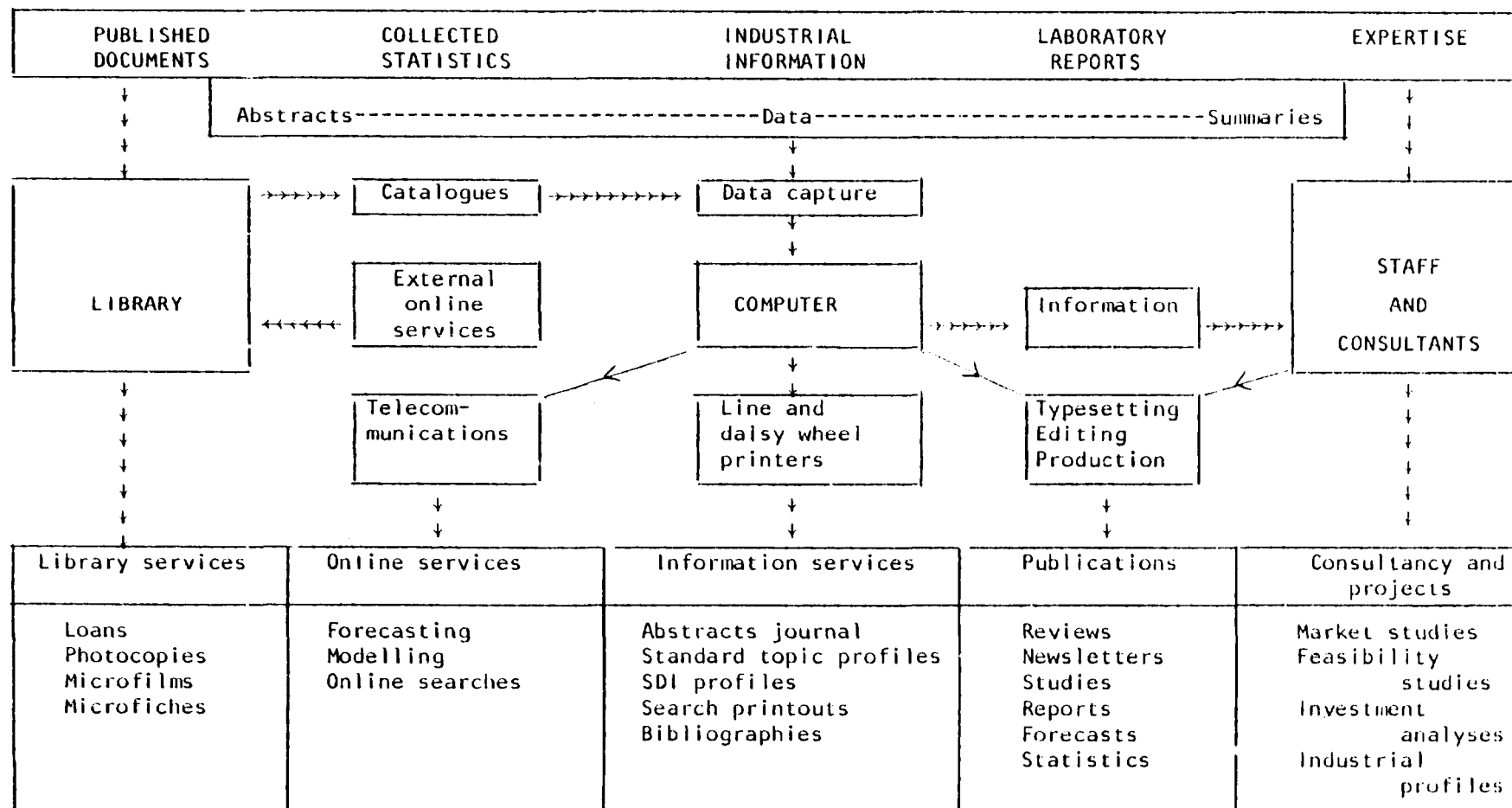
The necessary skills to produce items 1-6 are already available within IMAI. At present only the staff of Cemiq are able to operate the online terminal, so it is desirable for, say, two of the staff of IMAI to learn how to use the terminal. They could be trained by Cemiq.

The Centre and its services will not be developed in an integrated and coordinated way unless a sufficiently senior well-motivated member of staff is given the responsibility for ensuring that this happens. In selecting the person for this job, two further factors should be borne in mind. Firstly, a re-organization of the staff structure of LANFI is imminent which would enable all information and library services to be merged into one department instead of being dispersed throughout LANFI. If the Packaging Information Centre were organized within the merged information departments, it would have access to much more extensive facilities and expertise than would otherwise be possible. Secondly, LANFI will instal a computer in 1981 which opens up the possibility of establishing integrated computerized database containing both textual and numeric data. A sophisticated range of information services could then be offered.

Recommendations (short term)

1. Appoint or designate a senior member of staff as head of the Centre
2. Continue the library reference and photocopying services
3. Widen the range of library stock, as recommended earlier
4. Instal an automatic typewriter or, better still, a word processor, for the production of library accession cards, bulletin of library accessions, current periodicals review and other publications
5. Consider updating the directory of Mexican packaging firms in 2 years time
6. Finish compiling and then publish a summary of Mexican packaging statistics and packaging industry information
7. Train two of the IMAI staff to use the Cemiq online terminal
8. Produce publicity leaflets to advertise the Centre and the services it can provide.

Figure 1. PACKAGING INFORMATION CENTRE: PROPOSED FUTURE DEVELOPMENT SCHEME



## FUTURE DEVELOPMENT OF THE PACKAGING INFORMATION CENTRE

The impending re-organization of LANFI-IMAI and the planned installation of the DEC VAX 11/780 computer present considerable opportunities for the future development of the Centre in terms of resources, facilities and staff. By seizing these opportunities, an efficient, effective computer-based system for handling an integrated database of textual information and numeric data can be set up, which will enable LANFI-IMAI to offer an extensive range of information services.

The proposed future development scheme for the Centre is shown in figure 1. The scheme envisages that details of IMAI's information resources (published documents, collected statistics, industrial information, laboratory reports and personal expertise) are recorded in machine-readable form as abstracts, data and summaries. Library catalogues can also be recorded in machine-readable form. Appropriate data capture techniques will be used so that all the information required can be entered into the computer. By using suitable software, the information can then be manipulated and processed to provide many different outputs on which a wide range of services, publications, consultancy and projects can be based.

### Information resources

In order to satisfy the needs of users of the centre, existing information resources will have to be expanded and new ones developed.

#### *Published documents*

These include books, periodicals, abstracting services, bibliographies, technical and scientific reports, trade literature, patents, standards, specifications, conference proceedings, theses, economic and marketing reports, statistics, legislation, regulations, directories, catalogues, etc. These will be abstracted if abstracts are not already available, but a proportion of the relevant material will already be on magnetic tape and can be leased or purchased in this form. The library should contain all 'core' publications, i.e. those central to its subject

coverage, either in hard copy, or in microform if this is more convenient, so that users of the library are confident of its comprehensiveness. This is particularly important since no other Mexican library specializes in packaging as a main subject field.

#### *Collected statistics*

The main official source of industrial statistics in Mexico is the Secretaria de Programacion y Presupuesto. Other organizations process these statistics for publication in various statistical series. The library already holds sets of the most relevant of these statistics. However, there is a lack of statistics compiled specifically for the package making and package using industries. To remedy this, UNIDO have funded a project whose objective is the establishment of a packaging statistics database. The data collected should be stored in series in a computer file so that they are easily accessible for analysis. The data, which will be mainly numeric, should be collected and updated regularly.

#### *Industrial information*

Some industrial information can be easily collected by the library e.g. trade literature, catalogues and directories, but other information will be obtained e.g. by personal contact or correspondence between a member of the IMAI staff and an industrial firm. This represents a unique and extremely valuable type of information. It is envisaged that the LANFI computer will eventually be used to record all transactions between staff and industrial users; the possibility of extending these records to include actual information, especially if it is in report form, should be investigated. A brief summary should be entered into the database and an archive copy filed in the library. Records relating to confidential items should be tagged when they are input to the computer, so that they cannot be accessed by unauthorized persons.

#### *Laboratory reports*

These should be summarized and entered into the database, with an archive copy filed in the library. Computer records of confidential reports should be tagged to prevent unauthorized access.

### *Expertise*

Staff of IMAI and other people within or outside LANFI may have special expertise which can be used as a resource for the Centre. An index of expertise can be built up on the database, so that specialists can be located when required, e.g. in connection with projects or the production of publications of all kinds.

### Facilities

#### *Computer installation*

Details of the VAX 11/780 computer configuration are given in appendix 3. There will be spare capacity in the initial installation for experimental development work in connection with the Packaging Information Centre. When full implementation is required, more disc drives, memory, VDU's, printers, etc. can be added, if required. The system will have communication facilities; up to 256 ports can be installed.

The computer peripherals available on the LANFI computer include:

- 5 hard copy terminals with upper and lower case characters
- 1 600 lines per minute line printer
- 1 graphics terminal capable of producing histograms

There would also be advantages in having a phototypesetter linked to the computer, with the use of phototypesetting software, where the computer output is to be reproduced in a printed publication.

#### *Telecommunications*

Although it is unlikely to be implemented for some years, it is worth planning for the installation of remote terminals linked by telephone lines to the computer. This would enable online services to be received from external sources and also enable statistical and information retrieval services to be supplied to LANFI's customers. Also in the future are online ordering of publications and the use of full text document delivery, perhaps via facsimile or satellite. Another candidate for future consideration is the installation of a videotex system.

Software

The software required by the Centre will include the following:

Information retrieval package including:

- data entry
- database management
- online inverted file searching
- set searching with Boolean operators
- serial file searching
- data listing
- user functions (log-on, log-off, passwords, restriction of access to confidential data, etc)

Simulation including:

- dynamic modelling

Statistics package including:

- frequency distributions
- T-tests
- analysis of variance
- correlations
- multiple regression

Accounting including:

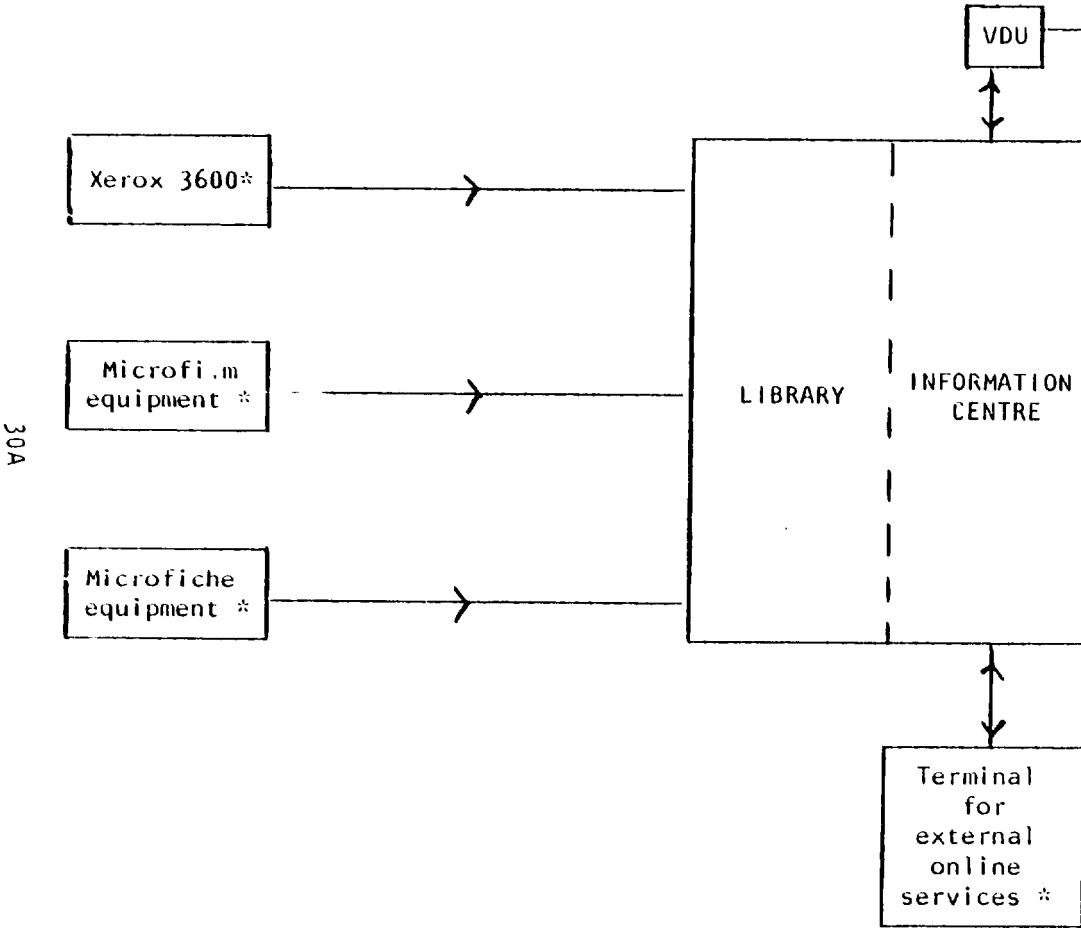
- order entry
- invoicing
- account status

Mailing list construction and control

Word processing

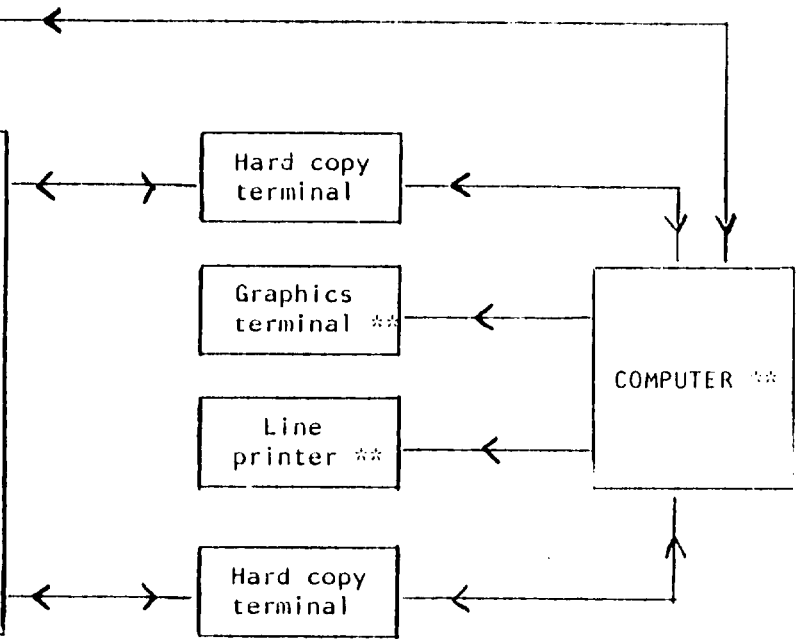
Phototypesetting

Figure 2. PACKAGING INFORMATION CENTRE : EQUIPMENT



\* already available within LANFI





\*\* included in VAX configuration

Several information retrieval packages suitable for implementation on mini computers are available for lease or purchase, including at least two which have already been run on VAX machines. The new Computer Centre will not have the programming resource to develop a comprehensive sophisticated information retrieval package, so it would be best to loan or purchase an already existing package, tailoring it for any special requirements if necessary.

#### Equipment for the future Centre

The equipment required for the future Centre is shown in figure 2. Most of it is already available within LANFI or included in plans for the VAX configuration. It may be necessary to purchase the following items if there are insufficient terminals available via the Computer Centre:

2 hard copy terminals - for entering information and data into the computer and obtaining printouts from it

1 VDU - for manipulating data on the computer

In addition, the Library will require an automatic typewriter or word processor and the LANFI Publications Unit could advantageously be equipped with word processing and phototypesetting equipment, though not solely on behalf of the Centre.

## Services

A list of services which can be provided by the Centre when it is fully developed is given below. The services marked (A) are already supplied by IMAI; those marked (0) can eventually be supplied online.

### *Library services*

Loans (A)  
Photocopies (A)  
Microfilms  
Microfiches

### *Online services*

Forecasting (0)  
Modelling (0)  
Online searches (0)

### *Information services*

Abstracts journal  
Standard topic profiles  
SDI profiles  
Search printouts  
Bibliographies

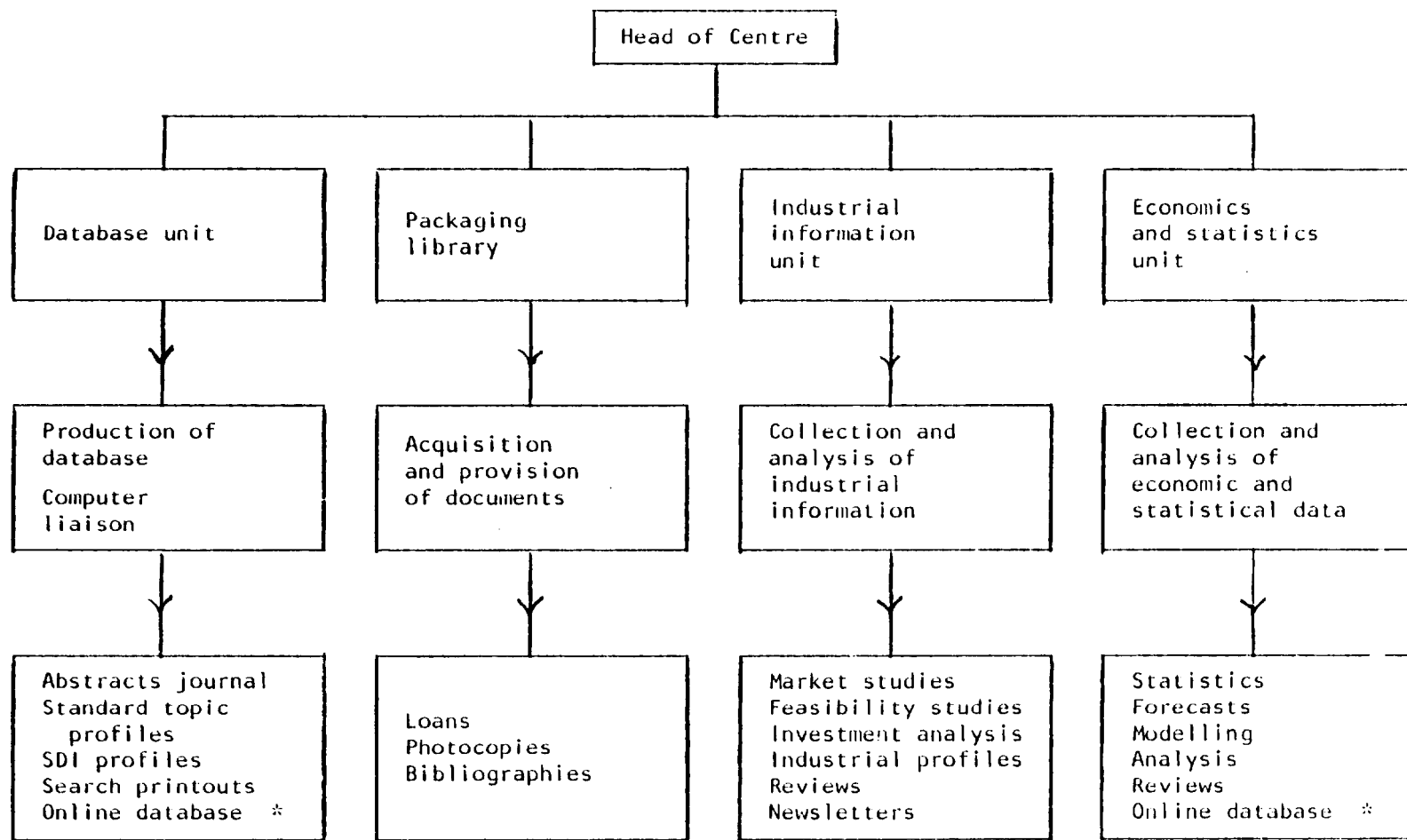
### *Publications*

Reviews, e.g. critical state-of-the-art reviews  
Newsletters  
Studies, e.g. of market segments  
Reports, e.g. on new developments  
Forecasts  
Statistics

### *Consultancy and projects*

Market studies  
Feasibility studies  
Investment analyses  
Industrial profiles

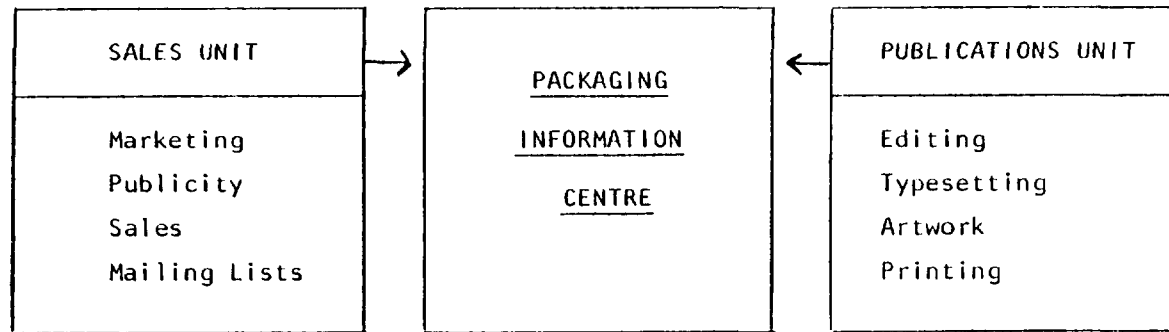
Figure 3. PACKAGING INFORMATION CENTRE : ORGANIZATIONAL STRUCTURE



32A

\* for later implementation

Figure 4. PACKAGING INFORMATION CENTRE : SUPPORTING FUNCTIONS



### Organizational structure of the future Centre

The Head of the Centre will be responsible for four units (1) the Database Unit, (2) the Packaging Library, (3) the Industrial Information Unit and (4) the Economics and Statistics Unit. The organizational structure and the major functions and services provided by the four units are shown in figure 3.

The Centre will need support from the LANFI sales and publications units, if it is to market and sell its services effectively and produce well-designed publications. The role of the supporting functions is shown in figure 4. Some of the software being considered for the VAX 11/780 computer could be used in connection with the sales and publications functions e.g. (1) for controlling sales, invoicing, mailing lists, etc. and (2) for text processing, including computer typesetting.

Staff required for the future Centre

The staff structure for the future Centre is shown in figure 5. The Head of the Centre and one secretary should be appointed or designated as soon as possible, then the following Phase 1 appointments made or confirmed:

Head of Database Unit  
Librarian and Assistant (existing staff)  
Head of Industrial Information Unit  
Head of Economics and Statistics Unit

As the Centre proceeds from the initial stage (phase 1), which will include training and orientation for the senior staff, to the main implementation stage (phase 2), the following staff should be recruited:

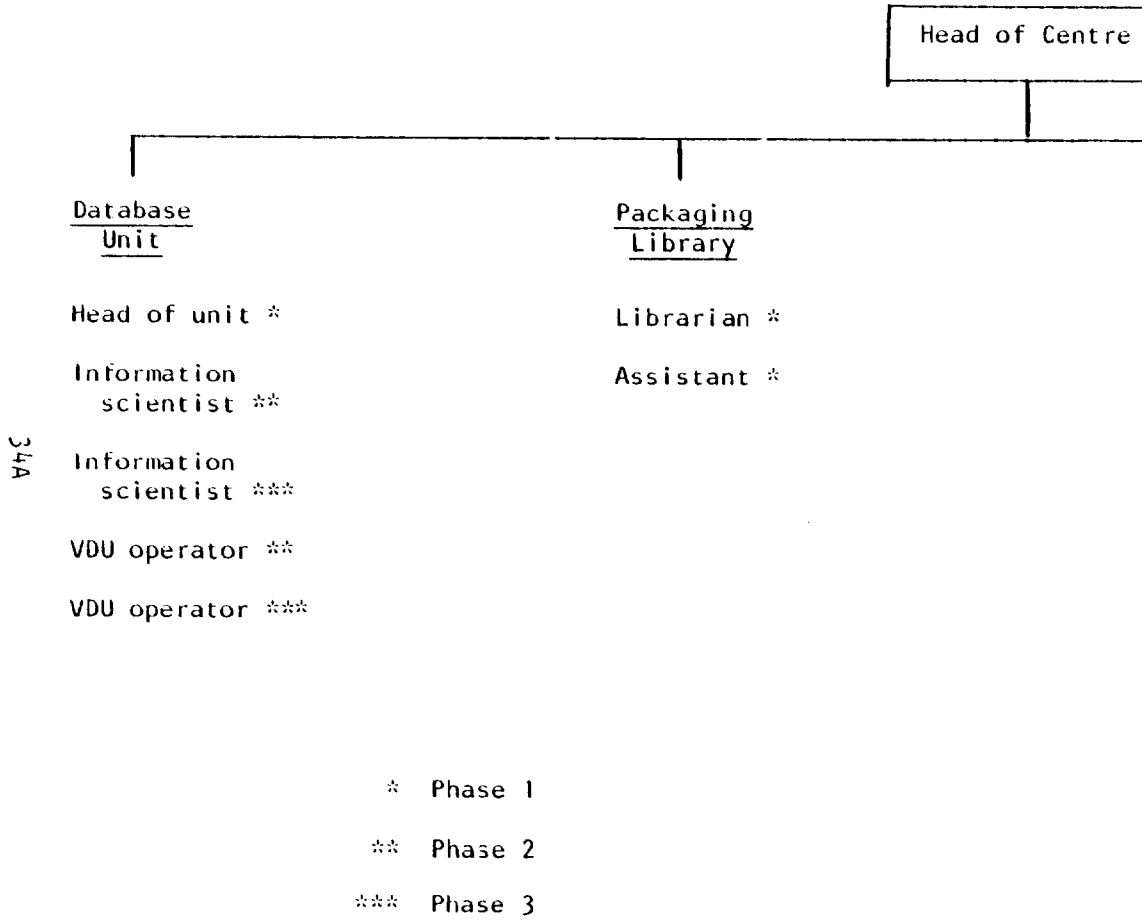
information scientist  
industrial information officer  
market research officer  
VDU operator  
secretary (to be shared, initially)

Once the Centre is established and proceeding to the extended implementation stage (phase 3), the following additional staff should be recruited:

information scientist  
industrial information officer  
market research officer  
VDU operator  
secretary

Outline jobs specifications and training requirements for the staff of the Centre are given in Appendix 4.

Figure 5. PACKAGING INFORMATION CENTRE : STAFF STRUCTURE





Secretary

Industrial  
Information Unit

Head of unit \*

Industrial Information  
officer \*\*

Industrial information  
officer \*\*\*

Secretary \*\*

Economics and  
Statistics Unit

Head of unit \*

Market research  
officer \*\*

Market research  
officer \*\*\*

Secretary \*\*\*

### Recommendations

The overall objective will be to establish a computer-based system for building up and manipulating an integrated database of textual information and statistics, which will enable the Packaging Information Centre to offer an extensive range of information services.

### *Information resources*

1. Expand the IMAI library stock to form a comprehensive collection containing all core publications (see Pira Guide to Sources of Information on Packaging; see also short term recommendations on page 21) and prepare abstracts, if necessary.
2. Consider purchasing or leasing magnetic tapes containing bibliographic databases, e.g. the Packaging Abstracts database, the proposed Anglo-German packaging database and the packaging legislation database which is being set up by Pira.
3. Establish a packaging statistics database (see UNIDO project on establishing a Mexican packaging statistics database).
4. Set up a system for collecting and summarizing industrial information, including trade literature, catalogues and directories, as well as reports of visits, correspondence, etc. (note plans to use the LANFI computer to record all transactions between staff and industrial users).
5. Establish a system for depositing archive copies of laboratory reports in the library and for preparing summaries of these reports.
6. Build up an index of specialists' expertise.

### *Software*

7. Purchase or lease software specially designed for bibliographic database construction and information retrieval.
8. Purchase or lease software for constructing and manipulating statistical databases.
9. Consider purchasing or leasing software for word processing and phototypesetting.

### *Equipment*

10. Purchase or lease the equipment required (see page 31).

### *Systems*

11. Set up data capture systems for the bibliographic and statistical databases.
12. Set up data output systems for the bibliographic and statistical databases.

### *Services*

13. Consider introducing the services listed on page 32.

### *Staff and training*

14. Commence appointing the staff required for the future Centre (see page 34).
15. Commence training and orientation of the staff (see Appendix 4).

### *General*

16. Consider extending the use of the computer-based information handling system to other parts of LANFI, particularly Cemiq.
17. Consider setting up a single department, under one Head, to be responsible for all information services within LANFI, including the Packaging Information Centre and Cemiq.

## LINKING IMAI TO OTHER INFORMATION CENTRES

### A: Within Mexico

#### *With Cemig*

The libraries of Cemig and IMAI are located quite close to each other within the same building in LANFI and relationships between the staffs are good. Although the libraries have separate and distinct identities, as components of two originally separate organizations, it would be logical to parallel the merger between LANFI and IMAI organizations with a merger of the two libraries. This would have several advantages, including:

- 1) the combined staff expertise would be available to users of both libraries
- 2) the two sets of library books, both of which are classified by the Dewey system, could be shelved in a single sequence
- 3) the combined holdings of periodicals and other material could be integrated into a more comprehensive whole, available to users of both libraries
- 4) the two sets of library equipment, particularly the online terminal, the microfilm equipment, the microfiche equipment and, later, VDU's, hard copy terminals linked to the LANFI VAX computer and word processing equipment, could be housed more conveniently in a single location
- 5) the future development of the staff, library stock, equipment and services could be planned as an integrated whole.

In arranging such a merger, particular care should be taken to make provision for the career aspirations of the library staffs, particularly the two librarians. There should be ample scope for dividing the responsibilities for the various joint library services in mutually satisfactory ways. In this report, it is assumed that the present librarian of IMAI will become the special librarian for the Packaging Information Centre, making use of and continuing to develop his specialized knowledge of the literature of packaging.

*With Infotec*

The libraries of IMAI and Infotec are complementary since Infotec has avoided covering packaging as a specific subject field. IMAI can, if it wishes, buy services from Infotec. Infotec would like to be able to obtain services from IMAI and would regard the strengthening of IMAI's packaging information resources as an advantage.

Informal links between the two organizations already exist. These could be usefully strengthened by a more structured arrangement such as a regular yearly meeting specifically to discuss co-operation and how to improve the satisfaction of both organizations' needs.

*With other special libraries*

Cemiq has taken the initiative in organizing the 1st Conference of Mexican Information Centres, an event which attracted well over 100 participants. The impetus generated by this initiative should be used to improve links between the two libraries of LANFI (Cemiq and IMAI) and other Mexican libraries. Sharing of experience could be invaluable at this stage in the development of Mexican information services, especially since so few fully trained staff are available and training facilities are limited. It would be advantageous to make the Conference of Mexican Information Centres an annual event.

*With packaging information centres world wide*

The Head of the Centre should build on contacts with other packaging research institutes already established through organizations such as IAPRI and ULADE. It is desirable that the Head should visit leading packaging centres throughout the world to establish contacts and study techniques and services provided.

Recommendations

1. Merge the libraries of IMAI and Cemiq
2. Set up a regular yearly meeting between IMAI and Infotec to discuss progress with and ways of improving co-operation
3. Organize conferences of Mexican information centres once a year
4. Use IAPRI and ULADE to establish links with other packaging information centres worldwide
5. Arrange for the Head of the Centre to visit leading packaging centres throughout the world to establish contacts and study techniques and services provided.

## RECOMMENDATIONS

Recommendations are given in the sections of the report to which they related. A sectional list is given below:

IMAI's information resources

Recommendations, page 21

Classification and indexing systems

Recommendations, page 24

Organization of the Packaging Information Centre (short term)

Recommendations, page 26

Future development of the Packaging Information Centre

Recommendations, page 35

Linking IMAI to other information centres

Recommendations, page 39

## CONCLUSIONS

It is possible to organize the Packaging Information Centre at IMAI based on existing personnel and equipment. A short term plan for doing this is given in this report. However, with its existing facilities IMAI does not have the resources to establish more than a small scale centre offering a restricted range of services.

The impending re-organization of LANFI-IMAI and the planned installation of a DEC VAX 11/780 computer present a unique opportunity for LANFI-IMAI to develop an efficient, effective computer-based system for handling an integrated database of textual information and statistics. This would enable LANFI-IMAI to gain experience with sophisticated information handling techniques, to offer an extensive range of industrial information services and to improve the information input to its research, consultancy, techno-economic studies, proposed statistical services and other activities. A scheme for the future development of the Packaging Information Centre, based on these considerations, is given in this report.

Before such a scheme can be implemented, further work is required, including detailed assessment and selection of the software required. LANFI-IMAI will also require specialist assistance with setting the system up and 'hands-on' training of the staff who will use it, as well as guidance and practical help in establishing industrial services based on the system.

LANFI has the desire and motivation to develop such a system and there are no insuperable technical problems. The experience gained in establishing a mini-computer based information handling system for the Mexican packaging industry could be passed on to other information centres in the country, thus maximizing the benefit to be obtained.



Appendix 1. Libraries in Mexico

The Cemiq library

Infotec

The national libraries of Mexico

Special libraries in Mexico

### THE CEMIQ LIBRARY

The Cemiq library is on the same site as the IMAI library. It provides documentation for the staff of Cemiq and for the chemical industries of Mexico. The chemical industries include the food industries, pharmaceutical industries and pulp and paper industries, as well as chemical manufacturing as such. The library has a collection of about 3,000 books, including works of reference, about 250 periodicals, several abstracting journals including Chemical Abstracts, the Abstract Bulletin of the Institute of Paper Chemistry and Food Science and Technology Abstracts. It is equipped with microfilm/microfiche equipment (a microfilming camera and a film/fiche reader printer). It also has a Data Control terminal and printer which are used to access online databases through the Lockheed Dialog, SDC Orbit and Data Resources systems. Considerable use is made of the Predicasts databases in order to support the project work of Cemiq.

Both Cemiq and IMAI are part of LANFI and the staff of IMAI are able to use the Cemiq library if they wish, including the online terminal.

## INFOTEC

Infotec has two main aims (1) to help industry identify and solve problems and (2) to help industry recognize and exploit opportunities. Its work is slanted towards medium-sized and small firms, to help them to use resources effectively and efficiently and to launch new products. It has a multi-disciplinary professional staff with qualifications in chemistry, metallurgy, engineering (mechanical, electrical, chemical, electronic), pharmacy, food technology, bio-chemistry, economics and administration, who visit firms to discuss what needs to be done and then organize resources to undertake any work required.

Infotec is funded partially by the Government, partially by subscriptions and fees paid by firms for services given. The trend is towards a greater proportion of fee-paying activity.

Infotec provides current awareness services (10 monthly bulletins), a technical information programme, consultancy and advice, including the undertaking of feasibility studies. Although its staff have collectively a wide range of expertise, it is not Infotec's aim to become an all-embracing service; it regards itself as a central resource, drawing in know-how and services from specialist organizations both in Mexico and abroad. It has no wish to duplicate existing resources.

The Infotec library has a well selected collection of books, periodicals and other publications, and a collection of microfilms containing US military specifications, many national and international standards, trade literature etc. The reference section contains many abstracts journals, especially those covering food technology and pharmaceutical chemistry, and abstracts of all US patents published since 1940. There is also a good collection of economic information and market reports. A computer terminal is used online to access over 150 international databases.

Infotec's activities include the encouragement of the development of information resources both within firms and within research institutes. It offers a consultancy service to those wishing for assistance.

The Infotec technological assistance service offers advice and assistance on:

- location and evaluation of suppliers of technology
- leasing negotiations
- patentability and patent infringement
- obsolescence and technology trends
- raw materials
- product formulation
- machinery and equipment suppliers
- plant layout
- production planning and control
- product and process engineering
- market research
- diversification of product lines
- techno-economic studies
- research on business opportunities
- technology monitoring
- organization and management of research and development
- intra-company information and creativity systems
- technology planning

## THE NATIONAL LIBRARIES OF MEXICO

### The National Library of Mexico

The objective of this library is to provide a collection of all bibliographic material published in Mexico. There are, however, problems in making this material available because of an acute shortage of professional staff for the library.

### The National Periodical Library of Mexico

The objective of this library is to provide as comprehensive a collection of Mexican and foreign periodicals as possible. It aims to cover all fields of knowledge but has major gaps in the coverage of specialized subjects (e.g. packaging) which could perhaps be filled by libraries such as IMAI.

The National Periodical Library makes copies of periodicals available on loan to any user who requires them.

## SPECIAL LIBRARIES IN MEXICO

### Government libraries

Government departments concerned e.g. with agriculture, defence, environment, economics and commerce, have libraries providing documentation on appropriate subjects.

### Institutions, associations and learned societies

Many institutions, associations and learned societies have their own libraries covering the subjects of interest to them.

### Universities

The universities have libraries providing literature for the staff and students. These libraries obviously reflect in their subject coverage the subject coverage of the programmes of research and tuition followed by the university. The Universidad Autonoma de Mexico is a very special case since, besides providing an extensive range of services for its staff, students and others, it also provides on its campus the sites on which the National Library of Mexico and the National Periodical Centre of Mexico are located. A description of the UNAM automated library system is given in Appendix 2.

Appendix 2. Librunam : an automated library  
system

LIBRUNAM: AN AUTOMATED LIBRARY SYSTEM (TRANSCRIPT OF UNAM NOTES)

Librunam is a computerized system for processing and retrieving bibliographical information. Modules for on-line retrieval are integrated into the system. These modules expedite bibliographical investigation and processing, both of which bring bibliographical material much closer to library users.

Information can be retrieved by keywords found anywhere in the text, using either exact or phonetic spelling, based on specific entries which allow for faster and more precise book location.

Librunam contains routines which facilitate acquisition and processing of books. It can duplicate and create card sets for catalogue insertion according to international rules; print the necessary forms for payment and distribution of books; and compile bulletins of new acquisitions and indexes by author, title, subject and classification. It controls the production of all the departments involved and also the quality of the data bank by means of statistics.

It is a data bank which is compatible with the majority of the automated library catalogues of the world, with routines which can be easily undertaken by users of any level.

Librunam is regarded as a powerful tool for education and research and an aid for the development of Mexico. It offers students, professionals and the general public alike, a larger quantity and a better quality of bibliographical information, mainly based on the books and theses in the country's largest document collection, which is found in the specialized departmental libraries of the National Autonomous University of Mexico.

Librunam was totally designed and programmed by personnel of the UNAM Central Library. It is programmed in ALGOL and run on a Burroughs computer. The project was initiated in 1977 to deal with the backlog of material that had accumulated through the years because of the inefficient manual processing of bibliographic material and the large number of books the Central Library has to process and distribute to each of the 161 departmental libraries.



Book selection is made in each departmental library. Requests for material are a combined effort between the departmental libraries and the Central Library: the departmental libraries request about 50% of the material. However, ownership registration and all the payment transactions are carried out in the Central Library.

All the routines which are related to book acquisitions, such as recording of requests, orders, budgets, information about transactions, etc., have been implemented in the acquisition module of Librunam.

With these routines the computer can print out:

1. Invoices
2. Payment demands
3. Transaction accounts which include:
  - a. The budget assigned to each departmental library
  - b. The amount spent
  - c. The percentage of the budget left
  - d. Money transfers
  - e. Rates of exchange (for orders in foreign currencies)
  - f. Requests
  - g. Statistics of numbers and types of books bought, of publishers which supply the books, of the codes, rates of exchange, etc.
  - h. Labels with the addresses of publishers for correspondence

Before a book can be placed on the shelf it has to be processed. In UNAM this is a centralized process which guarantees uniformity in the catalogues. It would also be very costly and impractical for each library to have its own professionals and equipment to carry out these tasks which include:

1. The location of the book in the official catalogue of the university
2. Cataloguing and classifying new acquisitions
3. Distribution of material to departmental libraries
4. Updating inventories and catalogues

Due to the fact that the Technical Department depends fundamentally on the official catalogue, UNAM created a data bank which includes all the information in this catalogue and which is updated daily. The routines of Librunam facilitate the following tasks:

1. The location of books in the catalogue is now done by on-line retrieval of information from the data bank. Sets of cards can be ordered automatically.
2. Classification is done in codified forms, designed specifically for this purpose, using symbols allowing the computer to recognize the information.
3. On-line retrieval aids classifiers by permitting them to have access to the data bank and allowing them to modify the information when they consider it necessary.
4. Necessary duplicates of the cards of publications recorded in the data bank are easily made.
5. Inventories are updated every time an entry or a modification is made.
6. Data entries are made in a specialized minicomputer which minimizes errors.

From the data bank, the following can be obtained:

1. Duplicates of cards for the official catalogue
2. Card sets made according to international cataloguing rules
3. Indexes by author, title, subject, and classification which can be printed on paper or on microfilm. UNAM has chosen to send updated indexes to each library in microfiche.
4. Bulletins of new acquisitions
5. Statistics from the data bank (languages, subjects, etc.)
6. Authority files

The data bank contains two kinds of information

- a. The retrospective information
- b. The updated information

The retrospective information is that which had accumulated in the stock room during the past 25 years (approximately 150,000 titles). This information was codified and keyed by a private company specializing in these tasks.

The updated information is the information which is derived from the books bought and processed daily in UNAM and whose codification, keying and validation are carried out by UNAM personnel.

At the moment the data bank consists of 230,000 titles.

There are also several projects which UNAM has been working on this year. These are:

1. The Authority Files Project
2. The Thesis Project
3. The Automated Circulation System Project
4. The Librunam Services for Library Users Project

1. The Authority Files project is for standardizing the information of the data bank by comparing the information which already exists in the data bank with updated authority sources and selecting entries to be corrected.
2. The Thesis project consists in the creation of a data bank which will include all the theses of the graduates of the National Autonomous University. At the moment UNAM are keying in all the theses of masters and doctorates.
3. The Automated Circulation System consists in controlling the status of books and library users in order to know whether a particular book has been loaned or is on the shelf, who has it, how many books each user has, etc, all with the purpose of improving library loan services.

4. The objective of Librunam Services for Library Users is to satisfy the need of the general community for obtaining bibliographic information. This goal will be achieved by offering the following services:

1. On-line catalogues
2. Microfiche catalogues
3. Compilation of catalogues
4. Newsletters for new acquisitions
5. Compilation of bibliographies
6. Creation of special data banks
7. Recording and control of library inventories
8. Magnetic tapes in MARC format
9. A technical cataloguing process for external institutions
10. Catalogue cards
11. Publishers catalogues
12. Catalogues of elements authorized in the data bank
13. Statistics of the data bank
14. Inter-library loans
15. Distribution services
16. Referral services by telephone or by mail

Appendix 3. Computing facilities at LANFI

LANFI VAX computer installation

Software for the VAX 11/780

LANFI VAX computer installation

The computer is due to be installed about July 1981. It is proposed to include the following equipment:

- 1 VAX 11/780 minicomputer with floating point accelerator
- 1 magnetic tape unit handling 800/1600 p.p.i.
- 12 CRT terminals
- 1 line printer operating at 600 lines per minute
- 1 graphics terminal capable of producing histograms
- 5 hard copy terminals (with upper and lower case characters) operating at 180 characters per sec.
- 1.5 million bytes of memory
- 2 magnetic discs (67 million bytes per disc)

The Computer Centre will have the following staff:

- 1981: computer systems coordinator
- 2 systems analysts
- 2 computer operators
- 1 secretary
- 1 general assistant
- 1982: 2 further systems analysts
- 1 user liaison officer

There will be spare capacity in the initial installation for experimental development work, e.g. in connection with the Packaging Information Centre. As and when increased capacity is required, more disc drives, memory, VDU's, printers, etc can be added. The system will have communication facilities; up to 256 ports can be installed.

SOFTWARE FOR THE VAX 11/780

The following programs, listed in the Digital Engineering Systems Software Referral Catalog, 4th edition, are being considered for purchase or lease:

Project control

PCS project control  
PMS ASA project control  
SMART i project planning  
CPM critical path method  
PROMINI critical path based project management  
PNP precedence network printing

Accounting

Small business information system  
Accounting package  
FPS financial planning simulator  
CYBORG payroll/personnel system  
PABS project accounting and billing system  
ARSAP RSX-11M system accounting and chargeback system  
ACT 2.0 VAX accounting system  
ICI inventory control system

Mathematics and statistics

NAG library (numerical algorithms group)  
SPSS statistical package for the social sciences

Simulation/operations research

Mini-dynamo modelling  
Gaming-dynamo continuous simulation language  
Dynamo 111/F continuous simulation language  
GPSS 10 general purpose simulation system  
ACSL advanced continuous simulation language  
ESP engineering simulation package

System/program utilities

FBS file backup and recovery system

TOTAL data base management system

MLE utilities

Text processing

Phototypesetter

LU-runoff text and document formatting program

Note: A multi-terminal word processing program and other text processing programs are available for purchase or lease also.



Appendix 4. Outline job specifications and  
training requirements

## OUTLINE JOB SPECIFICATIONS AND TRAINING REQUIREMENTS

The main responsibilities of each member of staff are outlined below, together with the essential (E) and desirable (D) knowledge and experience needed for the job. The training and orientation required if the person does not already have the necessary knowledge and experience are also given.

### Head of Centre

#### Responsibilities:

Administration of the Centre; business strategy; planning and implementing work; staff selection and deployment; customer contact and liaison; supervision of all activities, services and projects.

#### Knowledge and experience:

Broad knowledge of packaging industry and technology (E).  
Practical experience of running an information service (E).  
Administrative, communication and marketing skills (E).

#### Training and orientation:

2 - 3 week management level course in packaging (if required)  
2 - 3 week management level course on information science (if required)  
Short courses on general management topics such as business strategy, planning, administration, communication and marketing (if required)  
Visits to leading packaging information centres throughout the world to establish contacts and study techniques used and services provided  
Visits to other computerized information centres

### DATABASE UNIT

#### Head of database unit

#### Responsibilities:

Organizing and undertaking production of the database; provision of information services, including eventually an online database; liaison with Computer Centre; establishing inputs from external online databases.

Knowledge and experience:

Practical experience of database work (E).

Appreciative knowledge of computing (E).

Knowledge of packaging (D).

Training and orientation:

1 - 2 months training at Pira

Short course on computer appreciation (if required)

Short course on packaging (if required)

Information Scientists (two)

Responsibilities:

Summarizing, abstracting and preparing material for input to the database; extracting information from the database.

Knowledge and experience:

Practical experience of database work (E)

Appreciative knowledge of computing (D)

knowledge of packaging (D)

Training:

Practical training in database work

Short course on computer appreciation (if required)

Short course on packaging (if required)

VDU operators (two)

Responsibilities:

Input of material to the database for all Units

Knowledge and experience:

Accurate typing (E)

Training:

How to use a VDU

## LIBRARY

### Librarian

#### Responsibilities:

Organizing and running the library; organizing and running library services

#### Knowledge and experience:

Practical librarianship (E)

#### Training and orientation:

Short course on computer appreciation (if required)

Short courses on computerized library techniques, e.g. cataloguing, indexing and thesaurus construction

Visits to libraries using computerized techniques

### Library assistant

#### Responsibilities:

Library clerical work

#### Knowledge and experience:

Library clerical work (E)

#### Training:

Practical training in library clerical work (if required)

## INDUSTRIAL INFORMATION UNIT

### Head of Industrial Information Unit

#### Responsibilities:

Organizing the collection and analysis of industrial information; organizing and undertaking consultancy services and projects; producing reviews and newsletters

Knowledge and experience:

Broad knowledge of packaging industry and technology (E)

Practical experience of information work (E)

Communication skills (E)

Training and orientation:

2 - 3 week management level course on packaging (if required)

2 - 3 week management level course on information science (if required)

Short courses on general management topics such as administration, finance, planning, marketing, communication (if required)

Visits to leading industrial information units

Industrial Information Officers (two)

Responsibilities:

Collecting industrial information by personal contact, telephone, post and visits to manufacturers, suppliers, exhibitions, etc; writing reviews, newsletters, studies, reports.

Knowledge and experience:

Knowledge of packaging industry and technology (E)

Training:

2 - 3 week management level course on packaging (if required)

ECONOMICS AND STATISTICS UNIT

Head of Economics and Statistics Unit

Responsibilities:

Organizing and undertaking the collection, compilation and analysis of economic data and statistics; forecasting; statistical analysis of data; producing reviews, studies and reports.

Knowledge and experience

Economics (E)

Forecasting and statistical techniques (E)

Training and orientation:

Course on forecasting and statistical techniques (if required).

Short course on market research techniques (if required).

Short course on computer appreciation (if required).

Visits to leading industrial economics and statistics units.

Market Research Officers (two)

Responsibilities:

Collecting and compiling economic data and statistics by interview and questionnaire.

Knowledge and experience:

Market research and interviewing techniques (E)

Training:

Practical experience of market research and interviewing (if required).

Appendix 5.

Core journals in the packaging field

CORE JOURNALS IN THE PACKAGING FIELD

Adhesives Age  
Aerosol Report  
Boxboard Containers  
Containerisation International  
Converter  
Emballages  
European Carton Makers Association Bulletin  
Food and Drug Packaging  
IDE  
Imballaggio  
International Bottler & Packer  
International Paper Board Industry  
Labels and Labelling  
Modern Materials Handling  
Modern Plastics International  
Package Technology  
Package Engineering  
Package Printing  
Packaging  
Packaging Digest (US)  
Packaging News  
Packaging Review  
Packaging Today  
Paper, Film and Foil Converter  
Paperboard Packaging  
Verpackungs Rundschau

Latin American packaging journals

Embalagem (Brazil)  
Embalagens (Brazil)  
Envasamiento (Argentina)  
Envase y Embalaje (Mexico)  
Envase y Embalaje (Peru)  
Envase y Embalaje (Venezuela)



Appendix 6. List of contacts

LIST OF CONTACTS

Discussions were held with the following:

Project Co-directors

Dr Careaga, Director General, LANFI-IMAI

Dr Luis Madi, UNDP

IMAI

Ing. Francisco Munos, Head of Packaging Dept.

Lic. J A Blackaller, Head of Technical Publications Dept.

Sr Rafael Sandoval, Librarian

Sr Jose Gutierrez, Packaging Dept.

Cemiq

Ing. Maria Engel, Head of Cemiq

Lic. Ligia Hernandez, Librarian

Ing. Leticia Quevedo

LANFI Computer Co-ordinator and Systems Analysts

M.Eng. Manuel Alvarez, School of Informatics, Anahuac University

Sr Adolfo Perez, Systems Analyst, LANFI

Sr Gerardo Martinez, Systems Analyst, LANFI

Infotec

Ing. Jose Quevedo Procel, Executive Director

Ing. Jose Luis Villar Barranca, Head of Advisory Dept.

UNAM Central Library

Ing. J Voutssas, Director General

Lic. Hellen Cardus

PIRA GUIDE TO SOURCES OF INFORMATION  
ON PACKAGING

Compiled by Marjorie Thompson, M.I.Inf.Sc.,  
Librarian  
Pira, Leatherhead, Surrey, England

September 1980

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Guides to sources of information on  
packaging, page 1

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Bibliographies, page 17

Dictionaries and glossaries, page 18

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Standards organizations, page 20

Publications dealing with standards and  
specifications, page 25

Legislation, page 26

GUIDES TO SOURCES OF INFORMATION ON PACKAGING

There are several guides which give details of sources of packaging information. The first one listed below is US oriented; the remainder are oriented to the needs of developing countries. The UNIDO guides only contain lists of published sources, but the International Trade Centre UNCTAD/GATT books, particularly volume 1, give advice on the provision of information in addition to listing sources of information.

Jones, G

PACKAGING. A GUIDE TO INFORMATION SOURCES

Detroit: Gale Research Co., 1967, 285 pp., 8.75 US dollars  
(Management Information Guide: 10)

Anon.

PROMOTING PACKAGING FOR EXPORTERS, VOL. I, A GUIDE TO INSTITUTIONAL MEASURES AND TECHNICAL ASSISTANCE

Geneva: International Trade Centre UNCTAD/GATT, 1975, 212 + vi pp., 25.00 dollars

Anon.

PROMOTING PACKAGING FOR EXPORTERS, VOL. II, ANNEXES

Geneva: International Trade Centre UNCTAD/GATT, 1975, 210 + xiv pp., 25.00 dollars

Anon.

PROMOTING PACKAGING FOR EXPORTERS, VOL. III, DIRECTORY AND BIBLIOGRAPHY

Geneva: International Trade Centre UNCTAD/GATT, 1975, 145 pp., 25.00 dollars

Anon.

INFORMATION SOURCES ON THE PACKAGING INDUSTRY

UNIDO Guides to Information Sources No 27, Vienna: United Nations Industrial Development Organization, 1977, 110 pp., 4.00 US dollars

In addition to the UNIDO Packaging Guide, the following related guides may be useful.

Anon.

INFORMATION SOURCES ON THE CANNING INDUSTRY

UNIDO Guides to Information Sources No 9, Vienna: United Nations Industrial Development Organization, 1975, £2.08

Anon.

INFORMATION SOURCES ON THE PULP AND PAPER INDUSTRY

UNIDO Guides to Information Sources No 11, Vienna: United Nations  
Industrial Development Organization, 1974, 92 pp., £1.93

Anon.

INFORMATION SOURCES ON THE PRINTING AND GRAPHICS INDUSTRY

UNIDO Guides to Information Sources No 14, Vienna: United Nations  
Industrial Development Organization, 1975, 65 pp., £4.00

Anon.

INFORMATION SOURCES ON THE GLASS INDUSTRY

UNIDO Guides to Information Sources No 16, Vienna: United Nations  
Industrial Development Organisation, 1975, 64 pp., £2.08

## DIRECTORIES

A list of directories appears in:

UNIDO Guides to Information Sources, no 27.  
Information Sources on the Packaging Industry, pp. 36-46.

It should be noted that the UNIDO list, published in 1977, is now a little out-of-date.

### Additions to the UNIDO list

#### Australia

- (1) Australian Packaging Buyers' Guide.  
IPC Business Press (Australia) Pty Ltd.  
3-13 Queen Street, Chippendale, 2008 Australia.

#### Belgium

- (2) Belgian Directory of Packaging.  
Belgian Packaging Institute, rue Picard 15,  
1020 Brussels, Belgium.

#### Europe

- (3) Who's Who in Corrugated. Europe & UK  
Binsted Publications, Binsted House, Devonshire Close,  
Devonshire Street, London W1N 2DL.

#### Germany

- (4) Pack Adress  
Deutscher Fachverlag GmbH, Postfach 2625,  
Schumannstrasse 27, D-6000 Frankfurt am Main 1,  
W Germany.

#### Hong Kong

- (5) Hong Kong Packaging Directory  
Hong Kong Packaging Council, 12/F Eldex Industrial Building,  
21A Ma Tau Wei Road, Kowloon, Hong Kong.

#### International

- (6) International Packaging Directory. A guide to worldwide  
packaging sources.  
World Packaging Organisation, Belgrano 2852,  
1209 Buenos Aires, Argentina.

Israel

- (7) Israel Packaging Directory.  
Israel Institute of Packaging, 3 Rehov Carlebach,  
Tel Aviv, PO Box 29732, Israel.

Netherlands

- (8) Verpakkings Adresboek  
BV Uitgeversmij, Reflex, Mathenesserlaan 310  
Rotterdam, Netherlands

South Africa

- (9) South African Packaging Directory and Buyers' Guide.  
Thomson Publications South Africa (Pty) Ltd.,  
Marcuson Centre, Cr Menton/Park Rds., Richmond,  
Johannesburg, PO Box 8308, South Africa.

UK

- (10) Adhesives Directory  
A S O'Connor and Co Ltd., 26 Sheen Park,  
Richmond, Surrey.
- (11) Converter Directory  
Embankment Press Ltd., Building 59, GEC Estate,  
East Lane, Wembley, Middx.
- (12) Directory of Labels and Labelling  
Labels and Labelling Publishers Ltd.,  
10 Torrington Drive, Potters Bar, Herts EN6 5HR
- (13) Folding Carton Manual and Directory  
Binsted Publications, Binsted House,  
Devonshire Street, London W1N 2DL
- (14) Packaging Directory (this was the Tudor Press title.  
September 1980 promised for new edition).  
Wheatland Journals Ltd.,  
177 Hagden Lane, Watford, WD1 8LW
- (15) Packaging Review Directory and Buyers' Guide  
IPC Business Press Ltd., Dorset House, Stamford Street,  
London SE1 9LU
- (16) Unit Load Directory  
Pallet Enterprises Ltd., P O Box No 33W,  
Wembley, Middx HA9 9NU



US

- (17) Package Engineering Annual Buyers' Guide  
Cahners Publishing Co., 270 St Paul Street,  
Denver, Colorado 80206, USA
- (18) Packaging Digest Machinery Guide  
Delta Communications Inc.,  
400 N. Michigan Avenue, Chicago, Illinois 60611, USA
- (19) Who's Who in Packaging (Directory of Membership)  
Packaging Institute  
342 Madison Avenue, New York, NY 10017, USA

A few extra titles appear in vol. III of Promoting Packaging for Exporters, pp. 81-85.

A number of magazines devote one issue a year to a directory edition.

## STATISTICAL SOURCES

The most comprehensive list of statistical sources for the packaging industries is:

Pira handbook of statistical sources.

Pira, 1978, 216 pp.

This covers statistical sources for the paper and board, printing and packaging industries in Western Europe, Scandinavia, North America and Japan.

Other sources of statistics, marketing and economic data are listed in the UNIDO Packaging Guide, pp. 47-55.

## TEXTBOOKS ON PACKAGING

Agnew, J., and Huntley, J.  
CONTAINER STOWAGE. A PRACTICAL APPROACH  
Dover: Container Publications Ltd., 1972, 262 pp., \$6.00

Briston, J.H., and Katan, L.L.  
PLASTIC FILMS  
London: Plastics Institute, by Butterworth & Co. (Publishers) Ltd., 1974, 305 pp.

Briston, J.H., and Katan, L.L.  
PLASTICS IN CONTACT WITH FOOD  
London: Food Trade Press Ltd., 1974, 466 pp.

Briston, J.H., and Neill, J.  
PACKAGING MANAGEMENT  
Epping, Essex: Gower Press Ltd., 1972, 254 pp., £5.50

BRITISH STANDARD 1133 - PACKAGING CODE  
London: British Standards Institution

- Sections 1-3 : 1967. Introduction to packaging, 40 pp, £5.60
- Section 4 : 1965. Mechanical aids in package handling, 52 pp, £5.60
- Section 5 : 1964. Protection against spoilage of packages and their contents by micro-organisms, insects, mites and rodents, 16 pp, £2.60
- Section 6 : 1966. Temporary protection of metal surfaces against corrosion (during transport and storage), 120 pp, £7.80
- Section 7 : 1967. Paper and board wrappers, bags and containers, 160 pp, £9.30
- Section 7 :  
Chapter 7.5 : 1976. Fibreboard packing cases, 20 pp., £5.60
- Section 8 : 1950. Wooden containers, 140 pp, £7.80
- Section 9 : 1967. Textile bags, sacks and wrappings, 68 pp, £5.60
- Section 9C: 1967. Wall chart for calculating required sizes of bags and sacks, 90p + VAT
- Section 10 : 1966. Metal containers, 76 pp, £7.80
- Section 11 : 1968. Packaging felt, 16 pp, £2.60
- Section 12 : 1967. Cushioning materials (excluding packaging felt), 44 p, £5.60
- Section 13 : 1954. Twines and cords for packaging, 16 pp, £2.60
- Section 14 : 1961. Adhesive closing and sealing tapes, 20 pp, £2.60

BRITISH STANDARD 1133 - PACKAGING CODE (contd.)

- Section 15 : 1975. Tensional strapping, 16 pp, £5.60
- Section 16 : 1968 Adhesives for packaging, 44 pp, £5.60
- Section 17: 1964 Wicker and veneer baskets, 20 pp, £2.60
- Section 18 : 1967 Glass containers and closures, 64 pp, £5.60
- Section 18 : Sub-  
section 1 : 1974 Terminology, 20 pp, £5.60
- Section 19 : 1968 Use of desiccants in packaging, 24 pp, £3.20
- Section 20 : 1973 Packaging for air freight excluding livestock,  
12 pp, £4.20
- Section 21 : 1976 Regenerated cellulose film, plastics film, aluminium  
foil and flexible laminates, 20 pp, £5.60
- Section 22 : 1967 Packaging in plastics containers, 28 pp, £3.20

Brody, A.L.

FLEXIBLE PACKAGING OF FOODS

London: Butterworth & Co. (Publishers) Ltd., 1970, 103 pp, £5.00

Bruins, P.F. (Editor)

BASIC PRINCIPLES OF THERMOFORMING

New York: Gordon and Breach Science Publishers Inc., 1973, 283 pp, £8.60

Bruins, P.F.

PACKAGING WITH PLASTICS

New York: Gordon & Breach Science Publishers Inc., 1974, 211 pp, £6.94

Brydson, J.A.

PLASTICS MATERIALS

London: Newnes-Butterworth, 3rd Edition, 1975, 731 pp, £15.50

Cairns, J.A., Oswin, C.R., and Paine, F.A.

PACKAGING FOR CLIMATIC PROTECTION

London: Newnes-Butterworth for Institute of Packaging, 1974, 111 pp, £2.90

Anon.

CONTAINERS - THEIR HANDLING AND TRANSPORT. A SURVEY OF CURRENT PRACTICE

London: National Ports Council, 1978, 418 pp., £17.50

Crompton, T.R.

ADDITIVE MIGRATION FROM PLASTICS INTO FOOD

Oxford: Pergamon Press Ltd, 1979, 234 pp, £21.00

Anon.

THE STEEL RULE DIEMAKER AND STEEL RULE DIECUTTING INDUSTRY

Fort Pierce Fl.: Diemakers & Diecutters Association, 2nd ed., 1979, 85 pp,  
12.50 US dollars

Dullinger, K.

KRONES MANUAL OF LABELLING TECHNOLOGY

Neutraubling: Herman Kronseder Maschinenfabrik, 1978, 222 pp, 49DM

- Eichler, J.R.  
WOOD PALLET MANUFACTURING PRACTICES  
Cape Coral, Fl. : Eichler Associates, 1976, 168 pp, £10.00
- Farnham, S.E.  
A GUIDE TO THERMOFORMED PLASTIC PACKAGING  
Boston, Mass. : Cahner Books, 1972, 258 pp.
- Fisher, E.G. assisted by Whitfield, E.C.  
EXTRUSION OF PLASTICS  
London: Newnes-Butterworth for Plastics and Rubber Institute, 3rd Edition,  
1976, 344 pp, £9.00
- Friedman, W.F., and Kipness, J.J.  
DISTRIBUTION PACKAGING  
Huntington, New York: Robert E. Krieger Publishing Co., 1977, 545 pp.,  
23.50 US dollars
- Griffin, R.C., Jr, and Sacharow, S.  
DRUG AND COSMETIC PACKAGING  
Park Ridge, N.J.: Noyes Data Corp., 1975, 267 pp, \$18.00
- Griffin, R.C., and Sacharow, S.  
PRINCIPLES OF PACKAGE DEVELOPMENT  
Westport, Conn : AVI Publishing Co. Inc., 1972, 327 pp, £9.00
- Hanlon, J.F.  
HANDBOOK OF PACKAGE ENGINEERING  
New York: McGraw-Hill Book Co., 1971, 533 pp, £8.90
- Harper, C.A., editor  
HANDBOOK OF PLASTICS AND ELASTOMERS  
New York: McGraw-Hill Book Co., 1975, 509 pp, £29.25
- Heiss, R  
PRINCIPLES OF FOOD PACKAGING. AN INTERNATIONAL GUIDE  
Heusenstamm, W. Germany: P Keppler Verlag KG, 1970, 332 pp.
- Higham, R.A.  
A HANDBOOK OF PAPERBOARD AND BOARD, VOL. 1, MANUFACTURING TECHNOLOGY AND  
VOL. 2, TECHNOLOGY OF CONVERSION AND USAGE  
London: Business Books Ltd., 1971, 176 pp. and 209 pp.
- Hoffman, J.P.A. (Editor)  
DICTIONARY OF PACKAGING. ENGLISH-GERMAN-FRENCH-ITALIAN-SPANISH-RUSSIAN  
Heidelberg: Verlag fur Fachliteratur G.m.b.H., 1975, 843 pp.
- Hulett, M.  
UNIT LOAD HANDLING  
London: Gower Press Ltd., 1970, 351 pp, £10.00
- Jackson, J.M.  
FUNDAMENTALS OF FOOD CANNING TECHNOLOGY  
Westport, Connecticut: AVI Publishing Co. Inc., 1979, 407 pp., £19.75
- Lefaux, R.  
PLASTICS MATERIALS IN THE FOOD INDUSTRY  
Paris: Compagnie Francaise d'Editions, 1972, 559 pp., 140 Fr.Fr. (in French)

Leonard, E.A.  
PACKAGING SPECIFICATIONS PURCHASING AND QUALITY CONTROL  
London: McGraw-Hill Inc., 1971, 156 pp.

Leonard, E.A.  
INTRODUCTION TO THE ECONOMICS OF PACKAGING  
New York: McGraw-Hill Inc., 1971, 124 pp.

Lock, A.  
PRACTICAL CANNING  
London: Food Trade Press Ltd., 3rd Edition, 1969, 415 pp, £4.50

Long, R.P.  
REFERENCE ENCYCLOPEDIA OF PACKAGE PRINTING TECHNIQUES AND EQUIPMENT  
Philadelphia: North American Publishing Co., 2nd Edition, 1973, 299 pp.,  
\$24.50

Lopez, A.  
A COMPLETE COURSE IN CANNING  
Baltimore: Canning Trade Inc., 10th Edition, 1975, 755 pp., £23.75

MacChesney, J.C.  
PACKAGING OF COSMETICS AND TOILETRIES  
London: Butterworth & Co. (Publishers) Ltd. in association with Institute  
of Packaging, 1974, 137 pp., £2.50

Milgrom, J., and Brody, A.  
PACKAGING IN PERSPECTIVE  
Cambridge, Mass.: Arthur D Little Inc., 1974, 233 + 13 + 11 pp., 10 dollars

Montresor, J.M., Mostyn, H.P., and Paine, F.A.  
PACKAGING EVALUATION. THE TESTING OF FILLED TRANSPORT PACKAGES  
London: Butterworth & Co. (Publishers) Ltd. in association with Institute of  
Packaging, 1974, 113 pp., £2.50

Moody, B.  
PACKAGING IN GLASS  
London: Hutchinson Benham Ltd., Rev. Ed., 1977, 383 pp., £12.00

Mosher, R.H. and Davis, D.S.  
INDUSTRIAL AND SPECIALTY PAPERS, VOL.1, TECHNOLOGY.  
New York: Chemical Publishing Co. Inc., 1968, 328 pp.

Mosher, R.H., and Davis, D.S.  
INDUSTRIAL AND SPECIALTY PAPERS, VOL.2, MANUFACTURE  
New York: Chemical Publishing Co. Inc., 1968, 330 pp.

Mosher, R.H., and Davis, D.S.  
INDUSTRIAL AND SPECIALTY PAPERS, VOL.3, APPLICATIONS  
New York: Chemical Publishing Co. Inc., 1969, 375 pp.

Mosher, R.H., and Davis, D.S.  
INDUSTRIAL AND SPECIALTY PAPERS, VOL.4, PRODUCT DEVELOPMENT  
New York: Chemical Publishing Co. Inc., 1970, 240 pp.

- Neubauer, R.G.  
 PACKAGING. THE CONTEMPORARY MEDIA  
 New York: Van Nostrand Reinhold Co., 1973, 208 pp., £9.00
- Oswin, C.R.  
 PLASTIC FILMS AND PACKAGING  
 London: Applied Science Publishers Ltd., 1975, 214 pp., £8.00
- Paine, F.A. (Editor)  
 THE PACKAGING MEDIA  
 Glasgow: Blackie & Son Ltd. for Institute of Packaging, 1977, £15.95
- Paine, F.A. (Editor)  
 PACKAGING AND THE LAW  
 London: Butterworth & Co. (Publishers) Ltd., 1973, 104 pp. £2.20
- Pilditch, J.  
 THE SILENT SALESMAN. HOW TO DEVELOP PACKAGING THAT SELLS  
 London: Business Books Ltd., 2nd Edition 1973, 156 pp., £3.50
- Raphael, H.J., and Olsson, D.L.  
 PACKAGE PRODUCTION MANAGEMENT  
 Westport, Conn: AVI Publishing Co. Inc., 1976, 250 pp., 21.00 US \$
- Rogers, J.L., and Binstead, R.  
 QUICK-FROZEN FOODS. THE COMMERCE AND TECHNOLOGY OF PROCESSING PACKAGING  
 AND DISTRIBUTION  
 London: Food Trade Press Ltd., 1972, 499 pp., £8.00
- Ross, C.F.  
 PACKAGING OF PHARMACEUTICS  
 London: Newnes-Butterworths for Institute of Packaging, 1975, 165 pp., £3.90
- Sacharow, S.  
 A PACKAGING PRIMER  
 New York: Magazines for Industry, 1978, 196 pp., 24.95 US \$
- Sacharow, S.  
 HANDBOOK OF PACKAGING MATERIALS  
 Westport: AVI Publishing Co. Inc., 1976, 243 pp., £16.75
- Sacharow, S.  
 PACKAGING REGULATIONS  
 Westport, Conn.: AVI Publishing Co Inc., 1979, 207 pp., 28.00 US \$
- Sacharow, S., and Griffin, R.C., Jr.  
 BASIC GUIDE TO PLASTICS IN PACKAGING  
 Boston, Mass.: Cahners Books, 1973, 211 pp., £6.10
- Sanders, P.A.  
 HANDBOOK OF AEROSOL TECHNOLOGY  
 New York: Van Nostrand Reinhold Co., 2nd ed., 1979, 526 pp., £20.65.
- Sciarrà, J.J., and Stoller, B.B.A. (Editors)  
 THE SCIENCE AND TECHNOLOGY OF AEROSOL PACKAGING  
 New York: John Wiley & Sons Inc., 1974, 710 pp., £19.60
- Shields, J.  
 ADHESIVES HANDBOOK  
 London: Newnes-Butterworth for Sira Institute Ltd., 2nd Edition 1976,  
 348 pp., £12.50

Sinia, R.J.  
ALUMINIUM IN PACKAGING  
Hilversum: Stamex BV Publishing Co., 139 pp.

Swalm, C.M. (Editor)  
CHEMISTRY OF FOOD PACKAGING  
Advances in Chemistry Series 135, Washington: American Chemical Society,  
1974, 109 pp., 8.50 dollars

Sweeting, O.J. (Editor)  
THE SCIENCE AND TECHNOLOGY OF POLYMER FILMS, VOLS. I and II  
New York: Wiley-Interscience, 1971, 887 and 754 pp., £16.10 and £28.05

Swinbank, C.  
PACKAGING OF CHEMICALS AND OTHER INDUSTRIAL LIQUIDS AND SOLIDS  
London: Butterworth & Co. (Publishers) Ltd. for Institute of Packaging,  
1973, 203 pp., £3.20

Anon.  
TRANSPORT OF DANGEROUS GOODS. RECOMMENDATIONS PREPARED BY THE COMMITTEE OF  
EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS  
New York: United Nations, 1976, 337 pp., £9.75

Weiss, A.L.  
COATING AND LAMINATING MACHINES  
Milwaukee: Converting Technology Co., 1977, 441 pp., 50.00 US dollars



## PERIODICALS

Lists of packaging periodicals appear in:

- (1) UNIDO Guide to Information Sources no 27: Information sources on the packaging industry, pp. 63-78
- (2) Promoting Packaging for Exporters, vol. III, pp. 94-105  
UNCTAD/GATT

### New titles

The following list gives additional titles currently taken in the Pira library:

Aerosol Report, monthly, in German  
Dr Alfred Huthig Verlag GmbH, 69 Heidelberg 1, Postfach 102869, W Germany

Cartonajes, quarterly, in Spanish  
Gremio de Manipuladores del Carton de Barcelona, Rambla de Catalunya 92 5<sup>o</sup>,  
Barcelona, Spain

ECMA Bulletin, two per year, in English, French and German  
European Carton Makers Association, Laan Copes van Cattenburch 79,  
2585 EW The Hague, Netherlands

FINAT News, 3 per year, in French and English  
Federation International des Fabricants et Transformateurs d'Adhesifs et  
Thermocollants Papier et autre Supports, Laan Copes van Cattenburch 79,  
2585 EW The Hague, Netherlands

Folding Carton Industry, quarterly, in English  
Binsted Publications, Binstead House, Devonshire Close, Devonshire Street,  
London WIN 2DL

Informationsdienst Verpackung, monthly, in German  
RG Verpackung (RGV), Dusseldorfer Strasse 40, 6236 Eschborn, W Germany

Labels and Labelling, quarterly, in English  
Labels and Labelling Publishers Ltd, 10 Torrington Drive, Potters Bar,  
Herts. EN6 5HR, U.K.

Missets Pakblad, monthly, in Dutch  
Uitgeverij C Misset BV, Ijsselkade 32, 7001 AP Doetinchem, Netherlands

Package Printing, monthly, in English  
North American Publishing Co., 401 N Broad Street, Philadelphia, Pa 19108,  
USA

Packaging Review South Africa, 6 per year, in English  
Business Press Division of the Communications Group, 2nd Floor, White-Ray  
House, 51 Wale Street, PO Box 335, Cape Town, S Africa

New titles (continued)

Packaging Today, monthly, in English  
Northwood Publications Ltd, Northwood House, 93-99 Goswell Road,  
London EC1V 7QA

Pak Aktueel, monthly, in Dutch  
Tijl Periodieken BV, Texelstraat 76-80, Postbus 737, 1180 AS Amstelveen,  
Netherlands

Tin International, monthly, in English  
Tin Publications Ltd, 7 High Road, London W4 2NE

Amended titles

The following periodicals listed in (1) or (2) have changed their names  
or been incorporated in others:

Besser Verpacken	now	OVZ Mitteilungen
Canning and Packing	now in	Tin International
Diemaking Diecutting and Converting	now in	Package Printing
Europlastics Monthly	now	European Plastics News
Flexography	now in	Package Printing
Industrieel Verpakken	now	Missets Pakblad
Modern Converter	now in	Paper Film and Foil Converter
Modern Packaging	now in	Package Engineering
Package Development and Systems	now	Packaging Technology
Packaging Design	now in	Print - American Graphic Design Magazine
Pack - Distribution	now	Pack Marknaden
Tin Printer and Box Maker	now in	Tin International

Discontinued journals

The following periodicals listed in (1) or (2) have ceased publication:

Asian Packaging  
Containers and Packaging Industry Report  
IMEE  
Irish Packaging and Printing

Discontinued journals (continued)

New Zealand Packaging

Novographos

Packaging and Printing Progress

Packaging Progress

Packaging Technology and Management

Sett-Skandinavisk Emballage and Transport

Verpackungsfolien, Verpackungspapiere

Verpackungs-Magazin

Verpackungswirtschaft

No longer listed in Ulrich

The following periodicals listed in (1) or (2) do not appear in the 1980 edition of Ulrich:

Actualidade de Embalagem e Acondicionamento

L'Aerosol

Canner Packer

Container News

Cordage Canvas and Jute World

Embalagem

Embalagens

Envase y Embalage (Venezuela)

Envase y Embalage (Peru)

Journal of Packaging

JPI Journal

Packaging (Hungary)

Packaging Plan

Tidskrift for Hermetikindustri

Wooden Barrel

ABSTRACTING SERVICES

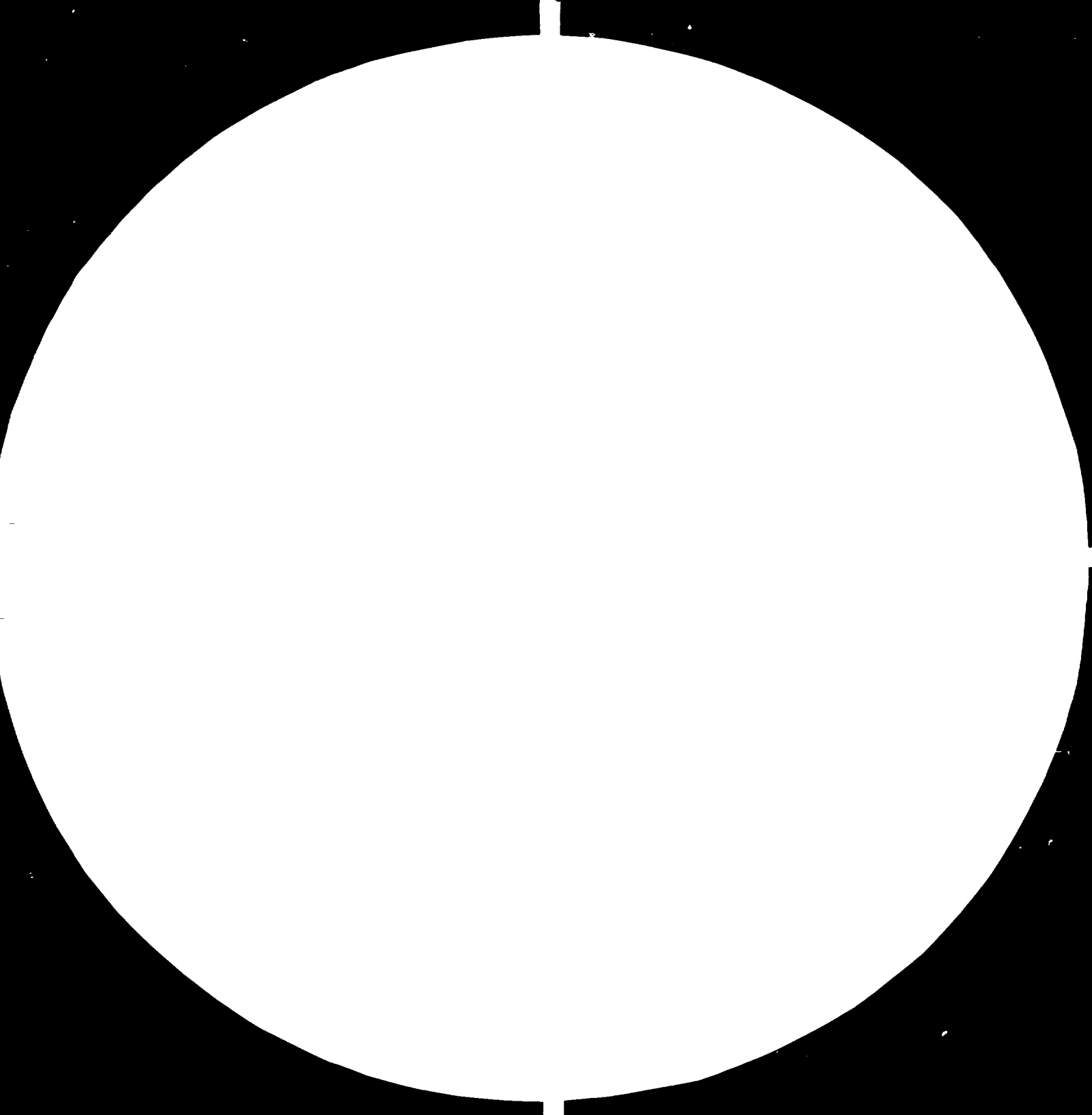
Lists of abstracting services appear in:-

UNIDO Guides to Information Sources no 27, Information Sources in the Packaging Industry, pp. 79-81.

Promoting Packaging for Exporters, vol III, UNCTAD/GATT, pp. 87-90


It should be noted that the 'Current Packaging Abstracts' is now produced at Ira S Gottscho Packaging Information Center, Packaging Science and Engineering, College of Engineering, Rutgers - The State University of New Jersey, PO Box 909, Piscataway, N.J. 08854, USA.





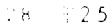
 1.0

 1.1

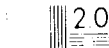
 1.25

 1.4

 1.6

 1.8

 2.0

 2.2

 2.5

Resolution test target (NBS 1963-A) showing patterns of lines and numerical values (1.0, 1.1, 1.25, 1.4, 1.6, 1.8, 2.0, 2.2, 2.5) used for measuring optical resolution.

BIBLIOGRAPHIES

A list of bibliographies is given in the UNIDO Packaging Guide, pp. 88-89.

A classified list of Pira bibliographies on packaging subjects is available from Pira.



## DICTIONARIES AND GLOSSARIES

Lists of dictionaries and glossaries appear in:

UNIDO Guides to Information, no 27. Information Sources in the Packaging Industry, pp. 86-87.

Promoting Packaging for Exporters, vol III, UNCTAD/GATT, pp. 59-62.

### Additions to these lists

- (1) Anon.  
Glossary of terms used in materials handling.  
Part 1. Terms used in connection with pallets, stillages, hand and powered trucks.  
British Standard 3810: pt 1; 1964, London: British Standards Institution.
- (2) Anon.  
Glossary of terms used in the plastics industry.  
Part 2. Manufacturing processes  
British Standard 1755: Pt 2; 1974, London: British Standards Institution.
- (3) Anon.  
Terms for flexible packaging  
Kaukauna, Wisconsin: Thomas Publishing Co Ltd., 1967, 119 pp., \$2.00
- (4) Hoare, W.E.  
Tinplate handbook  
Greenford, Middlesex: Tin Research Institute, 4th Edition, 1963, 60 pp.
- (5) Sergeant, S.  
Converting terms in English, German and French.  
Wembley: Embankment Press Ltd., 1977, 91 pp., £3.00

## ORGANIZATIONS

Lists appear in:

- 1 Unido Guide to Information Sources no. 27: Information Sources on Packaging, pp. 1-31
- 2 Promoting Packaging for Exporters, vol. III, pp. 1-22, UNCTAD/GATT
- 3 Kline Guide to the Packaging Industry, Fairfield, N.J.: Charles H Kline and Co. Inc., 4th Edition 1980, 325 pp., 87.00 US dollars, pp. 194-209
- 4 IAPRI Handbook  
Leatherhead International Association of Packaging Research Institutes, 1980, 69 pp., £5.00  
Although the institutes listed in this Handbook are also listed in references 1 and 2, there is more detail on each institute in the Handbook.
- 5 1970 International Directory of Associations and Organizations concerned with Packaging. The Hague: European Packaging Federation, 1970, 65 pp.  
Although designated 'International' it only covers Europe, US and Canada. It is 10 years old and some of the addresses may be altered by now.
- 6 International Packaging Directory  
Buenos Aires: World Packaging Organisation, 1979, 49 pp., 7.50 US dollars
- 7 Promoting Packaging for Exporters, vol. II, pp. 47-61, 147-181: UNCTAD/GATT. (Fuller information on the activities of a number of organizations appear)

References 1 and 2 carry substantially the same lists but there are some organisations listed in 2 which do not appear in 1.

References 3 and 6 are the most current publications and the addresses, therefore, of the organizations they list should be more reliable.

STANDARDS ORGANIZATIONS

The following is a list of organizations issuing standards and specifications relating to packaging:

American National Standards Institute  
1430 Broadway  
New York, NY 10018  
U S A

American Society for Testing and Materials  
1916 Race Street  
Philadelphia, PA 19103  
U S A

Association Europeenne des Fabricants de Caisses d'Expedition en  
Carton Compact  
Postfach 656  
Bleicherweg 33  
CH 8027 Zurich  
Switzerland

Association Francaise de Normalisation  
Tour Europe Cedex 7  
92080 Paris-la Defense  
France

British Glass Industry Research Association  
Northumberland Road  
Sheffield S10 2UA

British Paper and Board Industry Federation  
3 Plough Place  
Fetter Lane  
London EC4A 1AL

British Standards Institution  
2 Park Street  
London W1A 2BS

Centre Technique de l'Emballage et du Conditionnement  
11-13 Avenue Georges Politzer  
78190 Trappes  
France

Centre Technique International de l'Embouteillage et du  
Conditionnement  
7 rue la Boetie  
75008 Paris  
France

Commission of the European Communities  
200 rue de la Loi  
1049 Brussels  
Belgium

Composite Can and Tube Institute  
1800 M St., N.W.,  
Washington, DC 20036  
U S A

Department of Health and Social Security  
14 Russell Square  
London WC1B 5HP

Department of Transport  
2 Marsham Street  
London SW1P 3EB

Deutsches Institut für Normen  
1 Berlin 30  
Burggrafenstrasse 4/10  
West Germany

Economic Commission for Europe  
Palais des Nations  
1211 Geneva 10  
Switzerland

Eidgenössische Materialprüfungs- und Versuchsanstalt für  
Industrie, Bauwesen und Gewerbe (EMPA)  
Unterstrasse 11  
CH 9001 St. Gallen  
Switzerland

European Committee for Standardization  
Rue Brederode 2  
Boite 5  
B-1000 Brussels  
Belgium

Federation of European Aerosol Associations  
Waisenhausstrasse 2  
CH-3001 Zurich  
Switzerland

Federation Europeenne des Fabricants de Carton Ondule  
90 rue d'Amsterdam  
F-75008 Paris  
France

Fiber Box Association  
224S Michigan Avenue  
Chicago, IL.60604  
U S A

Fibreboard Packing Case Manufacturers Association  
Sutherland House (3rd Floor)  
5-6 Argyll Street  
London W1V 1AD

Glass Manufacturers Federation  
19 Portland Place  
London W1N 4BH

Glass Packaging Institute (formerly Glass Container Manufacturing Institute)  
1800 K St., N.W.,  
Washington DC 20006  
U S A

Indian Standards Institute  
Manak Bhavan  
no 9 Bahadur Shah Zafar Marg  
New Delhi 110002  
India

Institute of Petroleum  
61 New Cavendish Street  
London W1M 8AR

Intergovernmental Maritime Consultative Organisation  
101-104 Piccadilly  
London W1V 0PE

International Air Transport Association  
P O Box 160  
1216 Cointrin  
Geneva  
Switzerland

International Civil Aviation Authority  
International Aviation Square  
1000 Sherbrooke Street, W.,  
Montreal,  
Quebec  
Canada

International Electrotechnical Commission  
1-3 rue de Varembe  
1211 Geneva 20  
Switzerland

International Organization for Standardization  
Case Postale 56  
1 rue de Varembe  
1211 Geneva 20  
Switzerland

Japanese Standards Organisation  
1-24 Akasaka 4 Chome  
Minato-ku  
Tokyo 107  
Japan

Ministry of Defence - publications available from:  
HMSO  
P O Box 569  
London SE1 9NH

National Flexible Packaging Association  
12025 Shaker Boulevard  
Cleveland, Ohio 44120  
U S A

National Motor Freight Traffic Association  
1616 P St., N W,  
Washington DC 20036  
U S A

Nederlands Normalisatie Instituut  
Postbus 5810  
2280 HV Rijswijk  
Netherlands

Organisation for Economic Co-operation and Development  
2 rue Andre-Pascal  
75775 Paris, Cedex 16  
France

Packaging Institute  
342 Madison Avenue  
New York, NY 10017  
U S A

(This organisation produced a number of standard test methods  
some time ago, but whether they are still in print or  
recognised now is not certain)

Packaging and Industrial Films Association  
c/o Box 121  
301 Glossop Road  
Sheffield S10 2HN

Polski Komitet Normalizacji, Miar i Jakosci  
Ul. Elektoralna 2  
00-139 Warsaw  
Poland

Pressure Sensitive Tape Council  
1800 Pickwick Avenue  
Glenview, ILL 60025  
U S A

Russian Standards Institute (GTDST)  
Leninski Prospekt  
Moscow 117049  
U S S R

SIS Standardiseringskommission i Sverige  
Tegnergatan 11  
Box 3295  
S-10366 Stockholm  
Sweden

Scandinavian Pulp, Paper and Board Testing Committee  
Box 5604  
S-11486 Stockholm  
Sweden

Standards Association of Australia  
Standards House  
80 Arthur Street  
North Sydney, N S W  
Australia

Steel Shipping Container Institute  
2204 Morris Avenue  
Union, N.J. 07083  
U S A

Technical Association of the Pulp and Paper Industry  
1 Dunwoody Park  
Atlanta, GA 30338  
U S A

U S Department of Transport  
Washington DC 20590  
U S A

U S Federal Specifications  
U S General Services Administration  
Washington DC 20405  
U S A

U S Federal Test Methods  
U S General Services Administration  
Washington DC 20405  
U S A

U S Military Standards  
U S Department of Defence  
Washington DC 20402  
U S A

U S National Bureau of Standards  
Washington DC 20234  
U S A

Uniform Freight Classification  
J D Shenson  
Room 202, Union Station  
516 W. Jackson Boulevard  
Chicago  
U S A

United Nations (Transport of Dangerous Goods)  
U N Publications (LX 2300)  
New York, NY 10017  
U S A

The following documents are available from H M S O, P O Box 569,  
London SE1 9NH:

International regulations concerning the carriage of dangerous goods  
by rail (RID)

European agreement concerning the international carriage of dangerous  
goods by road (ADR)

Report of the Standing Advisory Committee on the carriage of dangerous  
goods in ships (The Blue Book).

PUBLICATIONS DEALING WITH STANDARDS AND SPECIFICATIONS

Lists appear in:

UNIDO Guides to Information Sources no. 27, Information Sources  
in the Packaging Industry, pp. 103-105.

Promoting Packaging for Exporters, vol III, UNCTAD/GATT, pp. 27, 125-130.



## LEGISLATION

References to publications concerned with legislation appear in:

- (1) Promoting packaging for exporters, vol III, UNCTAD/GATT, pp.132-137
- (2) UNIDO Guides to Information, no 27, Information Sources in the Packaging Industry, pp. 98-99.

### Other useful publications

- (3) Code of Federal Regulations, Title 21, Food and Drugs, parts 100-199 (parts 174-182 are particularly relevant). Published by the US Office of the Federal Register, and available from the US Government Printing Office.
- (4) Federal Register published daily by Office of the Federal Register and available from US Government Printing Office keeps the Code of Federal Regulations up-dated.
- (5) Plastics in Retail Packaging Bulletin, monthly, Elsevier Sequoia SA.

ANEXO II: PERIÓDICOS DE REVISTAS RECIBIDAS EN BIBLIOTECA CON INDICACION DE PROCEDENCIA Y TIPO DE ADQUISICION

TITULO	PROCEDENCIA	SUSCRIPCION	CANJE	DONACION	1973	1974	1975	1976	1977	1978	1979	TOTAL
AIR TRANSPORT WORLD	U.S.A.			X	5							5
AGRICULTURA TECNICA EN MEXICO	NACIONAL			X	6	1						7
AMERICAN FRUIT GROWER	U.S.A.		X			3						3
AMISA AVANTE	NACIONAL			X					10			10
AMERICA 2	NACIONAL			X		3		3	2			8
ATOP	NACIONAL	X		X		4	10	12			8	34
AUS TROPACK	AUSTRIACA			X				1				1
CEIMEX.Comercio Internac.	NACIONAL								6			6
CONTAINER & PACKER	U.S.A.			X		1						1
BULK SYSTEMS INTERNATIONAL	INGLESA	X									3	3
CAMERA NACIONAL DE LA INDUSTRIA DE ARTES GRAFICAS	NACIONAL			X		2	2					4
CARTONAJES	ESPAÑOLA			X	1	1						2
CARGO AIR LIFT	U.S.A.			X	4							4
CARGO SYSTEMS International	INGLESA	X				3	11	12	11	10	12	59
CIENSA PARA LOS EXPORTADORES	NACIONAL	X		X					5			5
CIENCIA FORESTAL	NACIONAL	X		X				4	2			6
CIENCIA Y DESARROLLO	NACIONAL	X							2	10	8	20
COMERCIO	NACIONAL			X				1			1	2
COMERCIO EXTERIOR	NACIONAL	X		X		4	12	12	12	14	7	61
CONTAINER AND PACKAGING	U.S.A.	X								1		1
CONTAINERS	FRANCESA	X								2		2
CONTAINER NEWS	U.S.A.	X									3	3
CONTAINERIZATION INTERNATIONAL	INGLESA			X	2							2
CHEMICAL WEEK	U.S.A.			X	3							3
DUISERLANDIA	NACIONAL			X		1			1			2

T I T U L O	PROCEDENCIA	SUSCRIPCION	CANJE
DESIGN	INGLESA	X	
DESTINATION PHILADELPHIA	U.S.A.		
EMERUNTIVOS DE FINANZAS	NACIONAL	X	
EDUCATION & TRAINING	INGLESA	X	
EMBALLAGE DIGEST	FRANCESA	X	
ENVASE Y EMBALAJE (Venezuela)	VENEZUELA	X	
EMBALLAGE DES DOSSIERS	FRANCESA		
ENVASE Y EMBALAJE	PERUANA		
ECONOTECNIA AGRICOLA	NACIONAL	X	
ENVASE Y EMBALAJE	NACIONAL		
ENBOUPEILLAGE ET CONDITIONNEMENT	FRANCESA	X	
EMBALAJEN	BRASILEÑA		
EL ABARROTE	NACIONAL		
EL EXPORTADOR LATINOAMERICANO	COLOMBIANA		
ENERGIA	NACIONAL		
EXPANSION	NACIONAL	X	
FACTOR ECONOMICO	NACIONAL		
FINANZAS Y DESARROLLO	NACIONAL	X	
FOOD ENGINEERING	SUIZA	X	
FOOD TECHNOLOGY	U.S.A.	X	
FOCUS JAPAN	JAPONESA		
FORUM LE COMERCIO INTERNACIONAL	SUIZA	X	
FORUM AEREA	NACIONAL	X	
GUIA DEL CONSUMIDOR	NACIONAL	X	
HOLLAND HERALD	HOLANDESA		

DONACION	1973	1974	1975	1976	1977	1978	1979	TOTAL
					8	10	7	25
X		2						
X			1		3	2	8	14
							2	2
	2	10	11	11	11	8	1	54
		5	3	4	2			14
X	2	2	2					6
X	5							5
					4	7	2	13
X			6	3	1			10
			11	3	12	9	6	41
X	2	2		2				6
X			1					1
X	1	1						2
X						1		1
	5	9	3		3	6	10	36
X					1			1
X				1	4	4	1	10
		2	12	12	9			35
		11	1	12	3			26
X		3					2	5
	1					2	1	4
X		7	3		12	12	4	36
X	21	12	12	11	11	2	1	70
X		3						3



T I T U L O	PROCEDENCIA	SUSCRIPCION	CANJE
LA REPUBLICA	NACIONAL	X	
UNION EN AMERICA LATINA	U.S.A.		
MANIFPLACE SIKLADOVANI BALENI	CHEKA		X
MEDIO ORIENTE INFORMA	NACIONAL		
MODERN PACKAGING	U.S.A.	X	
MODERN PLASTICS INTERNATIONAL	SUIZA	X	
NOTUM	ALEMANA		X
NEW ORLEANS	U.S.A.		
NEW REVIEW KOREA	COREANA		
NY/PAK JOURNAL	ALEMANA		
NY/NEUE VERPACKUNG	ALEMANA		X
NUEVOS MERCADOS	COLOMBIANA		
PACKAGING	INGLESA	X	
PACKAGE ENGINEERING	U.S.A.	X	
PACKAGING NEWS SPECIAL REPORT	INGLESA		
PACKAGING DEVELOPMENT AND SYSTEMS	U.S.A.		
PAKRAUS	FINESA		X
PACKAGING REVIEW	INGLESA	X	
PATRONAL	NACIONAL		
PAK	SUECA		
PAPER, FILM AND FOIL CONVERTER	U.S.A.		
PAPER, CARTON & CELLULOSE	FRANCESA		X
PAPER BOARD INDUSTRY	U.S.A.		
PERMUTERIA MODERNA	NACIONAL	X	
PERU EXPORTA	PERUANA		

DONACION	1973	1974	1975	1976	1977	1978	1979	TOTAL
X					2		1	3
X				1				1
			1	12	12	12	8	45
X							4	4
	9	3	12	6	12	11	12	65
	3	5	12	3	12	12	7	54
				5	3	2	2	12
X	2							2
X	1							1
X			1					1
			2	12	12	12	7	45
X	2							2
	1			9	12	8	4	34
	3	4	8	8	5	12	6	46
X		1			2			3
X						2		2
				8	10	12	5	35
			1		7	7	1	16
X	1							
X	2							2
X	1	1						2
				12	12	8	7	39
X							1	1
X	2	6	12	11	12	11	4	58
X		2						2

T I T U L O	PROCEDENCIA	SUSCRIPCION	CANJE	DONACION	1973	1974	1975	1976	1977	1978	1979	TOTAL
NEWS-PACK NEWS	U.S.A.			X	11	2	1	1				15
PLANETI-NOVICIAS	NACIONAL			X		1	1		1	4	1	8
PNEUMATIC PACKAGING	U.S.A.			X					1	9	1	11
OP PRISM	ALEMANA		X					2		1		3
PROCEMO	NACIONAL			X				1	1	10	7	19
PROGRAMMED LEARNING AND EDUCATIO NAL TECHNOLOGY	INGLESA			X							1	1
SCANDINAVIAN PACKAGING	SUECA		X		4	1	1	1				7
SECTOR ELECTRICO	NACIONAL			X							1	1
SISTEMAS DE CALIDAD	NACIONAL			X				2			2	4
SELECCIONES TECNICAS	NACIONAL			X			3					3
PARA	ALEMANA		X		1		3	12	12	12	5	45
TECNICAS FRANCESAS	FRANCESAS	X		X	1	3	2	3	2	3	3	17
TECH INTERNATIONAL	INGLESA			X			1					1
TRANSFORMACION	NACIONAL			X	1		1					2
TRANSISTORPE MODERNO	U.S.A.	X		X					6	12	12	30
TROPICAL AGRICULTURE	U.S.A.			X		2						2
TERRA PACK	SUECA	X		X	12	9			1	1		21
TELESCOPE	U.S.A.			X					2	4	4	10
TECNICA Y CULTURA	NACIONAL			X	1	3						4
TECNOLOGIA DE ALIMENTOS	NACIONAL	X		X		11	8	7	2			28
TECNOLOGIA LANFI	NACIONAL	X		X			2	12	9	9	5	37
UNION NACIONAL DE PRODUCTORES DE HORTALIZAS	NACIONAL	X		X	6	2	12	10	12	10	2	54

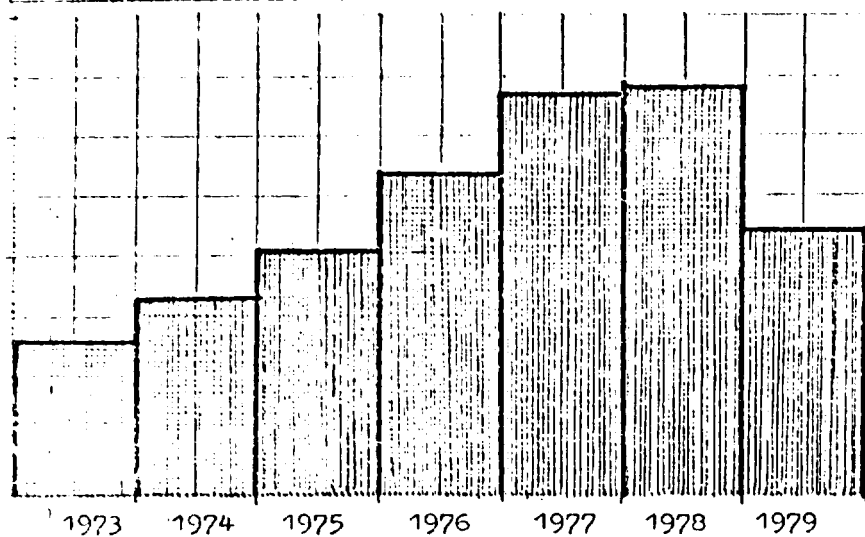


T I T U L O	PROCEDENCIA	SUSCRIPCION	CANJE	DONACION	1973	1974	1975	1976	1977	1978	1979	TOTAL
HERALD POST	ALEMANA			X	1							1
WARRIOR INDUSTRIAL	NACIONAL			X	2							2
WARRIOR	NACIONAL			X		2						2
WINDNOTICIAS	NACIONAL			X					4	4		8
VISION	NACIONAL	X		X	7	8						15
WORLD WOOD	U.S.A.	X		X				5	12	12	3	32
WORLD WOOD Edición Latinoamericana	U.S.A.	X		X						1	3	4
TOTALES:					144	179	208	288	340	348	238	1,745

DIAGRAMAS DEL ANALISIS ESTADISTICO EFECTUADO EN EL AREA DE BIBLIOTECA DE LAS PUBLICACIONES PERIODICAS

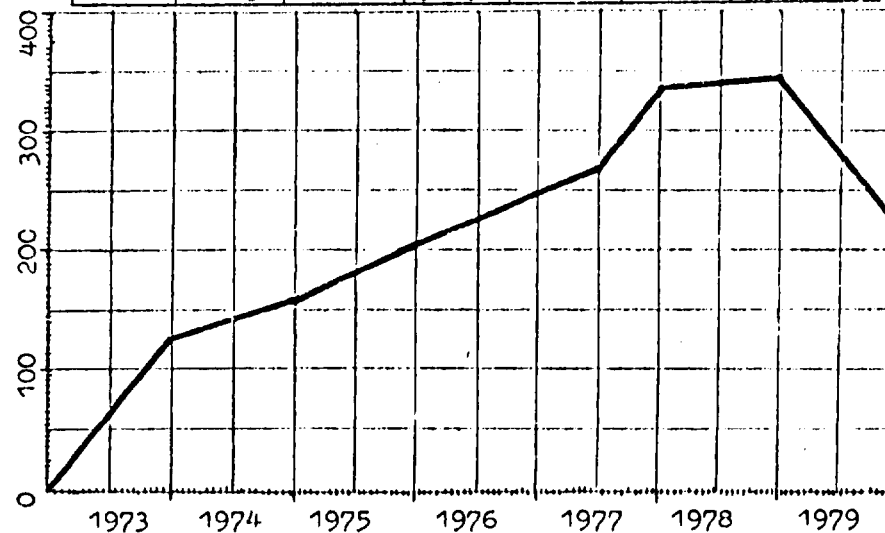
TOTAL DE REVISTAS RECIBIDAS POR AÑO CON GRAN TOTAL

1973	1974	1975	1976	1977	1978	1979	TOTAL
144	179	208	288	340	348	238	1,745



PORCENTAJE DE INCREMENTOS CON RESPECTO AL AÑO ANT.

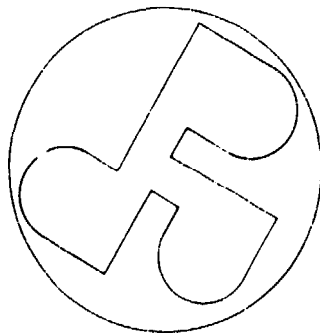
1973	1974	1975	1976	1977	1978	1979
100%	24.3	16.2	38.5	18.1	2.4	-31.6



RESUMEN: 127 TITULOS EN BIBLIOTECA  
 33 SUSCRIPCIONES VIGENTES  
 10 CANJES ABIERTOS  
 8 SUSCRIPCIONES DONACIONES

RELACION 14:8

ABRIL 1980



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# Pira

The research association for the paper and board,  
printing and packaging industries

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