OCCASION

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

DISCLAIMER

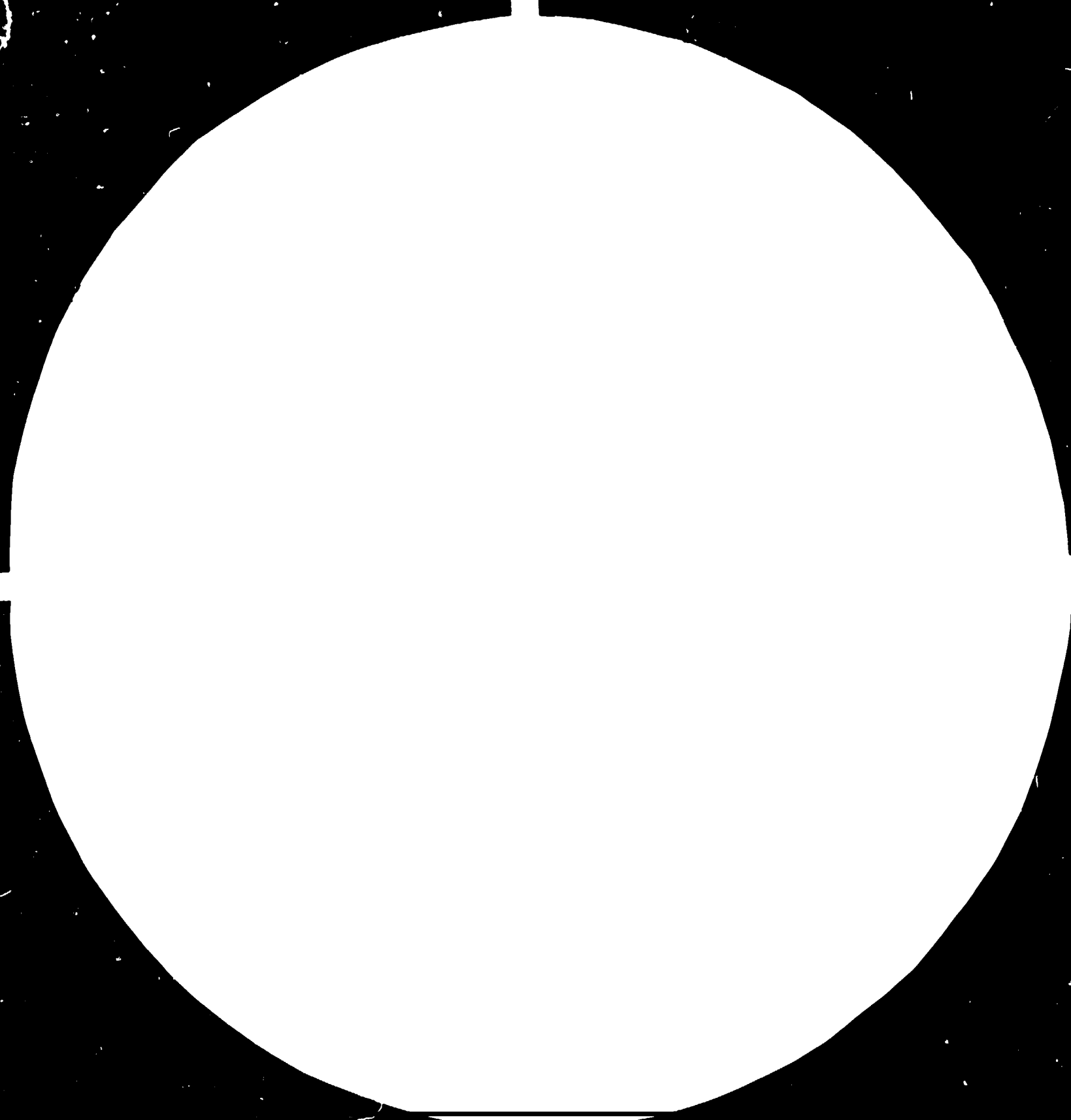
FAIR USE POLICY

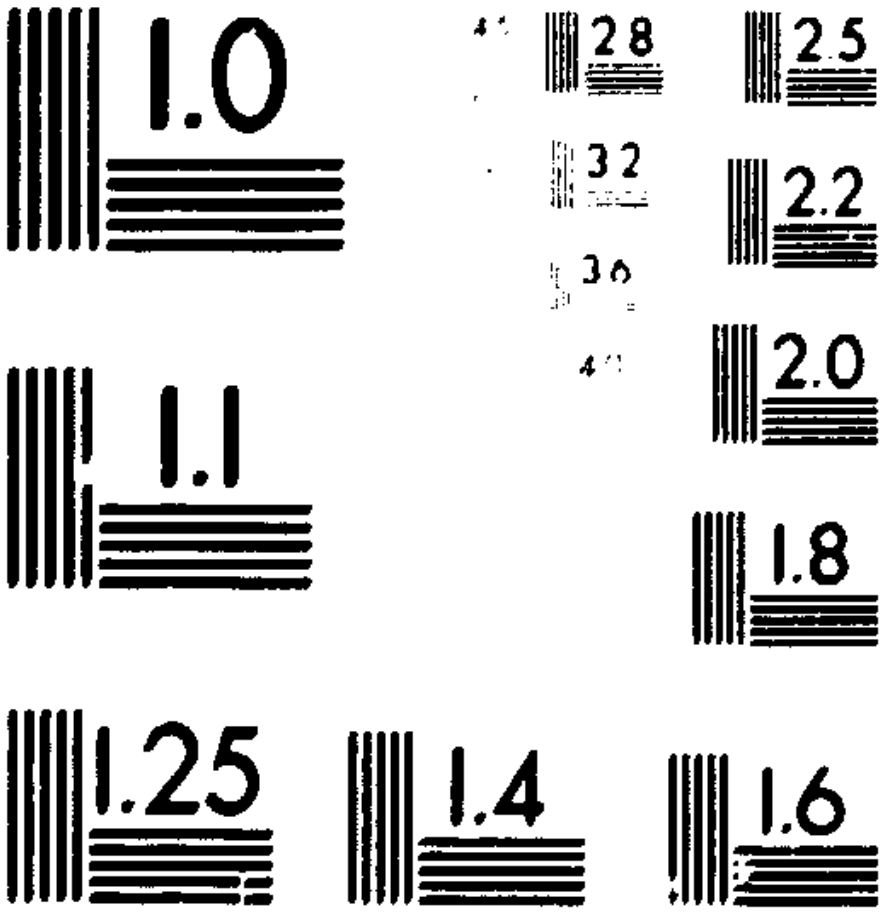
CONTACT

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

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

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





RESTRICTED

14659

DP/ID/SER.A/586
8 May 1985
ENGLISH

CONSOLIDATION OF PACKAGING CENTRE AND ESTABLISHMENT OF PLASTICS CENTRE AT BUREAU OF STANDARDS

DP/JAM/82/004

JAMAICA

Technical report: Transit Pack Testing and Techno-economic Studies*

Prepared for the Government of Jamaica
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of F.A. Paine,
expert in transit pack testing and
techno-economic studies

United Nations Industrial Development Organization

Vienna

* This document has been reproduced without formal editing.

V.85 25787

INDEX

SUMMARY

This report records the work carried out during the period 10 March to 9 April 1985 by the consultant and in consultation with the Project Manager and some of the staff of the Packaging Centre and the Non-metallic Section of the Jamaican Bureau of Standards (JBS). The three main objectives were:

1. To expand the range of video training films that had been started in the earlier stages of the project. (A list of the films produced during the period is given in ANNEX 5.)
2. To suggest ways by which the transit testing equipment of the JBS could be utilized better for the benefit of local industry. (See particularly ANNEX 4.)
3. To discuss the use of techno-economic studies in the Jamaican context and establish the way the section should proceed to get such studies accepted by local industries as valuable for their businesses. (See ANNEX 3.)

As a result of the work all the requirements were met and programmes for the immediate future were written. The medium- and long-term follow-ups will depend on the results of the pilot schemes which can be modified to meet the findings.

One of the major difficulties in getting the Packaging Centre accepted by local industries lies in the fact that the JBS of which it is a part is a regulating Government body and therefore, it is essential for industrial organizations to feel that their relationship with the Packaging Centre are of a far less formal nature. To this end the approaches to the better use of testing equipment suggested and the programmes for techno-economics require virtually no paperwork, and in the former instance even a report is not necessarily needed. Consultation with leading members of local industry in developing these approaches is very important. The Centre should aim at being an extension of each of its clients' businesses.

INTRODUCTION

Between March 1979 and March 1981 the Government of Jamaica formulated a project implemented by the Jamaican Bureau of Standards (JBS) and UNIDO to establish a Packaging Centre. The project utilized the services of a number of consultants, among them the author of this report, in training the staff of the Centre in the techniques of testing and problem solving for industry.

In February 1983 a further project to improve the level of packaging technology in local industry as part of the Jamaican Government's drive to build up exports was formulated and was again implemented by the JBS and UNIDO.

This consultant was again concerned with the training of new personnel in the Transit Testing Section and with the development and production of video film training techniques for this purpose between 17 October and 17 December 1983 at the JBS, working with the Project Manager, Mr. J. Salisbury. Industrial contacts through export problems and a five-morning series of seminars on export problems with fresh produce and furniture were undertaken.

The present consultancy is concerned with following up the previous work of training and testing techniques and their interpretation. In particular, assistance in consolidating the use of techno-economic studies and in increasing the industry's use of the testing facilities available at the Centre, was requested. The range of video films available for training was also to be expanded.

JOB DESCRIPTION

DP/JAM/82/004/11-02/31.7.E

Post Title:	Expert in Transit Pack Testing and Techno-economics
Duration:	One month
Date required:	10 March 1985
Duty Station:	Kingston (Jamaica)
Purpose of the Project:	To give further assistance concerning transit package testing and to help in the consolidation of the Techno-economic Section.

Duties: The expert will be expected to:

1. Follow up on the previous consultancies in transit pack testing with particular reference to enriching the video training films prepared on the last occasion and preparing a training film on the Beach Puncture Tester and other equipment to expand the service.

2. Assist the Techno-economic Section in preparing a plan of work designed to help this area to be accepted by local industry. The expert is not expected to be concerned with details, it is more a question of the role to be played by the section and advice on how its work can be made more effective in assisting local industry.

3. Give general advice on specifications and certification matters particularly in devising ways in which Jamaican industrialists can use the testing facilities at the Packaging Centre to solve their problems.

4. To make arrangements for a number of short seminars aimed at acquainting local industry with the facilities available at the Centre and encouraging their use. Also to teach the counterpart staff some of the techniques of presentation.

5. To write a report on the work carried out and outline future activities.

Qualifications: University degree desirable, considerable experience more important.
As this is a follow-up mission it will be most effective if the previous consultant could be recruited.

Language: English

I. PROGRAMME

The consultant arrived in Kingston (Jamaica) on 9 March 1985. After a visit to the UNDP office on 11 March 1985 to arrange details concerning DSA etc., he met the Senior Industrial Development Officer. The Resident Representative, Dr. Brenda McSweeney,was not available on this occasion. An opportunity to meet her occurred later in the programme. Dr. Henry, Head of the Jamaican Bureau of Standards, arranged to meet the consultant and duscuss the programme of work on the same day at the JBS, and the consultant met Mrs. Marguerite Domville, Head of the Packaging Centre, currently absent on maternity leave, for lunch the next day.

The remainder of the first week was spent with discussing and developing the tactics for the programme with the Project Manager and the acting Head of the Centre, Ms. Pat Douce. All the videos previously made by the consultant as well as some relevant videos by other consultants, staff and the Project Manager were reviewed. A short meeting with the staff of the Centre was held on 15 March 1985 to outline the programme and hear comments.

During the week commencing 18 March videos were made on the following subjects:

1. A linking film on Material Test Methods in Relation to Transit Tests;
2. The British Standard WVTR Dish Method;
3. The Elmendorf Tear Test for Paper;
4. The Mullen Burst Test for Paper;
5. The Taber Stiffness Test.

An opportunity to meet and discuss the industrial climate in Jamaica with Ms. Mabel Tenn occurred and some useful insight into possible subjects for techno-economic studies was obtained. The consultant also attended a meeting of some of the senior staff of the Centre who are studying the U.K. Institute of Packaging Correspondence Course. Since this consultant, together with Mr. J. Briston, was responsible for writing and designing the course and is one of the two Senior Tutors and has been largely responsible for developments in the Institute of Packaging's education and examination scheme since its interception in 1957

a large number of points of interest were cleared up. The course is currently under revision but changes are unlinkely to be implemented before September 1986.

In the week commencing 25 March 1985 video films were made on:

6. The Pira Creaser;
7. The Bendtsen Smoothness (Roughness) and Porosity Tester;
8. The Sutherland Rub Tester.

In connection with the last, contact with Mr. Alan Roche of Coates Bros. was renewed and his help in obtaining suitable samples for test and illustration is gratefully acknowledged. He may also add some comment on local problems to the video itself.

Further discussions and the formulation of the programme for making the industry use the transit testing equipment at the Centre were held with Mr. J. Powell (Acting Supervisor T.T.) and with Ms. Y. Allen on ways of obtaining the local industry's acceptance of techno-economic studies.

In the last week of the visit the staff at the Bureau ceased to work at Thursday at 13:00, Friday being Good Friday, and was therefore no longer available. The Bureau itself was open for Mr. Salisbury and myself to work on both days and the opportunity was taken to complete one or two outstanding items. Videos were completed during the week on:

9. The Beach Puncture Tester; and
10. The Surface Oil Absorption Test.

Final touches to the other items were completed. An ad hoc discussion with Dr. Henry, Director of the JBS, on the major items in the reports' recommendations was possible on 3 April 1985. The consultant left Kingston on Sunday, 7 April 1985 and completed this report in the U.K.

II. RECOMMENDATIONS

These will be related as far as possible to the four areas specified in the Job Description.

1. The ten new videos on materials tests for packaging made during the project and those previously produced on the testing of both empty and filled containers as well as some on materials tests should be used for

internal training of Packaging Centre and JBS personnel, for teaching purposes in local industry and in seminars aimed at better utilization of test equipment by local industry. The recommendations made during the last consultancy about modifications to test equipment and in particular those concerned with SAFETY OF OPERATORS OF THE DROP TEST should be carried out IMMEDIATELY; otherwise there is the risk of injury to both staff and visitors who watch testing.

2. The Techno-economic section should not carry out studies without consultation with local organizations, and the best judgement as to the need for any study is the willingness of companies to support it, financially or otherwise. The procedure to be adopted is outlined in ANNEX 4 and consists of:

(a) Ascertaining possible subjects of interest from contacts in local industries.

(b) Making a brief preliminary survey to assess possibilities and costs.

(c) Writing a "blurb" for circulation to selected potential clients soliciting their financial assistance.

(d) Finalizing the programme in consultation with the participating clients.

(e) Delivering the study on time.

The Techno-economic Section should also be responsible for the collection of information on the packaging currently used in Jamaica to develop a data bank which can be used for solving day-to-day problems, suggesting materials and packaging standards for companies, and, later, industries and as a guide to possible research projects that need to be tackled in the future. This was suggested as Project Nr.2 in the last report of this consultant but has not been started. Several packages were collected during the month and handed over to the Techno-economic Section with guidance on the work to be done.

3. The use of the test equipment for local industry's packaging problems will be greatly facilitated if the formalities of the present procedures can be eliminated. A scheme was proposed, permitting local makers or users of packages and packaging materials to benefit from the use of

of test equipment themselves, more or less immediately, with a minimum of Packaging Centre staff involvement and no paper formalities, unless they want them. A series of seminars individually tailored for each potential client was designed to introduce this scheme.

ANNEX 1 Timetable.

Week Beginning.	Activity
March 9 1935	Arrival Kingston 2100
March 11	Admin. matters, UNDP etc
	Discussion and development of programme. Talk Dr Henry. Follow up discussions with Packaging Centre Staff on previous studies-Techno economics,Testing etc.
March 13	Discussions with Mabel Tenn of Grace Kennedy.
	Lunch with Mrs M Domville.
March 15	Talk to staff about programme.
March 18	Made Videos: 1.Link with Transit Tests 2.WVTR Dish method 3.Elmendorf Tear 4.Mullen Burst
March 21	Session with Transit Section.
March 22	Made Video on 5. Taber.
March 25	Made Videos: 6.Pira Creaser 7.Beadtsen Smoothness etc 8.Sutherland Rub test
March 27	Met Mr Alan Roche of Coates.
March 29	Discussed videos for question sessions with staff.
March 31	Lunch with Mabel Tenn.
April 1	Made videos: 9.Beach Puncture 10. Surface Oil Absorption Test. Two sessions of Q & A on the several videos. Finalised programmes for the Seminars to improve use of test equipment. Final discussions on techno-economics. Both these subjects were discussed with Dr Henry in a final review period.
April 7	Left Kingston
8	Arrived Home.

ANNEX 2

Follow up on previous consultancy

The recommendations on the several test equipments in the Transit Testing Section were checked and although most had been done one or two had been overlooked and the need for their urgent implementation was stressed. This was particularly true in respect to RAILS FOR SAFETY ROUND THE DROP TESTER. If the recommendations in this report for the increased use of this equipment by and for industry are carried out without these rails being installed, sooner or later someone will be hurt.

The two projects set for the year 1984 have not been implemented and apart from setting project Nr. 2 up and stressing the importance of the use of equipments for learning process, no follow-up was possible.

Both these projects would have involved the extensive use of much of the test equipment and hence enhanced the skill of the staff. Much of the equipment has not been used at all since the last visit and has deteriorated a little. The opportunity to put this right was taken during the preparation of those tests shown in videos.

ANNEX 3

Discussions on Techno-economics

The objective of these discussions was to plan how local industry could be brought to realize the value of such studies.

No commercial undertaking will accept any form of research unless they can see that there will be a pay-off in monetary terms. Techno-economic studies must be seen to be able to:

- Make the industry more profitable;
- reduce the chances of error in taking marketing-, economic or technical decisions;
- permit medium- and longer-term trends in the market to be anticipated.

There are other possible approaches, but these three are the principal results wanted.

Consequently, to be successful a study must be relevant to the industry concerned. It must be undertaken because the answers it provides are needed by that industry. Hence the first stage is to consult industry BEFORE the study is commenced. Studies conducted in the hope that someone wants them or that they are interesting are largely doomed to commercial oblivion.

The way to plan the work is to keep an ear to the ground as to what would be of interest; to do a little research to estimate possibilities and costs; and then to consult probable clients before starting the work, preferably obtaining commitment from sufficient clients to pay for the effort.

Some time was spent with the Techno-economic Section outlining the methods by which a cost can be estimated, and the degree to which the initial study should proceed before consultation. Some discussions with industrial concerns indicated that water melons and peppers were two areas currently of interest and these were used as examples. The sweet pepper study was brought to the launching stage before the consultant left Kingston, and the draft document for circulation to selected commercial companies to test the possibility is given at the end of this section.

It is suggested that eight to ten other areas should be similarly examined in the next three to four months or until sufficient acceptances have been received to fill the Section's working capacity in the next half year. Then, as these are completed, new studies should be mooted to replace them.

A Packaging Data Bank on Jamaican Materials

Arrangements were made for the Head of the Techno-economic Section to be responsible for Project Nr. 2 suggested in the last report. This was designed to find out the materials currently used and how well they perform in the Jamaican (largely Kingston) market. Ms. Y. Allen should be able to get the Materials Testing Section to make the measurements on the packages collected by staff members in their normal use of packages in everyday life, while she follows up the data to find out, wherever possible, the package cost, who makes the packages and how they perform.

This type of study will build up a data bank so that the Centre will know what methods and materials are currently used, will have some idea of the costs and be able to apply this knowledge to other products developed in the future. It will also ensure that the testing equipment is used and that the staff becomes proficient therein. It may also suggest areas for study to improve existing methods.

EXAMPLE

Proposal for a Techno-economic study on Sweet Peppers.

There are some 25 different varieties of sweet pepper not all of which are grown in Jamaica at present. The annual production of these peppers in Jamaica is valued around $290,000 Jamaican. There is scope for increased production of the right varieties within the Island as well as for an upgrading in both quality and packaging.

The Packaging Centre of the J B S proposes to carry out a techno-economic survey on Sweet peppers covering the varieties,their growing arrangements,and developments in their handling,packaging and marketing worldwide.The Centre has access to world sources of information such as the International Packaging Abstracts Sevice, the Pira data bank, and the International Trade Centre as well as to Statistics collected in Jamaica.

The cost of the study is estimated at $3,000 to$6,000 and will take 2-3 months to complete. A start will be made, provided 6 or more organisations are prepared to assist its financing. This decision will be taken to allow the start to be made on May 1st 1985 . The programme of work will be finalised taking into account the wishes of the participating companies.

If you are interested in this study please complete and return the attached proforma.

Proforma.

Techno-economic study on sweet peppers

We are interested in the proposed survey at a fee of $500 Jamaican payable $250 before commencement and $250 on completion.

Please arrange to discuss the detail with,
(insert name of contact here)

Signed.

(Name in block letters)

Note:When completed the study will not be available to other than the participants until after Oct 31st 1985 at a cost of $750.

ANNEX 4

Development of the Use of Transit Test Equipment

Day-to-day problems in packaging are generally urgent; the answer was needed yesterday and if we cannot have it tomorrow it will be of academic interest only. In many companies in the USA and UK package testing equipment is available on site and testing can be arranged speedily. In smaller businesses, commercial testhouses can arrange to carry out tests rapidly for their clients and this could be the pattern in Jamaica where the Packaging Centre can provide the facilities for both pack maker and pack user.

The scheme outlined here permits industrial companies to have access to the equipment at the Centre without difficult documentation or even reports.

To implement this a series of short seminars for individual companies likely to be clients is planned. These seminars will begin with a showing of selected videos, made by the consultant and the staff of the Centre, to highlight the value of the tests and to show how they are carried out. This will be followed by some demonstrations on one or two of the clients packages or materials and end with discussions on the way the service can be called up, its costs and procedures.

Four seminars are planned for April/May 1985 and the results of these can be used in discussions with the project manager and the Director of the JBS to improve and extend the concept.

The companies will be invited to the seminars at no charge for them.

Transport Testing Facilities
at JBS Packaging Centre

On a WDI (We Do It) or DIY (Do It Yourself) basis.

An informal, client oriented, pay-as-you-use service for manufacturers and users of packaging.

From May 1, 1985 the Transport Test Facilities at the JBS Packaging Centre will be available for industry's use on a completely confidential, nonreporting, pay-as-you-go basis.

Clients will be able to make a simple phone call a few days or even hours in advance through an authorized contact to book time for their own personnel to use Packaging Centre equipment to test their own packages. A JBS Laboratory Technician will be in attendance to assist with operating the equipment but all recording of results will be the responsibility of client personnel.

To introduce this service and to ensure that potential clients are aware of its possibilities, a series of short seminars attended by 3-6 people from only one organization at a time, will be held beginning April 23, 1985.

Your company is invited to one of these on

If you wish to take advantage of this offer, please complete the attached form and return it to _____ by _____.

NOTE

To increase the usefulness of the demonstrations, it would be appreciated if your representatives bring with them some packs for testing e.g. 2 or 3 empty cases for Compression Tests and 2 or 3 with contents for Drop, Vibration etc.

The draft programme is shown overleaf. Comments on specific areas of interest will be welcome .

DIY Testing Facility Seminars

Dates April 23, 24, 25 and 30 - 9.00 - 10.30 a.m.

Programme

9.00 - 9.45 - Introduction and Videos on Test Procedures and their use in problem solving.

9.45 - 10.10 - Demonstration with clients' packages.

10.10 - 10.30 - Questions and discussion.

10.30 - C L O S E

Seminar No.	Date	Company
TFS 1	April 23	WIPP
2	" 24	Grace
3	" 25	JPI
4	" 30	Speciality Foods

Others to be arranged.

ANNEX 5

List of Videos Made

1. A video to link the use of material tests with the behaviour of empty containers and complete filled packages.

2. The British Standard Dish Method for Water Vapour Transmission rate.

3. The Elmendorf Tear Test for Paper.

4. The Mullen Burst Test for Paper.

5. The Taber Stiffness Test for Paper, Board and Films.

6. Using the Pira Board Creaser to Control Rule and Makeready Conditions on the Cutting and Creasing Press.

7. The Bendtsen Smoothness (Roughness) and Porosity Test.

8. The Sutherland Rub Resistance Test.

9. The Beach Puncture and Stiffness Test.

10. The Surface Oil Absorption Test (Pira).