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ASSISTANCE TO THE TEXTILE INDUSTRY ^{1/}

(TEXTILE PROJECTS)

PERU

(DP/PER/73/002/11-03)

by

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Report on the second stage of Unido project : assistance to the Ministry -
of Industry and Tourism on policies connected with the promotion and development
of the textile Industry .

INTRODUCTION

In the absence of recent reliable data on the textile industries of the six -
Andean countries, five months have been spent by the textile Group of the -
Planning Department of MIT in visiting 79 factories and 30 public and private -
institutions .

The factories visited are producing 67-87% of all cotton system woven -
piece goods i.e. cotton and blends, in the six GRAN countries. Mills visited in
other sectors produced 25-70% of yarns and cloths of all kinds on the woolen and
worsted system. The team also visited 10-37% of mills which produce knitted goods.

Woven cotton system piece goods produced in Gran amount to 700 million -
linear metres for a combined population estimated to be 70 million people ; -
therefore the per capita consumpt is an average of 10 metres .

This compares with about 60 metres in USA and 25-40 metres in Europe .

Country	Estimated population	Estimated market demand	Per capita consumed in metres	Overall consumpt
Venezuela	11.3	108	9.6	$\frac{708}{70} = 10.1$
Colombia	23.3	300	12.9	
Ecuador	6.7	38	5.7	
Bolivia	5.4	34	6.3	
Chile	9.3	100	10.8	
Perú	14.0	128	9.1	
Total	70.0	708	average = 10	

The comparative figures for USA and Europe are six times or thrice the GRAN average of 10 metres, which illustrates the long way they have to go to attain even European standards of cloth consumption . It can be argued that less clothing is - needed in countries blessed with steady and delightful climates, but the figures - confirm statistics of comparative wealth .

That Ecuador and Bolivia are very poor, whilst the average population of the remaining 4 countries has comparatively little acquisitive-power .

The findings of the textile Group in the six countries were tabulated -
 alphabetically, and recorded on standardised statements for ease of visual scanning.
 The letters used were A to E, having the following values :

A	=	100
AB	=	90
B	=	80
BC	=	70
C	=	60
CD	=	50
D	=	40
DE	=	30
E	=	20

Country	Buil- dings	Air condi- tion	Spinning	Prep. for Weaving	Weaving	Finish- ing	GRAN Pass - pects	Over- all	Total Av	Ar First 6 Columns
Vene- zuela	73	78	73	73	60	100	68	80	76	76
Colombia	86	80	70	77	63	95	93	92	82	79
Ecuador	67	47	60	73	73	100	63	73	70	70
Bolivia	65	20	40	58	50	90	60	65	56	54
Chile	73	58	70	68	57	87	68	68	69	69
Perú	51	51	73	80	68	83	62	73	68	67

The conclusion is that Colombia is only a little better equipped than Venezuela., Ecuador, Chile and Peru, which are for all practical purposes equal. Bolivia is definitely inferior in all respects except finishing equipment. Peru and Bolivia are pulled down by inferiority in buildings and atmospheric control.

Having largely eliminated Buildings, installations and machinery the other important variables should be considered :

COST AND FINANCIAL CHARGES

	% of total in New African spinning mill
1.- Raw Materials	69.0
2.- Wages and salaries	2.7
3.- Social charges	0.3
4.- Power and lighting	3.0
5.- Mill supplies and Administration	3.0
6.- Packing and transport	3.0
7.- Long term loans	6.0
8.- Short term loans	1.0
9.- Depreciation	12.0
10.- Export subsidies	--
<hr/>	
TOTAL	100.0
<hr/>	

1.- Raw Materials

The percentages apply to new spinning mills anywhere unless abnormal distortions exist as in Peru e.g. If Peruvian spinners are forced to use Tanguis at 63 US cents/lb. instead of Colombian 1 1/16" S.M. at 45 US cent/Lb. it will put the cost of yarn up by 28% .

$$69 \text{ units of cotton} \times \frac{63 \text{ cents}}{45 \text{ cents}} = 97 \text{ Units of cost}$$

$$\frac{31}{100} \text{ cost items (2-10)} = \frac{31}{128} \text{ units of cost (unchanged)}$$

Note that the cotton content using Tanguis in place of short staple cotton advances from 69% of total cost to 76.0%

The effect of a 28% increase in manufacturing costs is three-fold :

- 1.- It becomes impossible to export coarse and medium count-yarns .
- 2.- The entire population of Peru is compelled to buy all ordinary cotton goods at prices in which the basic yarn component has a built in - inflation of 28% .
- 3.- When the Andean Pact comes into full force the Peruvian Textile - industry, based on coarse and medium count cotton could be extinguished by any one of the five other countries, assuming that sufficient - productive capacity either exists or would be installed. And the world's textile machinery suppliers, backed by their Governments, would install the new machinery for them gladly on long term credit .

The economic and politico-social necessity for a supply of short staple cotton at international prices is irrefutable .

Consideration of the methods which should be adopted are beyond the brief of this assignment.

They fall into two clearly defined areas : -

- 1.- The selection, propagation and large-scale commercial development of the most suitable strains of short and medium staple cotton.
- 2.- Import of short staple cotton from best international sources .

Re 1 It is difficult to imagine reasons which could justifiably prevent a long-term short staple cotton development policy providing that the - Government Agencies concerned could guarantee that all specimen seed was free of disease.

Re 2 The danger of importing cotton together with ineradicable pests such as Pink Boll Worm, Lagarta Rosada, is so great that it would be lunatic to do so unless and until the danger can be completely eliminated. The problem is so well known and so bitterly debated for so many years that a new approach is called for. The Government of Peru could request a major assistance project to resolve the matter once and for all, through bi-lateral or United Nations channels.

The situation of other raw materials has been covered in the report of the first Unido assistance to the project.

As a general rule it is important to the future of GRAN trading that the six countries should have equal access to raw materials, preferably at international prices.

However the special case of synthetic fibres should be mentioned because the small scale of the producing units results in very high production cost. But if they are the same for all countries it should not cause undue problems. High manufacturing costs are inevitable in the first stages of industrial development.

2.- Wages and Salaries : 8 Hour shift . Textile Industry .

Country	Minimum Salary	Average Salary	Exchange Rate US \$ 100	US \$	Social Charges %	US \$ x Cargos Sociales
Venezuela	21.50	25.80	4.40	5.90	80	10.60
Colombia	40.00	59.00	27.60	2.14	110	4.50
Ecuador	52.00	75.00	25.20	2.98	103	6.05
Bolivia	75.00	87.00	20.00	4.35	97	8.60
Chile	5,000	7,000	2,000	3.50	125	7.85
Peru	185.00	339.00	43.80	7.80	92	15.00

The figures for minimum and Average Salary are the averages of information obtained from mill managements in the course interviews.

Peru's Textile wages, adjusted for estimated Social charges are : -

- 50% higher than Venezuela
- 100% higher than the average of Bolivia, Chile y Ecuador
- 230% higher than Colombia

Bolivia appears to be higher than Chile, and Ecuador and 91% higher than Colombia ; even Ecuador is 34% higher than Colombia .

A percentage breakdown of costs has been given for a typical new African Apinning Mill .

In it wages and Salaries are 2.7% of total cost and Social Charges are 10% on Wages i.e. 0.3% .

One reason why the figure for wages is such a small percentage of costs is that the mill is planned in every detail to be as productive as mills in Latin America where-as machine operatives earn US \$ 1.35 per 8 hours shift .

Peruvian workers earn US \$ 7.80 + 92% Social Charges = US\$ 15 per 8 hours which is almost as much as the Average United States Textile operative.

Presuming that all other costs in the African example remain unchanged :

$$3.0 \text{ units of Wages including Social Charges} \times \frac{15.00}{1.35} = 33 \text{ units of cost.}$$

97 units unchanged

97.0 cost items, unchanged

100.0

130

Peru is therefore 30% more expensive per kilo than the African model in wages, as well as 28% more expensive in raw material costs, which rules out all prospect of exporting coarse and medium count yarns .

Instead of wages representing 3% of manufacturing cost in African they would become 25.4% in Peru's case.

This is the sort of figure which calls for a high degree of automation and this is why the latest American mills are equipped to allocate 7,000 spindles to each (motorised) ring spinner as compared with the 1,776 spindles attended by the African or Latin American spinner i.e. The American spinner operates 4 times the number of spindles, at 95% efficiency, for not more than 50% greater real salary (\$ 2.75 per hour)

Total Labour Cost per Spindle

Peru

$$\text{US \$ } 15,00 \quad : \quad 1,776 \quad = \quad 0.846 \text{ cents}$$

x

USA

$$\text{US \$ } 22.00 \quad : \quad 7,000 \quad = \quad 0.314 \text{ cents}$$

Therefore the USA Labour cost is 37% of Peruvian Labour cost when comparing a new American mill with the average Peruvian mill.

A fairer Comparison might be to compare the best ring frames in the best Peruvian mill with the American mill e.g.

$$\text{U.S. \$ } 15,00 \quad : \quad 3,500 \quad = \quad 0.429$$

$$\text{U.S. \$ } 22,00 \quad : \quad 7,000 \quad = \quad 0.314$$

In this extreme case which is not representative of true conditions in Peru, the USA Labour cost is still only 73% of total Peruvian Labour cost.

These international comparisons are a prelude to comparisons of wages in the Andean Countries :-

Note : The small number of mills in each country which produce piecegoods on the cotton system results in statistical data which is subject to distortions e.g. when 1 out of 4 mills is abnormal and unrepresentative. Also information about spindle allocations is incomplete. The figure below are for the average mill in each country.

Venezuela	10.60	:	1,900	spindles	=	0.558	cents per spindle
Colombia	4.50	:	2,750	spindles	=	0.164	cents "
Ecuador	6.05	:	1,776	spindles	=	0.341	cents "
Bolivia	8.60	:	750	spindles	=	1.147	cents "
Chile	7.85	:	2,100	spindles	=	0.374	cents "
Peru	15.00	:	2,000	spindles	=	0.750	cents "

The above figures are based on actual daily total wages and average actual spindle allocations per operative i.e. they are real comparative figures, not theoretical. Ecuador and Chile are twice as expensive as Colombia at 0.341 cents and 0.374 cents per day .

Peru is more than four times as expensive as Colombia at 0.750 cents .

Bolivia , owing to small allocations has the highest real cost per spindle which is seven times as expensive as Colombia at 1.147 cents .

The use of Tanguis cotton instead of short staple increases yarn costs by 28% and the substitution of Peruvian labour costs instead of African costs increases the labour element from 3% in the comparative model to 33.

<u>AFRICAN MODEL</u>			<u>New Peruvian Typical Mill</u>	
Raw Materials	69	X	$\frac{63 \text{ cents.}}{45 \text{ cents.}}$	= 97
Wages and Social charges.	3	X	$\frac{15.00 \text{ US \$}}{1.35 \text{ US \$}}$	= 33
Unchanged items	28			28
	<u>100%</u>			<u>158%</u>
Raw Material	69%		$\frac{97 \times 100}{158}$	= 61%
Wages and Social charges	3%		$\frac{33 \times 100}{158}$	= 21%
Loans and Depreciation (Financial charges)	19%		$\frac{19 \times 100}{158}$	= 12%
	91%			94%
Power, transport mill supplies	9%			6%
	<u>100%</u>			<u>100%</u>

These calculations show that three items of cost account for over 90% of yarn cost in both cases.

In the African Model Raw Material, and Financial charges are 88%.

In the Peruvian Typical Mill Raw Material and total wages are 82% plus 12% for financial charges = 94%.

It is suggested that the minor costs such as Power, Mill supplies, packing and transport should be assumed to be equal in cases.

The quantity of power consumed should be equal for a given load and the same number of hours. The cost per unit is thought to be cheaper marginally in Peru but the amount should not affect the comparison overall.

Mill supplies and Administration should be approximately equal for new identical mills.

Packing and transport for identical tonnages of yarn should be equal unless the distances to market are different. For 3% of cost such variance are unimportant.

It must be assumed that identical mills of similar level of technology will have approximately equal capital costs. If 25,000 spindles of first quality machinery cost US \$ 10'000,000 in Africa the price should be similar in Peru. Financing costs will vary marginally from country to country, but not enough to make substantial differences. Depreciation charges must be equal if installation capital charges are practically the same.

It follows from this analysis of manufacturing costs that all costs except Raw Materials and total Labour costs are approximately equal for new mills which are erected anywhere in the world.

It has also been proved by very detailed examination of complete textile mills in the six Andean countries that there is ^{little} difference between the average manufacturing installations, apart from Colombia being marginally better and Bolivia being rather worse.

Some people may doubt the validity of this statement in which case they should turn to the technical assessment which forms the major item in reports of visits of 70 factories.

They might be surprised to find that in Colombia.

- 1.- Opening and Scutching machinery is mostly obsolete.
- 2.- Carding has not been converted to High Production and large cans in many cases .
- 3.- Drawing is obsolete in some cases, although this process should have been completely modernised .
- 4.- Roving is partly modern and partly obsolete.
- 5.- Ring spinning is mostly with obsolete machines which have been modernised in drafting and creels .
- 6.- Looms are generally old and conventional .
- 7.- Finishing is generally new.

In spite of this Colombia compared with the other 5 countries is marginally better equipped overall; note that it would be a financial impossibility for Colombia to modernise its three great cotton system mills to an advanced stage of technology, as the cost is estimated to be around US \$ 200'000,000 for Teji - Condor , Fabricato and Coltejer together .

Their published balance sheets show that this sort of money is not available from current margins of profit , especially whilst world textile markets, on which they depend to some extent, are in recession .

The secret of Colombia's very real advantage in GRAN appear to be these : -

- 1.- Cheap and productive labour
- 2.- Access to cotton and some other raw material at or below international prices.
- 3.- Economics of scale .
- 4.- Mass production techniques resulting from 3, and large domestic market.
- 5.- Superior Management with mature American style production techniques , which use their cheap, amenable and productive labour to the best - advantage, exploiting labour by basically paternalistic methods .

Strangely enough the large mill in Ecuador has little to fear from loyal competition originating from Colombia. The word loyal has an exact meaning in the textile context.

It refers to subsidies of all sorts, which can influence textile markets for political reasons. As an example a Far Eastern country exported standard grey cotton cloth for many years at prices which did not cover the cost of the cotton contained in the yarn. The calculation proving this assertion was simple and irrefutable.

The largest Ecuadorian mill is possibly ideal in scale; they have free access to raw materials and their costs should be much the same as Colombian except for labour.

But labour only amounts to an estimated 5% of Colombian spinning costs where as Ecuador has $5\% \times \frac{2.98 \text{ US \$ per 8 hours}}{2.14 \text{ US \$ per 8 hours}} = 7\%$

If all their other costs are equal this means that Ecuadorian spinning cost is 2% more per kilo of yarn than Colombia's.

The cost of export packing, transport to docks, meritime freight to destination and transport for docks to market (Quito) is very much more than the 2% advantage Colombia has over Ecuador in labour cost.

The whole question of transport costs between all Andean countries for textile products deserves special study.

It is not worth comparing Colombia and Peru as far as coarse and medium textile goods are concerned. It appears to be more profitable exercise to investigate the lines of production in the existing textile industry which merit promotion and to try to identify new product lines.

These very difficult questions require more time than is available, but a short preliminary study with suggested lines which merit promotion will be submitted to the Planning Group as a starting point for further investigation.

METHODOLOGY

THE PERUVIAN TEXTILE INDUSTRY IN THE ANDEAN GROUP

In addition to reviewing the mass of information contained in past studies, the textile GROUP visited more than 40 factories and Institutions, in Peru.

The objectives were to determine lines of production in the existing Textile Industry which merit promotion, taking into account the need for specialization, in order to compete in the Andean market. Also to identify opportunities in new product lines.

There is no lack of information and professional opinions on the past performance of the industry; but both the information and the opinions are not always recent, and there is very little factual information on actual textile industry performance in the five GRAN countries.

The 38 factories visited by the Textile Group are estimated to represent 50-60% of the output of the industry; factories of all major enterprises were visited, as well as several medium and small companies, in order to secure as true a picture as possible of a complex industry.

The visits have provided data about the physical condition of each factory, e.g.

1. Name
2. Code Number
3. Sector
4. Locality
5. Area
6. Type of building
7. Type of Air conditioning
8. Number of workers and staff
9. Machinery installed
10. Principal Products

We have also supplied the following general headings :

11. Prospects in Context of the Andean Group
12. Major Problems

- 1.1 Common to most mills
- 1.2 Raised by individual mills

13. Overall Impression

Subjective assesment of enterprises based on :

- 2.1 Condition and quality of Assests
- 2.2 Apparent quality of management

14. Estimated Productive Capacity

Terms of Reference

The strict terms of reference of this second phase of Unido Assistance refer to Marketing problems, i.e. what lines of production merit promotion in order to compete in the Andean market? It is a task which calls for the cooperation of a professional Marketing consultant. The Unido Consultant, Mr. Herbert Herzberg, has been collaborating with the Ministry of Commerce on the International Marketing of Peruvian Textiles. It is hoped that the Textile Group of the Ministry of Industry will have access to his unique experience.

Methodology

The Textile Group developed a flexible approach based on the maximum possible number of mill visits.

Contrary to some opinions expressed in previous reports, the Group was invariably received with the maximum of courtesy, and the discussions were friendly, cooperative and candid. At the outset, the Textile Group asked for help from the Comité Textil and the success of the mill visits is due to them.

The Textile Group wishes to correct another misconception which occurs in previous reports. The quality and obvious dedication of top management was impressive. There is no lack of gifted entrepreneurs, who have shown great skill in their choice of new machinery. There was evidence everywhere of the skill of local mechanics and workers. But there was often complete absence of formally trained middle management. This weakness could have bad repercussions in the context of the Andean Group because the cost and quality competitiveness of any textile industry can depend on the effectiveness of middle management. In Peru this weakness can be traced partly to the trouble and

expense of sending suitable young people to international training centers. It was noted that the high efficiency of one of the largest textile group was due to a deliberate policy of training potential managers for long periods in recognized world textile schools. The Government should encourage the highest quality of training and should avail itself of as much assistance as possible from international institutions such as UNIDO.

Information secured in a series of short visits will not be perfect. The Textile Group was more interested to hear the opinions of Management than to collect statistics. The attached statement is based on notes taken at the time of each visits. It shows a series of snapshots, in which some of the detail is blurred, and where the camera was not quite straight on all occasions.

But it serves to illustrate some of the strengths and weaknesses of the most important group of manufacturing industries in the country.

It was considered to be essential to attempt this analysis of actual conditions before attempting to isolate lines of production that merit promotion.

It was also considered essential to visit all GRAN countries to obtain valid recent data on their textile industries, using similar methods to those employed in Peru. A smaller number of mills and institutions was sampled and exchange of information took place in the best interests of all concerned. The unanimously friendly and hospitable response from all five countries indicates that the initiative of MIT, supported by United Nations, has been worthwhile. The findings of these visits are given after the analysis of conditions in the local textile industry.

Analysis of Peruvian Textile Industry Conditions - Nov. 1974

1-2 Code number should be used without specifying names of companies, if the statement is to be published.

3 Sectors. The 38 mills engaged in the following activities:

Spinning, Weaving and Finishing Piece-Goods of Cotton and Blends.

Flocking

Carded Blends, Wool system

~~Carded~~ Blends, worsted system

Circular knitting outerwear
Circular knitting underwear
Full Fashioned knitting, outerwear
Socks and stockings, Hosiery
Tricot and Raschel knitting
Lace and Embroidery
Non-Woven Fabrics
Sewing Thread
Extrusion and spinning of synthetic filaments
Texturization of synthetic filaments

The barriers between different textile sectors are disappearing and it is conceivable that one master group such as Courtauld's or AKZO could engage in all of these 14 activities, plus several more such as Tapes, Absorbent cottons, Open-end spinning, Adhesive spinning, Coarse spinning, weaving and sack making, Semi-worsted spinning for carpet industry, Jacquard weaving for carpets, Tapestry and Upholstery industry, Velvets. Complete Towelling plants, specialized sheeting mills, Transfer Printing, Laminated Fabrics and wall coverings.

It will be seen from this incomplete list of textile activities that the terms of reference present a difficult task to the Textile Group. It would seem advisable to leave the detailed lines of production to the top management of Industry, which should in the best position to make choices of new product lines.

The UNIDO Consultant will be attending the quadrennial world exhibition of Textile Machinery to be held in Milan - "ITMA" - in ^{October} 1975, in his personal capacity. In his opinion the Planning Group of the MIT should be represented at this exhibition. After visiting about 10 institutions mills in the six Andean countries, the members of the Planning Group would benefit greatly from such an opportunity to evaluate the latest development in machinery and techniques.

4.- Locality

The following code has been used :

example : L. Ind A = Lima Industrial District, Excellent site.

Abbreviations used :

L = Lima

Ar = Arequipa

Ta = Tacna

Ind = Industrial District (or zone)

Semi-Ind = Mixed Locality of doubtful suitability

Res = Residential district, improper for industry

Evaluation of site

- A = Excellent : on a ^{modern} industrial development with all facilities including room for expansion.
- B = Good : normal site in industrial district
- C = Adequate
- D = Passable
- E * Unsuitable : such as residential districts, or cramped, bad sites near city centre .

5.- Area

The sites visited in and around Lima vary from Excellent to Unsuitable. Many sites are fully developed without room for expansion and several have been zoned for other purposes and are illegal for industry. Most new sites only - have room for double the present plant, which is inadequate space for new industries .

This may indicate that some industrialists may not wish to expand unduly on present sites. From Government's point of view their lack of ample space makes it easier to encourage decentralisation .

The majority of textile mills in Arequipa and Tacna have been classed as Excellent or Good. In order to speed up decentralisation, so as to reduce congestion in Lima and to benefit more distant places, the industrial estates of Arequipa and Tacna are recommended, Successful decentralisation to other parts of Peru will depend upon the provision of infrastructure and the removal of dis-incentives.

ó.- Type of Building

Summary of categories

- A = Excellent, i.e. insulated modern building of good design, and first quality materials throughout, with wide pillar- less spans, and excellent floor surfaces and lighting .
- B = Good, i.e. typical Saw-tooth building of good quality, with good pillar spacing and partial insulation .
- C = Adequate, Ordinary industrial building which is mainly of saw-tooth construction, with excessive number of pillars and without insulation.
- D = Passable, Industrial buildings which give a minimum of protection to plant and machinery .
- E = Inadequate, Cluttered, shoddy, lightweight building, of poor quality, or obsolete industrial buildings of antiquated design .

Classification of buildings inspected :

Number	Category	Number X Category	Extension
4	A	4 x 1	4
2	A/B	2 x 2	4
10	B	10 x 3	30
2	B/C	2 x 4	8
4	C	4 x 5	20
1	C/D	1 x 6	6
2	D	2 x 7	14
3	D/E	3 x 8	24
10	E	10 x 9	90
<hr/>			
38			200

$$\frac{200}{38} = \text{Average Category} = 5.27 = C - C/D$$

(Factory Number 26, Lanificio del Peru was classed as two factories because spinning and weaving of blends (26) is different from Needle-Felting (26a).

Comment

26% of all buildings were classed as inadequate, i.e., they fell into the lowest of all categories.

The average Mill was slightly less than adequate.

26% were classed as good and 10% were considered Excellent. The definition of Excellent is quite modest "Insulated modern building of good design, and first -

quality material throughout with wide pillar-less spans and excellent floor surface and lighting". Only 4 out of 38 mills satisfied these specifications .

The absence of rain in the Lima district, where 85% of textile mills are located may account for part of the poorness of mill factory buildings .

But modern technology requires strict standards in respect of atmospheric control, including dust extraction, noise control, , insulation, lighting and material - handling .

In order to achieve higher productivity, the quality of buildings requires upgrading in 90% of mills, or the provision of completely new modern sheds .

7.- Type of Air Conditioning

Installations and Air conditioning are usually classed together, but it was found that all installations were of reasonable quality whereas most Atmospheric control equipment was defective, inoperative or missing . So it was decided to concentrate on Air conditioning in this analysis .

Summary of Categories

- A = Excellent. Full Central Station Air conditioning with refrigeration and first class distribution, as well as return air systems .
Temperature and humidity controlled within close tolerances .
- B = Good. As above, but with individual type Ducts to ensure accurate humidity control, without refrigeration, i.e. Evaporative cooling .
- C = Adequate. Partial Atmospheric control and ventilation where required, using Evaporative cooling over critical machines .
- D = Passable. Minimum ventilation and humidity control
- E = Inadequate. No Atmospheric control .

Comment

55% of mills visited had no atmospheric control . The average mill was classified between Adequate and Passable .

10% of all mills were classed as Excellent .

The inadequacy of atmospheric control, coupled with the poor quality of industrial buildings, accounts for part of the low level of productivity. Costly machinery - and expensive labour cannot be made productive under such conditions .

8.- Number of Workers and Staff

Approximate figures have been given to indicate the importance of each mill as an employer of labour. The group has had to accept figures mentioned in conversation by technical management .

9.- Machinery installed

Overall classification of machinery has been divided amongst :-

Spinning

Preparation for weaving

Weaving

Knitting

Processing and Finishing

Summary of Categories

- A = Excellent. Machinery of recent date which compares with new machinery for Advanced Technology and productivity .
1965-1974 - Approximate date of manufacture .
- B = Good. Conventional Machinery of recent date .
1960 - 1974 .
- C = Adequate. Best marks of conventional machinery produced in 1950's, with renovation of essential parts .
1950-1959
- D = Passable. Best marks of conventional machinery produced in the 1940's when fully renovated .
1940 - 1949

Knitting machinery was classed differently as it becomes obsolete much sooner in some cases.

E = Unsuitable. Pre 1940 machinery unless suitable for complete renovation in special cases, e.g. Conversions to High - Production Carding, utilising heavy antique cards of standard makes.

10.- Principal Products

In the short time available for each visit, the team gathered information from management, from inspection materials in process and, whenever possible, from evaluating finished goods in mill warehouses.

We were usually conducted through the mills by practical technicians who had an excellent grasp of manufacturing, without any knowledge of marketing.

The visits were made at, or near holiday time when the cloth seen during processing may have been abnormal and the most desirable products will have been despatched from mill warehouses for the Christmas trade. The team also saw very large quantities of finished goods in the shops of all six countries.

This sort of practical evaluation does not pretend to take the place of a professional marketing study.

11.- Prospects in Andean Group

The same simple yardsticks have been applied pragmatically to the prospects of each company visited in the six countries, i.e.

A	=	<u>Excellent</u>
B	=	<u>Good</u>
C	=	<u>Fair</u>
D	=	<u>Possible</u>
E	=	<u>Poor</u>

The results are based on an appraisal of all data collected by the team; they indicate the team's estimate of commercial prospects when the Andean Pact comes into full operation.

12.- Major Problems

The management of the first mill visited in Peru gave the team a list of major problems which are afflicting the industry as a whole .

In consequent visits to mills in GRAN countries note was taken in each mill of the major problems encountered by management .

Remarkable similarity was recorded under the following headings :

Labour questions,

Labour cost ,

Labour productivity

Material costs,

Material Input problems,

Spares Input problems ,

Scale of production

Excessive variety and short production runs,

Marketing including current general recession,

Lack of working capital,

Lack of trained middle management,

Socio political distortions ,

Obsolescent plant, machinery and buildings,

High cost of new machinery and equipment,

Comparisons between the different countries will be made under a

separate heading as part of the general analysis of data .

13.- Overall impression as in item 11.

14.- Estimated Productive Capacity.

Whenever possible an overall figure productive capacity was requested from technical management expressed in metres, kilos or units according to the product range .

In most cases it was not possible to check the information other than by a superficial appraisal of machinery installed and by judging the approximate weight per square metre .

Cloth is generally expressed in metres .

Yarn is generally expressed in kilos

Socks and stockings in dozens .

MILL VISITS VENEZUELA

Code N°	Sector	Locality	Area		Type of Building	Air Conditioning	Employees		MACHINERY INSTALLED				Principal Products	Prospect: in Andean Group	Major Problems	Overall Impression	Estimated Production Capacity	
			Total	Covered			Workers	Staff	Spinning	Preparation	Looms	Knitting						Finishing
V-1	Spinning Weaving and Finishing of Piece-Goods	Car Ind. A	50,000	35,000	A	C	900	150	A-C	A-C	B-D 544	-	A	Cotton and blend piece goods	B	High Wages High Cost of National Polyester	B	14,500,000 m.p.a.
V-2	Spinning Weaving and Texturisation Cotton Synthetics	Car Ind. B	30,000	30,000	A B	A B	850	250	A-B	A-B	B 510	-	A	High Quality Cotton and blend Yarns and Piece goods	A-B	High wages Lack of room for expansion	A	4,800,000 k.p.a.
V-3	Weaving and finishing of wool and blend Piece goods	Car. Urb D	10,000	7,000	D	E	270	75	A-B	A-B	52	-	A	Polyester wool Viscose blends for suitings.	C	-	B C	1,500,000 m.p.a.
V-4	Spinning weaving and finishing of cotton and blend Piece goods	Mar. Urb E	50,000	45,000	E	C	1,350	150	A-E	A-E	700	-	A	Cotton and blend Piecegoods drill, Denims, Shantung	D	-	C	24,000,000 m.p.a.
V-5	"	Mar. Urb B	50,000	40,000	B	A	1,600	200	A-E	A-E	700	-	A	as above	C	Marketing of articles produced by Open-End Machin-	B	30,000,000 m.p.a.
V-6	Polycondensation and spinning of Polyester Fibres Carbons	Mar. Ind A	100,000	25,000	B	D	350	20	-	-	-	-	-	Cut staples Fibre of Polyester 1.5 and 3.0 Denier	B	Nearly started plans in phase of reorganization	B	1,500,000 k.p.a.
V-7	Knitting of Cotton and Garment Making	Car Semi Res. D	3,000	3,000	B	A	160	20	-	-	-	A 29	-	Un finished knitted cloth for outer wear and underwear also Corsets	B	Great variety and Contraband	A	(10% of total market) 140,000 k.p.a.

Code No.	Sector	Locality	Area		Type of Building	Air Conditioning	Employees		MACHINERY INSTALLED				Principal Products	Prospects in Andean Group	Major Problems	Overall Impression	Finished Production Capacity
			Total	Covered			Spinning	Knitting	Finishing	W E A V I N G							
			Very Large	75%			Worked	Staff	Looms	Preparation	Propagator	Knitting					
C-1	Spinning - weaving of piece goods cotton and blends	Med. Ind. A	Very Large	75%	B-C	C	-	A-D 60,000	B-D	C-D 1,400	-	B	Come and need in piece goods. 60% Cotton, 40% blends	B-C	Recession in world market. Obsolescence	C	40,000,000 m.p.u.
C-2	Spinning - weaving - finishing - garment making, suits	Med. Ind. A	Immense	25%	A	C	2,600	-	A	A 128	-	A	Suits and suits of wool and polyester, acrylics	A	Possible effect of world recession	A	5,400,000 m.p.u.
C-3	Spinning and finishing of piece goods. Cotton blends	Med. Ind. A	Immense	75%	A	A	7,400	600	A-B	B-C 4,800	-	A	Cotton and blends piece goods exp Denims	A	As above	A	105,000,000 m.p.u.
C-4	As above	Med. Ind. B	Immense	80%	C	B	14,000	1,000	A-C	B-C 5,340	-	-	Finished goods as above and Nan	A	As above	A	165,000,000 m.p.u.
C-5	Part of above	Med. Ind. A	70,000	80%	A	B	-	-	-	-	-	A	Finishing of calico cloths	A	As above	A	As above
C-6	Tricot, Raschel and circular knitting and finishing	Med. Rural A. Rio Negro	Immense	40%	A	B	3,101	90	-	-	A 50 Circ.	A	Tricot Raschel Circular knit goods	A	As above	A	1,500,000 k.p.u.
C-7	Circular and heavy full fashioned knitting - teuchising and finishing	Med. Rural A. Rio Negro	Immense	60%	B	B	1,300	150	-	-	A 55 Circ.	A	Hosiery, Full fashioned, Teuchising for knit goods	A	As above	A	780,000 das p.u., 6,000,000 m.p.u.
C-8	Condurey	Med. Rural A. Rio Negro	Immense	60%	A	B	200	50	-	-	-	A	Condurey cloth	A	-	A	-
C-9	Polyester and Nylon	Semi Med. Rural A	Immense	80%	A	A	1,500 est	100 est	A	A 16 Denier	-	-	Polyester Filastop Nylon Fil. Tyre Fabric	A	-	A	Nylon 1,500,000 k.p.u., Polyester 3,000,000 k.p.u.

Code No.	Sector	Locality	Area		Type of Building	Air Conditioning	Employees		MACHINERY INSTALLED					Principal Products	Prospect or Andean Group	Major Problems	Overall Impression	Estimated Production Capacity	
			Total	Covered			Workers	Staff	Spinning	WEAVING			Knitting						Finish %
										Preparation	Looms								
C-10	Garment Industry	Med. Urb. C	10,000	10,000	C	E	600	100	-	-	-	-	-	B	Shirts, -- Pajamas, Pants.	A	-	A	
C-11	Polycondensate Non Spinning of Synthetic	Med. Ind. A	Vary Large	75%	A	A	-	-	A	-	-	-	-	A	Polyester Filament and Staple Fibre	B	Raw Materials	B	
C-12	Garment Industry	Barr. Ind. B	10,000	100%	C	E	1,100	100	-	-	-	-	-	B	Shirts Pajamas Vests	B	Lack of buying power of people	B	Diverse articles
C-13	Knitting and dyeing (Printed)	Barr. Ind. B	7,500	100%	A	E	180	-	-	-	-	-	-	A	Packaged Printed Towels and sheets, High Quality	A	Transport of bulky goods	A	1,000,000 m. a. p. a.

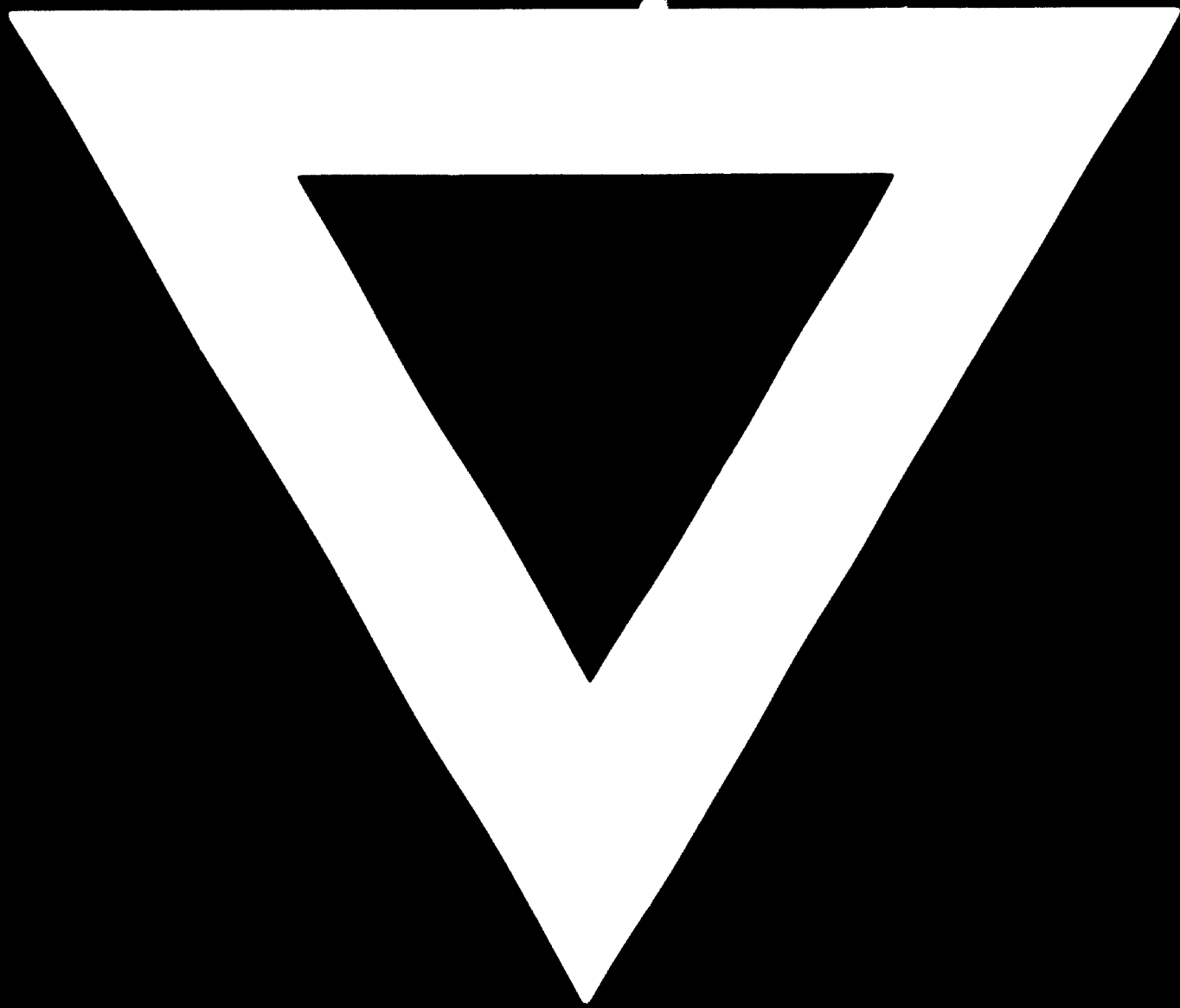
Code N°	Sector	Locality	Area		Type of Building	Air Condition	Employees		MACHINERY			INSTALLE D			Principal Products	Prospects in Andean Group	Major Problems	Overall Impression	Estimated Production Capacity
			Total	Covered			Weeks	Staff	WEAVING		Looms	Knitting	Finishing						
			Large	Small				Spinning	Preparation										
E-1	Spinning and Weaving of Cotton and Wool	G. Rural A	Large	Small	E	-	-	-	-	-	-	-	-	-	-	Lack of communication with Capital	-	-	
E-2	Spinning and Finishing of Woven cotton and blend cloths	G. Ind. A	Large	50%	C	D	150	20	C-E 2,250	A-E	B 48	-	A	Medium Quality Piece Goods	D	High costs Small Production runs and Great variety	C	2,000,000 m.p.a.	
E-3	as above	G. Ind. A	Very Large	50%	B	C	1,600	200	A-C 40,000	A-B	B 800	-	A	Medium High Quality Piece Goods	A-B	Small Production runs Excessive Variety	A	20,000,000 m.p.a.	
E-4	as above	G. Ind. A	Large	50%	C	D	608	27	A-E 21,000	A-D	B-D 800	-	-	Low and Medium Quality	C	Labour Trouble market Recession	C	11,000,000 m.p.a.	
E-5	Spinning Weaving and Finishing of Merino and Panchos of wool and blends	G. Rural A	Immense	10%	E	E	250	-	E	E	D	-	A-E	Traditional cloths Blankets and Panchos of wool and blends	C	Maintenance of very old Plant which uses 60-70% of local wool	C	---	
E-6	Fully Fashioned Sweaters and Cardigans	G. Rural A	Very Large	10%	B	E	90	10	-	-	-	A	-	Sweaters and Cardigans of Acrylics and Blends	A	High material Prices World Recession	A	-	

MILL VISITS BOLIVIA

Code No.	Sector	Locality	Area		Type of Building	Air Conditioning	Employees	MACHINE Y INSTALLED				Principal Products	Major Prospects	Estimated Production capacity
			Total	Covered				Preparation	Spinning	Knitting	Finishing			
B-1	Spinning weaving and finishing of wool Acrylics and Alpacas	LP, Ind. B	30,000	20,000	C	D	408	80	5,000	A-E	Blankets, Panties, Sweaters, Sport Coating Wool, Alpaca Acrylics blends	Labor, Tractor	420,000 m.p.a.	
B-2	Weaving and Finishing of Polyester Rayon Filaments Staple	LP, Ind. B	4,000	3,000	B	E	106	A-B	40	A	Diverse range of Synthetic and blend cloths	Short production runs, Great variety, small volume	500,000 m.p.a.	
B-3	Hosiery	LP, Ind. C	4,000	4,000	B	D	75	-	-	A	Socks, stockings and Pantyhose of Nylon	Cannaband cheap selling from Peru	180,000 doz p.a.	
B-4	Spinning Weaving and Finishing Cotton and blends	LP, Ind. B	50,000	40,000	E	E	1,000	E	16,000	A-C	Coarse piece goods 90% Cotton 10% P/C.	High Labor Cost Troubles obsolescence cannaband	10,000,000 m.p.a.	
B-5	Cotton Sockling	SC, Ind. A	30,000	10,000	B	E	150	B	4,600	C	Socks Baling cloth	Transport	1,800,000 socks p.a.	
B-6	as above	SC, Ind. A	100,000	10,000	3	E	110	E	2,000	C	as above	as above	1,440,000 socks p.a.	
B-7	Tricoat	SC, Ind. E	250	250	D	E	1	-	-	A	Tricoat material for underwear Nylon	Cannaband Capacity Run material	-	

SMALL VISITS CMILE

Code No.	Sector	Capacity	Area		Type of Building	Air Conditioning	Employees		Spinning	MACHINERY INSTALLED				Principal Products	Prospects in Andean Group	Major Problems	Overall Impression	Estimated Production Capacity
			Total	Covered			Worked	Staff		WEAVING								
										Preparation	Looms	Knitting	Finishing					
Ch-1	Knitting and Garments - S, Ind. B Polyester -	3,000	3,000		C	E	50	6	-	-	A/B	-	Fancy Knitwear and leather (Coats)	C	Polifico - Economic.	B	50,000 units p.a.	
Ch-2	Wool Washed and synthetic blends	20,000	20,000		B	A	430	200	A-C 9,730	A	A-B 64	A	Woolen Wadded Suits of wool and blends.	B	market	B	1,500,000 m.p.a.	
Ch-3	Spinning - S, Ind. A Finishing of Garment Cloth	40,000	40,000		A-B	A-D	1,100	500	A-B 50,000	A-D	B-C 1,000	A-C	Drills, Carduroy Jeans, Poplin Fancy checks	B	Market diversity Transport	B	24,000,000 m.p.a.	
Ch-4	Woolen blends and blends	20,000	20,000		A-B	B	650	150	B 6,000	-	C 70	B	Woolen and Wadded suiting	B	Lack of Merino wool	B	11,000,000 m.p.a.	
Ch-5	Carded Yarns Knitgoods Garments	30,000	30,000		A-B	B	1,700	300	B 3,700	C	A/C 48	B	Wool Blends Carded	C	Great variety of machines	B C	1,800,000 m.p.a.	
Ch-6	Jacquard Weaving	20,000	20,000		D	E	390	110	B-E 4,000	A-E	D 130	A	Matress Ticking Table cloths	C	Obsolescence	C	600,000 k.p.a.	
Ch-7	Spinning and Finishing, Cotton	50,000	40,000		C	D	2,240	800	C 36,000	A-D	C 829	B	Cotton Cloth Coarse and Medium	C	as above	C	30,000,000 m.p.a.	
Ch-8	Rayon and Polyester Yarns	20,000	10,000		A	A	120	50	B 12,000	A-D	-	-	Yarns of Rayon and Polyester	B	Lack of Raw Material	A B	780,000 k.p.a.	



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