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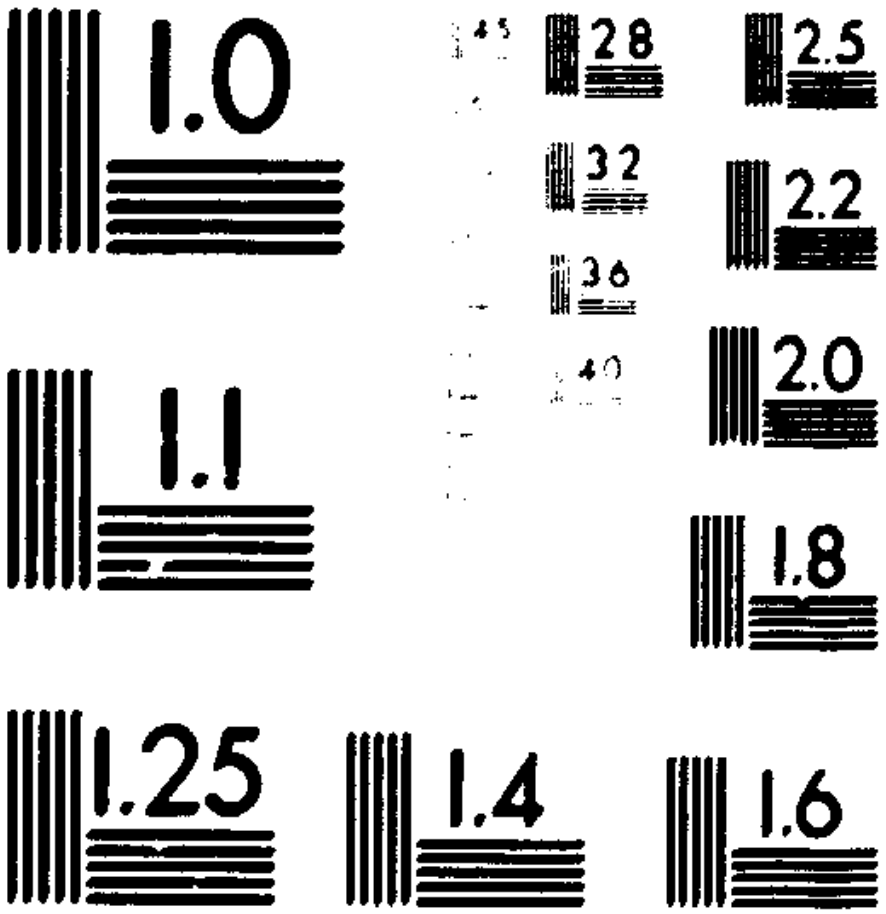

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ENGLISH

REHABILITATION AND ADEQUATION ASSISTANCE TO THE KNITTING INDUSTRY OF THE STATE OF SANTA CATARINA

UC/BRA/83/241

BRAZIL

Technical report: Technical assistance to the Brazilian Textile Industry in particular to the knitting industry in the state of Santa Catarina *

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

Based on the work of Mr. Stuart Brook,
Knitting Technologist

United Nations Industrial Development Organization
Vienna

3556

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1. SUMMARY OF RECOMMENDATIONS

The following comments apply only to the industry sector in Santa Catarina.

(i) All outside assistance should be channelled through CETIQT which must be regarded as the leading national textile institute.

(ii) Upgrade the THREE laboratories in Blumenau, Joinville and Brusque to similar levels of scope and competence and arrange that interchange of information and, if necessary, staff is facilitated.

(iii) Encourage local industrialists to make more use of the services provided by their local institutes.

(iv) Organise that CETIQT acts as a back-up, higher-level institute with the facility to exchange information and staff with the local institutions.

(v) Introduce International Experts via the channel thus set up to

- strengthen CETIQT's capabilities;
- strengthen capabilities of local institutes;
- act with Counterparts to solve specific problems in the industry.

(vi) Organise a close link between CETIQT and the local institutes, and INMETRO, to set up standards for textiles and provide a strong platform to introduce standards on a national scale throughout Brazil.

(vii) Determine the dates for a return visit of the Knitting Technologist, under this project, to complete his assignment and to draft proposals for future UNIDO technical assistance projects, in line with the above recommendations.

2. INTRODUCTION

This Report covers only the first part of the assignment for the reasons given later. It covers the period 8 July to 17 September 1984.

During the Vienna briefing it was understood that the original reason for the request - the flood situation in Santa Catarina - was no longer the main problem, but that assistance was still needed by the local industry. More detailed briefing would be carried out by the staff in Brasilia and any further detail was left until that time.

After a short initial meeting in Brasilia with the SIDFA, a meeting was arranged with the staff of the Ministry of Industry and Commerce (M.I.C.). During this meeting the following points were discussed and requests made that they should be considered in relation to the total program.

(i) There is a wish to de-centralise some activities.

(ii) Any system of aid developed for Santa Catarina should be designed so that it could be applied, with modifications if required, to other areas in Brazil where textile activities are or could become important.

(iii) In view of (ii) above a request was made that the Consultant should become acquainted with operations in the other important textile areas.

(iv) It was in some way fortuitous that Santa Catarina would be the first area studied because the infra-structure there within the textile industry is probably the best developed in Brazil.

(v) The importance of the work being undertaken by INMETRO on the preparation and introduction of Standards in the industry was underlined.

(vi) A special request on a side issue was to consider what assistance is required for the training of technicians in the maintenance of electronic equipment associated with the textile, wood, leather and garment industries.

The original Work Plan which was formulated a few days after this meeting in Brasilia was subsequently changed due to the second flood in the Santa Catarina area in early August. After a quick inspection of the factories affected by this second flood, and interviews with several industrialists, it was agreed with UNIDO Headquarters that this Mission should be interrupted and re-commenced when the area had settled down again to normal working, probably in early 1985.

Consequently, many of the Findings and Recommendations included here have not been tested, which task will form part of the work to be undertaken in the second part of this assignment.

It is strongly recommended that the second half of the assignment is completed as quickly as possible whilst data is still relevant.

3. FINDINGS

Observations from Industry Personnel are included in this Section.

Because the Job Description specifically mentions the Knitwear industry, most of the discussions and meetings were directed towards this area. However, in view of points mentioned elsewhere in this Report, other opinions were taken and visits made to other sub-sectors. Generally therefore, the following points are concerned with the Knitwear industry in Santa Catarina although they may equally apply to other areas and sub-sectors. The meetings took place almost one year after the 1983 flood and upto two weeks before the 1984 flood.

In fact many Companies highlighted the same or similar problems, these are listed below more or less in the order of priority.

(i) The overall financial problem -
This is having its effect on the operation of all businesses because of the present high cost of finance.

(ii) Lack of spending power -
This is a further manifestation of (i) above. It is also obvious to the visitor by the low number of customers in the stores and shops, and the number of bargain offers and Sales continually advertised and in progress.
Within the factories it shows up as a reduction in the depth of ordering, leading to production-flow problems due to the small size of lots being processed.

(iii) Inability to import new "High-Tech" machinery -
Many companies realise that they are gradually falling behind in the World stakes because of this restriction. Brazilian-made machinery is a fair substitute but there are obvious gaps between what is needed and what can be obtained locally. Unless the Company concerned can arrange for currency exchange to pay for U.S., Western European, or Japanese equipment, there is virtually no influx of the more sophisticated machinery which the local industry is not capable of producing.
Over the next few years this situation is not likely to change markedly so they are faced with a steadily deteriorating situation. On top of this, those Companies in which flood damage resulted in many machines becoming submerged, have the added burden of good quality machinery prematurely ageing due to water ingress.

(iv) Restrictions on the importation of spare parts -
It appears that there are two aspects to this problem. Where spares are urgently needed due to breakdown, the administration work in following through requests can be most time-consuming and hence costly. In the case of consumables (i.e. Knitting Needles) where some imports are allowed, importers charge high premiums which add to the existing burden of the usual delays. For example special needles, needed for replacement after the first flood, had only just arrived a year later. In the interim the equipment stood idle.

(v) Quotas for exported goods -
Those Companies directly involved in Exports, criticised the method of quota allocation. Apparently some quotas are not allocated on a consistent and realistic basis. There was insufficient time to follow up this point further, so the foregoing is a very condensed version of the views expressed.

(vi) Poor and unreliable quality of raw materials -
The larger Companies with their own Testing facilities are more aware of this problem, which relates to raw cotton and other fibres and also to yarns and dyestuffs. In the case of medium/small Companies they are usually unaware of the problem until faced with an inferior product. Because they need to keep their stocks turning quickly to avoid financial penalties, they have little other course than to process the inferior materials and hope for the best.

(vii) Dimensional stability of fabric -
Those firms which buy in their Single Jersey fabric from various sources are badly plagued by this problem. They have virtually no control over the quality and characteristics of the yarns used, the knitting tensions, or the subsequent treatment during Dyeing and Finishing.

One Company, cutting nominally the same width of tubular fabric had to allow for a variation of 10 cm. in flat width, even though some of the fabrics in the lay were the same colour and from the same knitter. This is evidence of a complete lack of appreciation of the manufacture of knitted fabrics, or ignorance, or a disregard for the normal routines of quality control. It must also be added that even those vertical Companies who have more control over the process variables also suffer from this problem, possibly due to the same reasons.

(viii) Dyeing and finishing problems -
Associated with (vii) above, many firms showed examples of streaky dyeing and colour variations within the dyed piece. Edge-to-edge variations and badly distorted fabric is quite commonplace. From the cursory inspection possible, I would suggest that the machinery in most cases is quite suitable and generally in a good state of repair, so the most likely reason for the poor quality of finish lies with the operatives. This is an area where a much deeper study of individual cases is needed before any definite solution can be offered.

(ix) Technical capabilities of staff -
Almost without exception the Companies visited expressed a deep concern that their own technical capabilities were limited. At all levels within the Companies from Owner to Technician and Salesman they are very aware of this problem and are thirsty for knowledge. Any assistance provided in this direction should have a quick pay-back.

(x) Threat of future flood damage -
At the time when these preliminary interviews were undertaken, the memory of the 1983 flood was almost a year old. The Companies most affected then felt that they were more prepared if such an event recurred. Some had decided to re-locate completely and others had or were making provisions for emergency action in the event of another flood.

In fact only one Company of those visited considered that another flood would be catastrophic. One more complained that the flood had caused sufficient disruption to prevent work in one section for almost a year due to lack of spares. Most were of the opinion that if there were to be another flood they could minimise their losses in view of precautionary measures introduced within the last year.
Their preparations were tested about two weeks after these interviews, and in fact the material damage was surprisingly low, the main effect was psychological in that nobody expected a serious flood again so soon.

In addition to the comments given in the previous section the following observations were collected during my visits and interviews with staff at various levels in firms in the Blumenau, Joinville and Brusque areas.

(i) Financial problem -
This is very evident in any conversation and is cited as being the main problem.

(ii) Management -
Accepting that (i) above is an overiding conversation I doubt that sufficient effort is being directed towards alleviating the management problem within the mills. Work-in-progress and Finished stock levels are higher that I would have expected, which indicates that the companies do not have the skills or the experience to tackle the problem of reducing the financial burden. This impinges on several areas i.e. Marketing, Work Study, Factory lay-out, Management Controls and Organization Structure. One gets the impression that authority to act and solve problems (or at least be responsible for the consequences) lie too high in the Organizational heirarchy. Consequently initiation of actions, corrective or otherwise, is sometimes taken by staff members who are not the best qualified to deal with these problems, and are most times remote from the problem areas either physically or organizationally.

(iii) Products and market -

A surprising feature is the similarity in the ranges of products being offered. Very wide ranges of similar garments are on offer from many of the manufacturers. Generally those Companies which have been least affected by the decline in the market are those who have made some effort at specialization.

I do not think that the industry has sufficient knowledge of the Domestic market even for it to quantify market parameters, and very few Companies have experience of the International markets which are available to them.

(iv) Raw materials -

The main raw material is locally (i.e. Brazilian) grown cotton. Examination of the cotton fibre at the various spinning plants confirmed that the product is variable both in colour and quality. Fortunately however, this season the price has stabilised following a massive export of raw cotton the previous season which caused the prices to rise alarmingly. Because of financial limitations, raw material has to be used soon after delivery, which inhibits the effective blending needed because of the inherent variability of the fibre. It is not easy to get information on the details of cotton growing to suggest where the variability arises. Work on seed selection is being undertaken by the Instituto Agronomico de Campinas (IAC), but the control of actual growing seems to be spread between the large Companies who supply some of their own cotton, and small family farms. The question of who directs operations, and if they are technically qualified to do so still remains unanswered in spite of many enquiries. This topic merits a short study by a qualified person, to pin-point where the weaknesses occur.

4. BACKGROUND TO RECOMMENDATIONS

Any recommendations included below must be tentative since the total mission has not yet been completed. However, sufficient insight into the problems is already to hand and it is anticipated that the final recommendations will follow on similar lines to the ones outlined below.

There is a primary need to provide a plan with the aim of up-grading the local industry in Santa Catarina to improve quality and competitiveness and such a plan may be applied elsewhere throughout Brazil with or without modifications. It will need to include the following main points:

(i) Technical and Quality Control assistance in general, but in particular for the smaller firms.

(ii) A need for a nation-wide move towards Standardization.

(iii) Strengthening CETIQT as the National Centre for textile assistance and development.

(iv) Direct technical and managerial help for most of the companies visited so far.

Assistance should be channelled to the various recipients in the industry via the local institutions. This should be backed up by CETIQT in its role as the National Centre for textiles.

International Experts should be introduced on a continuing basis over the next few years to advise on the relevant areas.

Additionally the local institutes, as well as serving as Quality Control, Testing and Training centres serving their respective areas, should, with the help of the resources of CETIQT, provide assistance for the smaller firms as appropriate.

The institutes should be geared to act as Standardization laboratories and thus begin to form a chain of similar centres which in time could be linked up and extend on a national scale.

Institutes -

Local institutes already exist at Blumenau, Brusque and Joinville, the main textile centres in Santa Catarina:

(i) Sindicato das Industrias de Fiacao e Tecelagem de Joinville.

(ii) LAFITE - Brusque.

(iii) Fundacao Blumenese de Estudos Texteis.

Each is closely geared to the local industry's needs and each has strengths and weaknesses. The Brusque institute is probably the most comprehensive in its scope. In contrast, the Fundacao Blumenese comprises a cotton testing laboratory only, but of a very high standard of competence.

Each institute should be up-graded to provide the basic facilities for testing and technical training for all appropriate aspects of the industry i.e. yarn, fabric, dyestuffs and chemical testing equipment and staff to operate and instruct on this equipment.

Once these institutes have been up-graded to the requisite level they can act both to serve the local industry on a day-to-day basis and also as Standardization laboratories to be used by INMETRO in their quest to introduce national standards for textiles.

Thus the institutes will form the basis of the Project and through which all external assistance should be directed.

So as to maintain an overall control on Standards and also to provide some measure of overview, it is recommended that CETIQT should become more integrated with each institute. Such a tie-up is essential if the bond between CETIQT and the industry is to be strengthened. Already there are warning signs that CETIQT is regarded by some areas of the industry as being too academic, in spite of major efforts by the staff in Rio to dispel this fear.

Any drift apart would be counter-productive particularly at this stage, leading to considerable under-utilization of facilities which may be introduced in the future.

A close working relationship between the industry, the local institutes, and CETIQT personnel will not only be beneficial to each party but also to the industry as a whole.

More specifically the institutes would act as testing houses for those smaller firms who are not adequately equipped, they would maintain close links with the local firms and provide quick assistance where needed. Due to their connections with CEITQT, new technology, having been investigated as appropriate by the CETIQT staff, can be made available more easily and rapidly to the grass-roots firms via the local institutes.

If the institutes are unable to provide solutions to problems posed to them, these queries will be quickly passed up the line and CETIQT can then bring its considerable resources to bear on particular problems, or itself seek advice via its own international contacts.

Such a scheme is not without its problems; the most obvious being the ownership and financial control of the various institutes, CETIQT and LAFITE are both under the control of SFNAI (Servico National de Aprendizagem Industrial), whilst the Fundacao Blumenese and CETEJE (Centro de Treinamento Textil de Joinville) have both been set up by the respective industry in these areas.

If these problems can be overcome, and the separate institutes become more closely allied with CETIQT, they will benefit from a quicker exchange of information, techniques and staff. Also each will have ease of access to specialized equipment at anothers premises. For example, there would be no need to provide a cotton testing laboratory on such an elaborate scale as the one which is situated at Blumenau, at a sister laboratory in the vicinity.

But if and when the scheme is applied nationally, all the know-how gained in Blumenau in cotton testing will be available to set up similar laboratories in other areas. Hopefully the same will apply to other specialized techniques introduced or developed in other institutes.

The institutes themselves would not be expected to carry out medium or long term investigations, such work would be undertaken as part of CETIQT's own program, and the institutes will not have the resources to carry out the more fundamental investigational work.

The scheme proposed would provide the vehicle for the introduction of aid, and in time provide the back-up facilities needed in the continuing introduction of assistance to the various sectors of the industry.

Experts -

In parallel with the implementation of such a scheme aimed at strengthening the institutions, more immediate assistance should be injected in the form of International Experts in a variety of disciplines appropriate to the current needs. This assistance should be introduced using the route already set up i.e. via CETIQT and the local institutes and using the staffs of each body as Counterparts to the Experts.

The first requirement will be to identify the most pressing needs of the various companies and specify the problems in detail. Experts may then be introduced on a priority basis and also on a continuing basis.

Past experience has shown, that an initial visit backed up by follow-up visit(s) by Experts, has a longer, lasting benefit than a more lengthy visit. It is strongly recommended that this procedure is adopted from the outset.

By splitting the missions in this way it helps to keep the various technologies in line e.g. it is of little use if the capabilities in say fabric finishing are being developed when the quality of grey fabric being produced is below standard. Additionally, by adopting this method, the industry and institutes will not be overwhelmed by a sudden influx of Experts who will require Counterpart assistance which will be in short supply. Repeated visits by Experts, working ideally with the same Counterpart staffs, will build up a cadre of well-qualified local technologists, who progressively should be able to begin to tackle problem solving in the intervening periods.

Furthermore, because the Experts will have been directed to solving actual problems in the companies; local and national Counterparts will gain real practical experience and at the same time help strengthen the bonds between the institutes and the industry which they are there to serve.

In the eyes of the companies, their local institutes will in time become the focal points where they can seek assistance and where they have a good chance of getting their problems solved.

ANNEX I

Note on CETIQT - (Centro de Tecnologia da Indusria Quimica e Textil)

Two Extracts from documents prepared prior to this Mission are included below since they describe adequately the background and present capability of CETIQT.

Extract from "Project Concepts for the Textile Industry":

"CETIQT is a research and training institute. In the late 1950's CLEMSON University (USA) initiated the upgrading of a textile training institute to university level. Subsequently to its mechanical a chemical engineering course, a special training programme of 2,000 hours provides for a diploma equivalent to master degree soon to be officially recognised as such by a government degree.

At the same time short specialized courses in textile engineering and in textile chemistry are available as "post-graduate courses". CETIQT courses are already at a high level but in order to become increasingly more independent from educational resources from abroad it intends to develop its Research and Development work up to an international level of applied textile technolcgy.

Presently the development of training and applied research for the chemical fibre industry has the highest priority. Other areas in which the institute needs to be strengthened in order to be able to provide high level technical assistance to the industry are: (i) the apparel industry for design, patterning, size tables, cutting and garment technology and sewing room engineering in its broad sense, including time and motion studies, layout of sewing lines, etc. This subject is insufficiently developed at CETIQT and this reflect the situation in Brazil's industry; (ii) knitting technology, in fabrics engineering in knitting and in control of dimensional stability of cotton knitgoods; (iii) in dyeing and finishing CETIQT needs regular foreign assistance in short split missions. Especially pressing is the need for colour measurement, both in the dyebath as well as in dyed materials".

Extract from "Technical Report of Mr. J. Carbonell":

"CETIQT (Centro de Tecnologia da Industria Quimica e Textil) is part of SENAI (Servicio Nacional de Aprendizagem Industrial), the national institute for technical education. Originally CETIQT functioned as a technical school training textile technicians but, during recent years, applied research has been added to the activities of the Centre to support the training programmes and to provide technical assistance to the industry.

CETIQT is the only institution in Brazil for training textile technicians.

For its research and development activities CETIQT is well equipped with laboratory and pilot plant facilities which permit bulk scale trials in spinning, weaving, knitting, dyeing/finishing and garment manufacture to support both the institute's own educational programme as well as serve the industry. Of the various sections the dyeing/finishing section appears to be the weakest. It lacks a pragmatic approach to R + D, striking a balance between sophisticated basic research and standard, handbook know-how, readily available from the suppliers of dyestuffs and equipment. The staff of this section is, however, receptive to new ideas and approaches and CETIQT as a whole has the potential for developing its activities further, both in technical education and services to the industry. In Sao Paulo the IPT (Instituto de Pesquisas Technologicas des Sao Paulo) is doing somewhat similar work as CETIQT in Rio de Janeiro and, without proper co-ordination, this might lead to unnecessary competition and duplication of work".

In addition CETIQT have put forward to UNIDO a Program for Assistance, which includes ten topics in several areas of research:

1. "Primary Chemical Treatment of the Brazilian Reddish Pigmented Cotton".
2. "Manual of Faults found in Fabrics for the Standardization of Nomenclature, Classification and Corrections".
3. "Determination of Statistical Quality Standards for Brazilian Textile Yarns".
4. "Effects of Twist, Speed and Features of Rotors on Tenacity and Elongment of Open-End Yarns Manufactured with Brazilian Cotton".
5. "Establishment of a Methodology for the Calculation of Productivity in the Brazilian Textile Industry".
6. "Study of Kinetics of the Reactive Dyes Hydrolysis".
7. "Development of Know-How for the Utilization of Instrumental Techniques of High Performance Liquid Chromatography (HPLC) and Infrared Spectroscopy and Preparation of Auxiliary Products Standards Used in the Brazilian Textile Industry".
8. "Determination of the Main Parameters Which Affect the Otimization of the Application of Anti-Wrinkle Agents Available in Brazil in the Presence of Metallic Ions for Cotton Fabrics".
9. "Re-use of Dyeing Effluents Containing Indigo Blue".
10. "Standardization and Conservation of Energy Consumption in the Brazilian Textile Finishing Industry".

Having now reviewed the Topics proposed I would make the following comments:

1. Before embarking on Topic 2 - "Classification of Defects" and Topic 10 - "Energy", a thorough study should be carried out of the existing work already completed elsewhere. There is always the danger of re-inventing the wheel.

2. Topic 3 - "Yarn Quality Statistics". An attempt to do this work in collaboration with a third party is being investigated.

3. It might be more productive if Topic 4 - "Rotor Spinning" were carried out in say a Western University, where there is already a body of Research and qualified personnel who would be on hand to assit. This work might lead to a Higher Degree for one of the CETIQT staff.

4. Topic 5 - "Calculation of Productivity etc." would be a by-product of the Project which is proposed in this report.

5. The remaining Topics which are of a Chemical nature could be the main area through which assistance is provided to strengthen CETIQT . (See Report of Mr. J. Carbonell for further detail).

The final observation is that the staff at CETIQT appear very capable and most enthusiastic. Since we would expect to channel the assistance through this Institute, obviously there will be a degree of training and upgrading of the staff when they act as Counterparts to the various visiting Experts.

ANNEX II

Note on I.P.T. - Instituto de Pesquisas Tecnologicas do Estado de Sao Paulo

Director - Dr. Edison Bittencourt.

I.P.T. was founded in 1899 as the Strength of Materials Bureau, a small laboratory attached to the Polytechnic of Sao Paulo. In 1926 it widened the scope of its activities and began to undertake research work of its own or for interested parties. This was mainly concerned with Civil Engineering, carrying out testing work and establishing Standards. In 1976 the administration changed and it became a State-owned Corporation. It is a non-profit making organization, its work being concentrated into EIGHT programs.

(i) Large Infrastructure works.
(ii) Development of Industrial Processes.
(iii) Development of Equipment, Machinery, Instruments and Control Systems.
(iv) Housing Development.
(v) Energy.
(vi) Materials Development, Standardization and Industrial Quality.
(vii) Human Resources.
(viii) Technological Information.

The main areas of activity and the staff employed in each section are given below:

Civil Engineering	448
Mechanical Engineering	174
Naval Engineering	166
Lumber	95
Metallurgy	200
Mining and Geology	459
Chemistry and Chem. Engineering	189
Ore Dressing	38

Systems Engineering	96
Pulp and Paper	79
Fertilizers	42
Textiles	16
Management and Administration	613

Thus the Textile Division - CETEX employs less than 1% of the total staff. Its main function is concerned with textile testing and 30 to 40% of its income is derived from this source. It also carried out some inter-laboratory tests as part of its work on Standardization.

Most of the work is undertaken for Government Agencies but some is undertaken for private Companies. Although they tend not to be concerned with basic research, they have potentially within the campus a most powerful selection of equipment for high-level investigational work e.g. a Scanning Electron Microscope, NMR Equipment etc. These are housed in Departments other than Textiles but CETEX has access to them.

Another area in which CETEX is involved is the design and fabrication of instruments and equipment. Recently (May 1984) they have opened a small laboratory to service the industry in Americana, where there is a high concentration of medium/small units. This town has over 20,000 looms in 600/800 firms, ranging from units with 4 looms to large organizations with hundreds of employees.

The CETEX laboratories are working with INMETRO on the introduction of Standards and also with IAC (Instituto Agronomico de Campinas) on the provision of Calibration Cotton samples. Apart from the usual Testing Equipment they have recently purchased a Macbeth colour matching computer and are presently settting up the data bank.

ANNEX III

List of Companies Visited

Blumenau	13 July	Hering
	14	Pemar
		Mafisa
	17	Maju
	18	Cristina
Timbo	19	Diana
Blumenau	20	Thiemann
	23	Sulfabril
	24	Lancaster
Brusque	25	D.A.B. Ltda.
		Gizo
	26	Regina
	27	C.I.F.B. and Marisul
Joinville	30	Arp
	31	Princesa
		Dohler
		Campea
	01 August	Lumiere
		Lepper
	02	Centaur
	03	Nerisi
		Grubba
		Aracy
	04	Walter Albrecht
Jaragua	06	Malwee
		Jaragua Fabril
		Marisol
Joinville	07	Fiacao Joinvillense
San Bentos	08	Buddemeyer
		Fiacao San Bentos

Blumenau	27 August	Mafisa
	28	TEKA
		Cristina
	29	Artex
Sao Paulo	04 September	Matogrossense
		Tristil
	05	Santista

ANNEX IV

Diary of Events

08 July	Leav U.K.
09	Arrive Brazil
	Meeting at UNDP with SIDFA
	Meeting at Ministry of Industry and Commerce
10	Arrive Florianopolis
11	Meeting with local officials
12	Visit LAFITE Brusque
	Arrive Blumenau
13 July to 08 August	Mill visits
10 August	Arrive CETIQT
13 August to 22 August	Prepare Conference Papers and meetings with CETIQT staff
23 August	Arrive Blumenau
24 August to 30 August	Visit flood damage
03 September	Arrive Sao Paulo
04 - 05 September	Mill visits
06 September	Visit IPT
07 - 09 September	Conference Sao Paulo
10 September	Visit to CETIQT
13	Arrive Zürich
14	Visit Uster
17	De-brief Vienna
19	Return to U.K.