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INDUSTRIAL PLANNING AND PROGRAMMING WITHIN THE CONTEXT OF ECONOMIC RECOVERY - 1984 - 1986

DP/GHA/82/030

GHANA

Technical report: Assistance in plan preparation for the Textile sub-sector*

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

Based on the work of E. Briner
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United Nations Industrial Development Organization
Vienna

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Explanatory notes

Value of the local currency

₵ = Cedi

during the period of the project in terms of US$:

57 ₵ / US$,

60 ₵ / US$ from 7.10.85

Abbreviations

CBS	Central Bureau of Statistics
M	Million
MLM	Million linear metre
SUL	Special unnumbered licence
TGI	Textile and garmenting industry
TMT	Thousand metric tons

ABSTRACT

The work on this report "Assistance in plan preparation for the textile subsector" within the project DP/GHA/82/030 was initiated end of August 1985 and terminated in December 1985.

The Ghanaian TGI was judged to have sufficient operationable equipment and more than enough free capacity to be run without major replacement for another 3 years. During this time the most profitable use of the scarce foreign currency is working capital for inputs to increase capacity utilization.

The import taxing system for used clothes should be revised to give the garmenting manufacturers a chance to compete on the market.

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INTRODUCTION

The main objective of the mission is to propose a subsectoral programme for the Textile and Garmenting Industry (TGI) to enable the Government work out a strategy to carry out and coordinate the necessary measures for the implementation of appropriate policies for the revitalization of the Textile and Garmenting Industry to the advantage of the country.

This objective when translated into the assignment generated the following questions:

- Is it viable for Ghana to have its own TGI ?
- Is the capacity of the TGI adequate or excessive ?
- Is it feasible to close down certain factories or certain levels of production ?
- Is the equipment obsolete and must be replaced ?
- What are the main bottlenecks and constraints ?
- What can be done for the revitalisation of the TGI ?
- What steps shall be taken in the next 3 years ?
- How much foreign exchange will be needed ?

The main sources of data had been:

- Questionnaires prepared by World Bank
- Structured and unstructured interviews
- Statistical reports

During the first two weeks of the mission the expert was attached to a group of consultants who were collecting data for a World Bank study. Together with them the necessary data was collected through questionnaires and structured and unstructured interviews of ~90% of the Textile and Garmenting Industry.

After the two weeks intensive data collection several other visits were made to some companies together with Ghanaian counterparts to collect more information.

Data was also collected from the following documentary sources:

- "Reorganization of the Cotton Development Board & its effects on the Textile Industry". By B.B. Lal, UNIDO Adviser, Ministry of Industries, Science and Technology, Accra, Ghana.
- Report on "Textile Sector by World Bank Technical Team" by B.B. Lal 2nd April 1985.

_____ Files of the Ministry of Industries, Science and Technology
_____ Extracts of the Textile consumption of all countries on the World computed in "FAO, World Apparel Fibre Consumption Survey" June 1983
_____ NB The figures for Ghana do not tally with the figures of textile consumption of Ghana for that same period computed by Central Bureau Statistic (CBS).

_____ " External Trade Statistics of Ghana, Central Bureau of Statistic statistical service Board, Accra" 1976, 1978, 1979 and 1980.

Jute products are made at GIHOC Fibre Products Company Ltd in Kumasi. This operation is self contained and does not impinge on other parts of the textile industry. It therefore is not taken into further consideration in this report.

I. EVALUATION OF THE PRESENT SITUATION

A. Capacity and demand

It is expedient in the light of the present working conditions of the machinery and equipment in some of the Companies and in the light of the present low capacity utilization to introduce in this report two different levels of full capacity namely capacity I and II.

Capacity I is used to describe the optimum capacity of plant in its present conditions without undergoing any rehabilitation exercise in the short time period.

Capacity II is used to describe the optimum capacity that could be achieved if the installed equipment were reconditioned without major replacement.

The Textile and Garmenting industry could produce at present:
1.66 kg per capita with full capacity I and
2.28 Kg per capita with full capacity II.

In 1988 with a possible population of 13.34 Million, the corresponding figures are:
1.34 kg per capita with full capacity I and
1.84 kg per capita with full capacity II.

These figures must be compared with the per capita textile consumption of
2.95 kg in 1977,
1.22 in 1979 and
1.44 in 1980 according to figures from CBS. (See annex 1)

The low reliability of largely differing figures on per capita textile consumption allows only limited conclusions (see annex 2). But also, if for 1988 we took into account 70% utilization of capacity II (20.1 TMT), only 1.5 kg per capita textile consumption could be covered by local production, which would be much lower than local demand, not considering any export.

Capacity

level of production	SHIFTS	Capacity I available in a short time		Capacity II available after a certain time through thorough maintenance but without major replacements	
		MLM	TMT	MLM	TMT
spinning (yarn)	3		(8.7)		(12.5)
weaving	3	76.5	12.2	102	16.3
knitting	2		6		8.5
total industrial fabric			18.2		24.8
fabric processing	(2)	(69)	(11)	(98)	(15.7)
	3	103.5	(16.5)	147	(23.5)
Kente Cloth	1		2		3
Total fabric			20.2		27.8
Garmenting	1	1.5 M s.u.* (1.875) 9.375 M a.u.		**	
Other (ropes.mats, etc)	(3)		.5		.7
Total Textile Production Capacity			20.7		28.5

* s.u. = standard unit
a.u. = absolute unit

** actual garmenting capacity is substantally higher by the fact, that many hundreds of additional sewing machines are working along the streets in tailorings of 1-4 machines each.

Footnote: Figures in ( ) do not add to the total.

Basis of capacity calculation

LEVEL OF PRODUCTION	Nr. of mills visited	Basis for capacity calculation; critical equipment or processes (3 shifts = 6000 trs/a)	Nr. of shifts	estimated efficiency (m) = machinery (l) = labor	Average count, weight, ect.	% added for not visited mills	in a short time available
spinning	8	136929 spindels	3	actual = 75 % (m)	Ne 24		70 %
weaving	12	4958 looms	3	75 % (m)	160 g/m	5	75 %
knitting	9	171 Ø knitting mach. 62 flat knitting " 53 rashel/warp knit "	2	75 % m) + individual	individual	35	70 %
fabric processing	12	15 % bleaching 15 % dyeing 58 % printing 12 % color woven	3	75 % (m)	160 g/m	3,5	70 %
garmenting	9	795 sewing machines	1	31 % (l)	* 25 Ppc/day		
kente cloth	1	Kente/Adinkra Weavers Ass. Ltd., minutes 30.11.84		actual			67 %
others	2	individual	(3)	actual	individual	15	75 %

* 25 Ppc = 25 standard units per capita; 1 standard unit = 6,25 absolute units, 1 a.u. ≙ 200 g

Footnote: For more details see annexes 3, 4, 5, 6 and 7

B. Equipment

The layout of the factories visited is generally well planned providing a reasonable flow of material. Most of the equipment including some second-hand were bought between 1964 - 67 and 1976 - 79. In Europe, the older part of the equipment would have been replaced because of its high labor intensity. In Ghana with its much lower cost of manpower a replacement of equipment for this purpose is not yet indicated. For technical reasons there is no need for an immediate replacement either. There is enough machinery which can run economically for at least another 3 years in capacity I.

During this time, only emergencies, e.g. broken down bottleneck machinery but not looms, spindles or sewing machines, should be replaced. The scarce foreign currency should be concentrated to purchase raw material for increasing the capacity utilization. This would enable the TGI to save money for replacing its machinery later in a well planned manner.

C. Production

1 Quantity

level of production	1984 Production MLM	TMT	Utilization of capacity I %	II %	1985 estimated Production MLM	TMT	Utilization of capacity I %	II %
Spinning		(3.256)	37	26		(4.65)	53.4	37.2
weaving	21.4	3.43	28.1	21.1	31	4.96	39.7	30.4
knitting		.21	3.5	2.4		.3	5	3.5
processing	19.75		20	14.6	31		32.6	23
Kente cloth		.388	13.4	13		.4	20	13.3
Garmenting	165000 standard units 1031000 absolute units		11		170000 standard units 1063000 absolute units		11.3	
Others		.14	28	20		.2	40	28.5
Total textile production		4.168	20.1	14.6		5.96	28.3	20.2

2 Quality

The quality-standard of TGI products is too low to be competitive on export markets. On woven fabric, for instance, management of several factories consider a level of 20 defects per 100 meters as normal. However, on the export markets, a number of 10 defects or more per 100 meters can not be sold as first quality. The average number of defects should be 5 or less per 100 meters.

The way to improve quality to such a standard passes through all levels of production, from purchasing and testing raw material, to setting and adjusting machinery, reparing breaks in spinning, weaving and knitting up to the final inspection. Such an improvment needs specific efforts of the management. It takes about 2 years to reach such a substantially higher level, if improved supervision and monitoring is combined with the implementation of appropriate training programmes on all levels.

3 Productivity

The productivity (output per manhour) is low in comparison to world standards.

The low cost per manhour did not yet force the companies to stress upon labour performance. A daily quantification of the performance of the individual operator and relating this performance to his pay with a possible premium in addition to the normal wage (= wage incentive) was only found in one company. Productivity as well as quality can be improved by such a measure. Productivity of indirect labour and administration is also low.

It cannot be quantified as easily as in production. However, it can be enhanced by qualifying the performance of each subordinate by his superior, which should be one of the duties of each superior. The results of this qualification have to be communicated in a personal talk between superior and subordinate once or twice a year. In this talk strengths as well as weaknesses should be mentioned and the objectives and aims for improvement in the next period should be discussed.

This procedure needs good preparation and some experience. In return it is very effective and could for instance make possible an improvement in marketing activities, quality control, production planning and management information with the existing staff.

The implementation of a well-thought training programme from floor-level up to top management is of considerable importance for the increase of labour productivity.

4 Production costs

Raw materials, chemicals, dyestuff, fuel:

At present and in the near future, Ghana has not yet the advantage to use domestic lint cotton in a large amount. It is in a similar position as textile producing countries which have to buy their raw material on the world market as well as chemicals, dyestuff and fuel.

With the existing scarcity of foreign exchange Ghana is not in a position of a strong and potent buyer. It normally cannot choose the optimal moment of purchasing and therefore sometimes has to pay a higher price.

Labor:

Except for skilled labor, there is a surplus of manpower. The cost of an operator hour in Ghana is low. (see annexes 8 + 9) This advantage for the TGI is partly set off by the low labor productivity.

Maintenance, spare parts:

Since the need for spare parts can never be predicted precisely, management should either have some surplus in stock, or on the other hand it should be possible to get them as and when needed. The big distance to most of the equipment manufacturers and the administrative requirements increase the costs of maintenance and the costs of equipment being idle for the lack of spare parts.

Equipment:

Equipment and machinery are procured from the same sources as textile industries in Europe and Far East. If there is a choice in purchasing there should be no difference in price.

The effect of capacity utilization:

Both, the favourable labor costs and the higher capital costs should force the Ghanaian textile industry to use its full capacity. That means making advantage of the low cost per man hour and saving costs on equipment. At a higher capacity utilization, the fixed costs can be shared by the higher production, e.g. working in 3 shifts instead of 1, the fixed cost per unit can be divided by 3.

The table 'Hours of operation of equipment per year' (annex 10) shows the conditions in different countries of the world.

Unfortunately, the high inflationary spiral throws out of gear calculations made to cover the costs of depreciations. This has an adverse effect on the manufacturers in that they do not have the money at the right time to replace the equipment they have. That means, depreciations have to be calculated every year as a percentage of the actual replacement value for the existing capacity. In other words, depreciation should be considerably higher calculated as a percentage from the cost of machinery in cedis acquired many years ago. So, the necessity to fully utilize the equipment was not reflected by the amount of depreciation in the balance sheets of the companies. The actually calculated depreciation 1984 is 1.6% of the sales.

To recover the invested capital in terms of replacement value, about 30% of the sales would have been necessary for that purpose, mainly due to low utilization of capacity I (28.1%) in 1984. Under the assumption that the utilization of capacity I will reach 67% in 1988, the depreciation on replacement value, being constant in absolute figures, will reach a share of 12.6%. The replacement value was estimated as follows:

Estimated replacement value

Spinning: 15.73 M $ for 1.86 TMT capacity specific project)

Capacity I =8.7 TMT = M $ 74
Capacity II =12.5 TMT = M $ 106

Weaving: $ 8.9 / m^2 fabric capacity
Capacity I = 76.5 MLM = 84.15 M m^2 = M $ 76
Capacity II = 102 MLM =112.2 M m^2 = M $ 101

Processing: 1 $ / 170 g fabric capacity
Capacity I = 11 TMT = M $ 65
Capacity II = 15.[illegible] TMT = M $ 92

Knitting, garmenting and others: estimated for
Capacity I M $ 28
Capacity II M $ 35

Total:
Capacity I M $ 269
Capacity II M $ 324

Production costs 1984:

In the table 'Production costs 1984' the recorded production costs of three integrated companies representing about 48%, are used for evaluation of the total spinning / weaving / processing capacity due to lack of other data.

The 1984 cost figures from Freedom Textiles, Tema Textiles and GTMC which have been computed by other consultants, are used as a basis to estimate the costs of spinning, weaving and processing in 1984. The individual figures are added in column 4 as a total of the three companies and extrapolated in column 5 to the total 1984 production of 21.4 MLM.

Line No. 12 is the total of the lines No. 6 to 11.

Line No. 13 is the difference between line No. 5 and line No. 12.

In line No. 17 are the present calculated depreciation costs which give in line No. 18 for each of the companies a profit before taxes.

In line No. 19 the depreciation is calculated on the basis of replacement value which is considerably higher.
Line No. 20 indicates therefore for two companies a loss instead of a profit before tax.

Production costs 1984

Company	① Freedom	② Tema Tex.	③ GTMC	④ total of the 3 companies	⑤ extrapolated to total weaving production
2 Production MLM	1.12	2.8	6.4	10.32	21.4
	1000 $	1000 $	1000 $	1000 $	1000 $
5 Sales	1358.2	4129	8326.5	13813.7	28644.7
6 Raw material	478.4	1196	2102	3776.4	7830.9
7 Labor	60	266.1	1021	1347.1	2793.4
8 Dyes & Chemicals	188.4	473.2	588	1249.6	2591.2
9 Spares & auxilliaries	172.1	344.3	447	963.4	1997.7
10 Power, energy, water	60.3	320.1	579.7	960.1	1990.9
11 Other	19.2	135.2	189.8	344.2	713.8
12 variable costs	978.4	2734.9	4927.5	8640.8	17917.9
13 contribution margin	379.8	1394.1	3399	5172.9	10726.8
14 Administration and selling expensies	140.8	630.2	1218.3	1989.3	4125.1
15 Financial charges	23.1	51.3	86.5	160.9	333.8
16 Cash flow	215.9	712.6	2094.2	3022.7	6268
17 Depreciation	19.2	154.1	44.1	217.4	450.8
18 Profit/loss before tax with actual depreciation	196.7	558.5	2049.8	2805.3	5817.2
19 Depreciation on replacement value	540	864	2754	4158	8622.2
20 Profit/loss before tax	-324.1	-151.4	44.4	-1135.3	-2354.2

D. Market

The Ghanian textile market is out of balance. World Bank report March 85, para 4.01 - 4.03 deal extensively on the above subject which need not be belaboured here. However, one remark ought to be added in connection with the comparatively small purchasing power of the greater percentage of the population and the considerable amount of second-hand clothes sold on the market.

Usually the only costs for the dealers are washing, sorting and transportation. Under SUL imports, they are taxed on their value and because this is nearly zero, taxation is very low even if it is 30% import tax and 70% sales tax.

For that reason second-hand clothes have taken over a big share of the textile market paying very little taxes and leaving the local manufacturer, who has to make much higher risks than a dealer, any chance to compete. A change of taxation basis from value to kg would bring the Government more taxes and the market to a better balance.

E. Allocation of foreign exchange

Due to the shortage of foreign exchange the Government has had to adopt a procedure whereby foreign exchange is allocated under specific licence by the various authorized agencies by the Bank of Ghana. The Bank of Ghana provides the foreign currency at the existing official rate. Presently with a rate of ₵ 60 to 1 US$ and with even an import tax of 30 % the $ still is cheap. From the analising it is immediately apparent that imported input cost only about 50 % of the open market price and therefore are heavily subsidized. On the other hand this proceedure increases costs considerably because the flow of allocations of import licence is not regular and certain. Besides the receipt of an import licence does not mean an automatic establishment of letters of credit within the expiry date of the licence. The above situation complicates an effective production planning.

Once a letter of credit is established the company has to bring in all its needs at once. This leads to high interest and storage costs because sometimes goods are taken in which are not immediately needed.

Import licence have a validity of 12 months. If goods are not purchased within this time the licence expires. In view of this purchases are made in a hurry and in bulk regardless of market trends. This prevents companies from a careful evaluation of factors considered in making economic purchases.

According to some recommendations allocations for foreign exchange for inputs should be concentrated on companies with high value added. This is a very dangerous measure because this can be a decision about life and death of other companies without considering the implications on the structured development of the national economy. The criteria for allocations for inputs should be determined mainly by the requirements of purposeful economic development.

The present 7 points system for import licencing and foreign exchange allocations has its full justification. Some of the factors might however have undesirable effects which have to be re-evaluated over the years:

- "The average output ratio" might well perpetuate an existing imbalance or injustice.

- "The average revenue paid" favours industries as tobacco and breweries, which do not necessarily improve the health of the population and whichshould at least not be subsidized with cheap foreign currency in terms of the official exchange rate.

___ "The average local raw material utilization" and "the average import licence utilization" might encourage companies to import goods which they do not urgently need.

___ "The average employment ratio" favours inefficient companies with low productivity.

___ "The location", combined with "the average output ratio " might increase the privilege of rural areas to a too high level.

II. RECOMMENDATIONS TO REVITALIZE THE TEXTILE AND GARMENTING INDUSTRY

The TGI is heavily burdened by the existing system of import licence allocations and infrastructural shortcomings. A detailed evaluation thereto and recommendations to improve the situation are related to the economy as a whole. They cannot be judged only from the viewpoint of a single subsector.

A. Taxes

Taxes are not only a means of generating the necessary revenue to finance the government activities, but also a means to regulate to a certain extent the economy. For instance high import taxes can be adopted to discourage importation of such items and thereby protecting the local manufacturers. Presently, the TGI is seen in an unequal competition with the sellers of 2nd hand clothes (see page 17) which are brought into the country at very little cost. To attempt to create a fair market competition for TGI it is being proposed that the tax basis for 2nd hand clothes should be revised.
In this connection the tax basis should be changed from value to kg and the kg should be taxed at least US$ 3., which is more than the value of lint cotton, but less than the value of yarn.

B. Promotion of exports

- Immediate succes can not be expected in textile exports
- A climate favourable to exporters should be created
- Exportation should be made attractive by offering a realistic exchange rate.
- Policies in pricing and distribution should enhance competition, improvement in quality and increase in productivity.
- There should be more improvements in the infrastructure, especially in communication and transportation.
- The function of the Export Promotion Council as a promoter of exports can be better achieved if the Council concentrate on:
  Collecting market information in prospective export markets,
  Liaising with the Trade Attache's in the foreign missions to gather information for prospective exporters,
  Effectively coordinate the promotion of Ghanaian fabric as African Prints and Kente Cloth.

C. Supporting measures

The higher and more constant capacity utilization produces automatically a higher productivity. More competition on the market motivates the management of the companies to improve quality of products and to increase productivity.

This could be supported by the Government by introducing productivity comparisons between the different units of production of the whole textile industry. This also could be done by manufacturers associations.

Such comparisons can compare the productivity of each step of production between the different mills to make managers know how their own mills are operating compared with others. These comparisons can also be extended to cost comparisons.

The suggested measure is considered to be an effective way to improve the competitiveness of the Ghanaian TGI. The necessary direct measures on technical and managerial levels would be initiated by the mangement of the particular companies itsself. All the existing facilities as "Management Development and Productivity Institute", "Standard Board", "Tema Technica Institute", "Export Promotion Council", etc. would be used with more efficiency on the companies own initiative.

III. SUBSECTOR PLAN OF THE TEXTILE INDUSTRY 1986 - 1988

A. The strategy of the subsector plan

The aim of this subsector plan is to achieve an optimum of results with the limited foreign currency available. The chart "Plan of production 1986 -88" shows clearly that in the present situation it makes no sense to rehabilitate the existing equipment beyond reasonable cost.

In addition to saving money by not replacing equipment in the next 3 years, rehabilitation costs which exceeds more than 10% of the replacement costs of the particular machine should also be concentrated on purchasing raw material, because the capacity available is big enough for the possible increase in production for the next 3 years.

All the different levels of production are planned to increase. First priority was given to spinning because it has the highest capital costs and because it makes sense to spin the yarn in Ghana instead of importing yarn as long as there is capacity available for spinning production. It is planned to increase spinning production up to full 3 shifts of capacity I within the planning period whilst the weaving production should utilize 2 shifts of capacity I and the knitting production 33 % of capacity I.

Second priority was given to Kente and Adinkra weaving because it is highly labor intensive industry. There is much value added on the Kente cloth and it is a potential export product the exportation of which could be increased.

Processing and Garmenting are not particularly planned because they are profiting from the increase of fabric production. The higher demand for chemicals and dyestuff as well as for accessories for garmenting is calculated in the plan.

Explanations to the Textile Subsector Plan

Basis for this plan is the year 198[illegible]. Both allocations and production are based on actual figures.
For 1985 production figures have been estimated and the allocations have been distributed where this was possible, otherwise the distribution was made suitable to the production.
The number of the different columns also are indicated in the table "figures to Plan of Production" and "Recommended Import Licence Allocations for TGI".

Column 1 : Domestic lint cotton. For 1[illegible] a slight increase is estimated, for 1986 - 8[illegible] a development which doubles more or less each year. For full capacity I the 1976 maximum production of 4 TMT is calculated, for full capacity II 7 TMT, which is slightly less than half the spinning capacity.

Column 2: Foreign currency for inputs: $ o.[illegible]7 / kg lint cotton
See annex 15

Column 3: For plan: column 5 - column 1. Man made fibres have a share of only [illegible]

Column 4: For plan: $ 1.77 per kg lint cotton

Column 5: Raw material for spinnig mills = column 1 + column 3

Column 6: Column 5 -15% waste = spinning production = col 3o for plan

Column 1o: Imported cotton yarn = 5[illegible]% of imported varn, same as 19[illegible]

Column 11: $ 4.43 per kg, same as in 19[illegible]

Column 12: Imported yarn from man made fibres = 4[illegible] of imported yarn

Column 13: $ 4.21 per kg, same as in 19[illegible]

Column 14: Raw material for weaving and knitting = columns 6+1o+12

Column 15: Weaving and knitting production = column 14 - 3% waste

Column 16: Import of special fabric not produced in Ghana.
For 19[illegible] from col 17 calculated with 16o g/m
For plan only slight increase up to o.1 TMT

Column 17: Column 16 : o.1[illegible]

Column 18: $ 6.7 per t fabric

Column 19: Total fabric col 15 + 16 = basis for garmenting accessories

Column 2o: Column 19 x o.o2o5

Column 21: $ 3.69 per kg column 2o

Column 22: S 0.8 per kg production fabric (15) and others (47)

Column 23: Increasing amount of spareparts and auxilliaries with increasing production. In full capacity 3% of replacement value.

Column 24: In the next 3 Years allocations only for emergencies. Working with full capacity and normal financial possibilities, service life of machinery is estimated with an average of 15 years. Therefore an amount of 6.7% of the replacement value is calculated.

Columns 31,33,3 ,41,44 and 51 indicate the percentage of the utilization of capacity I of the different levels of production. Planning is started with these columns, and in

Columns 30,34,37,40,43,46,47 and 50 the quantities are calculated which are used to calculate the import licence allocations.

Column 30: (spinning production) is used in plan for col 6.

Column 46: roduction of fabric is used in plan for col 15.

B. Textile Sub-sector Plan (page 1)

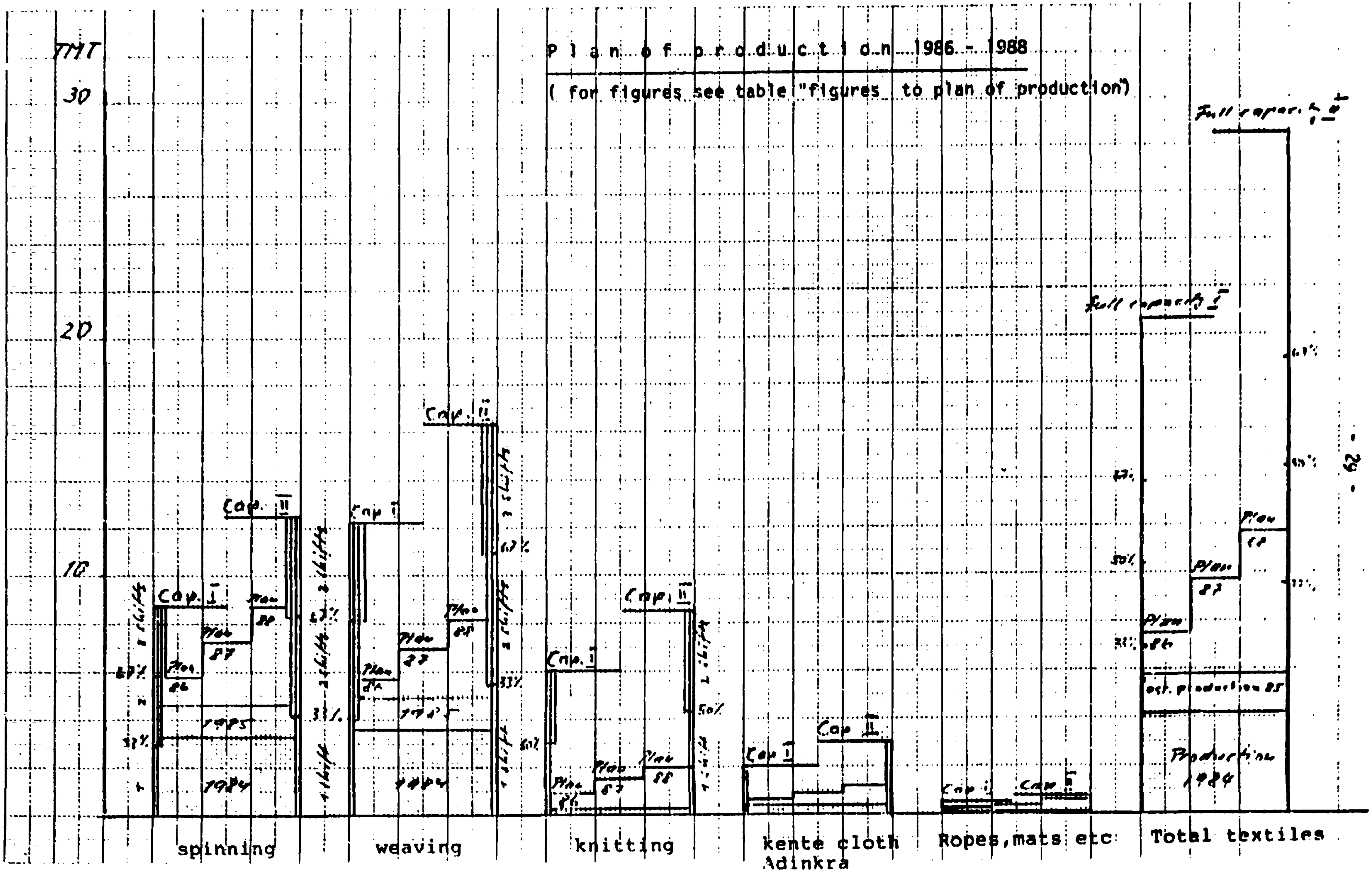
I. Plan of resources

Year	Domestic lint cotton (1) TMT	Allocations for inputs (2) M $	Fibres Cotton + (3) TMT [(5)-(1)]	man made (4) M $	total fibres: Fibres (5) TMT [(1)+(3); (6) : 0.85]	basic yarn (6) TMT [(5) - 15 % = (30) plan]	yarn imported: Cotton 54 % (10) TMT [((14)-(6)) x 0.54]	(11) M $	Man made 46 % (12) TMT [((14)-(6)) x 0.46]	(13) M $	total yarn: Yarn (14) TMT [(6)+(10)+(12); (15) : 0.97]	basic fabric (15) TMT [(14) - 3 % = (46) plan]	Fabric imported (16) TMT [(17) x 0.16]	(17) MLM	(18) M $	Total fabric (19) TMT [(15)+(16)]	Miscellaneous: Accessories for garmenting (20) TMT [(19) x 0.0205]	Elastic yarn Nylon twine Veget. Fibres (21) M $	Chemicals + dyestuff (22) M $ [((15)+(47)) x 0.8]
1984	.274	(.21)	3.08	6.031	3.354	2.85	.71	3.15	.64	2.7	4.2	4.07	.064	.4	.464	4.14	.11	.41	3.87
1985	.3	(.23)	4.9	7.962	5.2	4.42	.71	3.15	.64	2.7	5.77	5.6	.06	.375	.4	5.6	.11	.4	4.14
1986	.6	(.46)	6.15	10.88	6.75	5.74	.9	4	.76	3.2	7.4	7.18	.07		.47	7.25	.16	.58	5.88
1987	1	(.77)	7.47	13.22	8.47	7.2	1.32	5.68	1.12	4.72	9.64	9.35	.08		.53	9.43	.19	.71	7.66
1988	2	(1.54)	8.23	14.57	10.23	8.7	2.13	9.45	1.8	7.59	11.69	11.34	.09		.6	11.43	.23	.85	9.3
Full capacity I	4	(3.08)	6.23	11.03	10.23	8.7	6.54	29	5.58	23.53	20.82	20.2	.1		.67	21.2	.43	1.59	16.56
Full capacity II	7	(5.39)	7.7	13.63	14.7	12.5	8.73	38.7	7.43	31.3	28.66	27.8	.1		.67	28.8	.59	2.2	22.8

I. Plan of resources			II. Plan of production and capacity utilization																					
				Yarn			fabric woven + processed				fabric knitted + processed			total industrial fabric			Kente cloth			total fabric	Others (Ropes, Mats etc)			Total production of textiles			
spare parts + auxiliary	equipment	total allocations	=⑥ for plan	100 % = 8.7 TMT	100 % = 12.5 TMT	㉞ : 0.16 kg / m	㉜ x 0.16 kg / m	100 % = 12.2 TMT	100 % = 16.3 TMT	100 % = 6 TMT	100 % = 8.5 TMT		100 % = 18.2 TMT	100 % = 24.8 TMT		100 % = 2 TMT	100 % = 3 TMT		㊶+㊸ =⑮ for plan	100 % = 0.5 TMT	100 % = 0.7 TMT		㊺+㊼	100 % = 20.7 TMT	100 % = 28.5 TMT	
		(4)+(9)+(1)+(3)+(18)+(2)+(22)+(23)+(24)		capacity I	II			capacity I	II		capacity I	II		capacity I	II		capacity I	II			capacity I	II		capacity I	II	
(23)	(24)	(25)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	
M $	M $	M $	TMT	%	%	MLM	TMT	%	%	TMT	%	%	TMT	%	%	TMT	%	%	TMT	TMT	%	%	TMT	%	%	
2.118		18.995	3.256	37	26	21.4	3.43	28.1	21.1	.25	3.5	2.4	3.68	20.2		.388	19.4	13	4.028	.14	28	20	4.168	20.1	14.6	1984
2.19		20.942	4.65	53	37	31	4.96	39.2	30.4	.3	5	3.5	5.26	28.9		.4	20	13.3	5.66	.2	40	28.5	5.86	28.3	20.5	1985
5	1	31.01	5.74			36.625	5.86	48		.9	15		6.76	37.1		.6	30		7.18	.245	49		7.425	35.9	25	1986
6	2	40.73	7.2			43.44	6.95	57		1.5	25		8.45	46.4		.9	45		9.35	.29	58		9.64	46.6	33.8	1987
7	3	52.4	8.7	100		50.875	8.14	67		2	33		10.14	55.7		1.2	60		11.34	.355	67		11.695	56.5	41	1988
7.2	16	105.58	8.7	100		76.5	12.2	100		6	100		18.2	100		2	100		20.2	.5	100		20.7	100		Full Capacity I
10	22.3	141.6	12.5		100	102	16.3		100	8.5		100	24.8		100	3		100	27.8	.7		100	28.5		100	Full Capacity II

C. Figures to Plan of Production

	No. of column in plan	1984 Utilization of Capacity			1985 Utiliz. of Capacity			1986 Utiliz. of Capacity			1987 Utiliz. of Capacity			1988 Utiliz. of Capacity			Full Capacity I			Full Capacity II		
		TMT	I %	II %	TMT	I %	II %	TMT	I %	II %	TMT	I %	II %	TMT	I %	II %	TMT	I %	II %	TMT	I %	II %
Yarn	30	3.256			4.65			5.74			7.2			8.7			8.7			12.5		
Spinning	31 32		37	26		53.2	37.2		66	45.9		83	57.6		100	69.6		100	69.6		143.7	100
fabric woven	34	3.43			4.96			5.86			6.95			8.14			12.2			16.3		
Weaving	35 36		28.1	21.1		39.7	30.4		48	35.9		57	42.6		67	50		100	75		134	100
fabric knit	37	.25			.3			.9			1.5			2			6			8.5		
knitting	38 39		3.5	2.4		5	3.5		15	10.6		25	17.6		33	23.5		100	142		706	100
Kente Cloth	43	.388			.4			.6			.9			1.2			2			3		
Kente weaving	44 45		19.4	13		20	13.3		30	20		45	30		60	40		100	67		150	100
total fabric	46	4.928			5.66			7.18			9.35			11.34			20.2			27.8		
Others	47	.14			.2			.245			.29			.335			.5			.7		
	43 49		28	20		40	28.5		49	35		58	41.4		67	47.8		100	71.4		140	100
Total textile production	50 51 52	1.168	20.1	14.6	5.86	28.3	20.5	7.425	35.9	26	9.64	46.6	33.8	11.695	56	41	20.7	100	72.6	28.5	137.9	100



TMT
Plan of production 1986 - 1988
(for figures see table "figures to plan of production")
30
20
10
Full capacity II
Full capacity I
Cap. I
Cap. II
Plan 86
Plan 87
Plan 88
1985
1984
est. production 85
Production 1984
spinning
weaving
knitting
kente cloth
Adinkra
Ropes, mats etc
Total textiles

D. Recommended Import Licence Allocations for TGI in M $

	No. of column in plan	1984	1985	1986	1987	1988	full capacity I	full capacity II
Estim. local lint cotton TMT	1	.274	.3	.6	1	2	4	7
for inputs M $	2	.21	.23	.46	.77	1.54	3.08	5.39
Fibres	4	6.031	7.962*	10.88	13.22	14.57	11.03	13.63
Yarn cotton	11	3.15	3.15*	4	5.86	9.45	29	38.7
"man made	13	2.7	2.7*	3.2	4.72	7.59	23.53	31.3
Fabric	18	.464	.4*	.47	.53	.6	.67	.67
Miscellaneous	21	.41	.4*	.58	.71	.85	1.59	2.2
Chemicals + Dyestuff	22	3.879	4.14*	5.88	7.69	9.34	16.56	22.8
Spareparts and auxilliary	23	2.118	2.19	5	6	7	7.2	10
Machinery and equipment	24			1	2	3	16	22.3
total		19.655	20.942	31.01	40.73	52.4	105.58	141.6

* Distribution of part of the allocations 1985 estimated

E. Production costs on planned production

	1984		1986	1987	1988	
1 Utilization of capazity I	28.1 %		48 %	57 %	67 %	
2 Production MLM	21.4		36.625	43.44	50.875	
3 Increase compared with previous year				+ 18.6 %	+ 17.1. %	
4 Increase compared with 1984			+ 71.1 %	+103 %	+137.7 %	
	1000 $	%	1000 $	1000 $	1000 $	%
5 Sales	28644.7	100	49024	58146	68098	100
6 Raw material	7830.9	27.3	13402	15896	18616	27.34
7 Labor	2793.4	9.75	3785	4232	4717	6.93
8 Dyes & Chemicals	2591.2	9	4339	5127	5981	8.78
9 Spares & auxilliaries	1997.7	7	3419	4055	4749	6.97
10 Power, energy, water	1990.9	6.95	3263	3836	4459	6.55
11 other	713.8	2.5	1222	1449	1697	2.49
12 total variable costs	17917.9	62.55	29430	34595	40219	59.06
13 contribution margin	10726.8	37.45	19594	23551	27879	40.94
14 Administration & selling expensies	4125.1	14.4	4125	4125	4125	6.06
15 Financial charges	338.8	1.03	507	601	704	1.03
16 Cash flow	6268	21.88	14962	18825	23050	33.85
17 Depreciation actual	450.8	1.58	451	451	451	0,66
18 Profit before tax with actual depreciation	5817.2	20.3	14511	18374	22599	22.19
19 Depreciation on replacement value	8622.2	30.1	8622	8622	8622	12.66
20 Profit/ loss before tax	-2354.2	- 8.2	6340	10203	14388	21.13

Explanations to table 'Production costs on planned production'

The table "Production costs on planned production" is based on column 5 of the table " Production costs 1984". It represents the production costs of spinning, weaving and processing assuming that the capacity utilization at all levels is equal. The proposed higher capacity utilization in spinning would actually make an even more favorable result. Similar conclusions also can be made for other levels of production.

This table shows the high profitablility of the additional working capital used for inputs. With the higher capacity utilization the high depreciation on the replacement value can easily be earned. Additionally the profits are increasing to a level which allows paying a higher price for raw material, that means less indirect subsidies for import licence allocations are needed without the danger of increasing prices.

Column N° 5 of "Production costs 1984" is used as a basis to calculate the production costs on the planned production for the next 3 years in spinning, weaving and processing. It is based on the increase of capacity utilization of weaving. The proposed increase in spinning capacity utilization is higher. The positive effects shown in this calculation would be even higher for spinning and therefore are on the safe side.

Labor costs in line 7 are calculated as only partly variable. For the first 2 steps an increase of 50%, for the third step an increase of 67% of the production increase is calculated.

Costs for dyes and chemicals in line 8 are increased by 95 % of production increase compared with 1984. Savings on the unit costs of 5 % are possible at a higher capacity utilization.

Costs for power, energy and water in line 10 are increased by 90 % of production increase compared with 1984. Savings on the unit costs of 10 % are possible at a higher capacity utilization.

Financial charges in line 15 are increased according to the increase in sales, allowing an adequate amount of working capital.

Line 16 shows an increase of cash flow from 21.88% to 33.85 % which allows calculating the full depreciation on replacement value (line 19). The increasing profit before taxes in line 20 indicates that the indirect subsidy on foreign exchange for imported raw material could be reduced with increasing capacity utilization.

Textile Consumption (Source: CBS) in TMT

(A+B-C = D)

	1977		1979		1980		1984	
A. Local lint cotton		3.976		1.835		1.053		.274
B. Imports:								
Fibres		9.265		3.866		2.952		3.0?
Cotton	9		3.67		2.63			
Manmade	.265		.183		.311			
Jute					(1.039)			
others			.012		.011			
Yarn and Thread		12.41		2.437		1.721		1.35
Cotton	7.57		1.027		.867		.71	
Manmade	4.84		1.37		.852		.64	
others			.04		.002			
Fabric		1.18		1.281		.982		.064
Cotton			.83		.269		above figures from allocations	
Manmade			.386		.658			
others			.06		.055			
Made up articles				1.607		1.091		
Jute			(3.98)		(1.244)			
others			1.607		1.091			
Clothing & garments		1		.123		.324		
Special textile items				.551		1.782		
used clothing		3.95		1.935		3.947	6 estimated	
used & new rags				.025		2.285		
C. Total imports		27.8		11.725		14.934		
Exports		1.447		.397		.099		
D. Total registered textile consumption		30.334		13.164		15.938		
Population M		10.28		10.8		11.07		12.5
Consumption kg per capita		2.95		1.22		1.44		

GHANA: Fibre Availability 1980

Comparison of data from FAO, CBS and UN Statistical Office

		FAO	CBS	UN Internat. Trade Statistics Year Book
		tonnes	tonnes	tonnes
1. Primary use (for spinning)				
Cotton:	local production	.	1,053	.
	import	.	2,630	2,630
	TOTAL	5,400	3,683	.
Cellulose fibres		200	11	.
Synthetic fibres		600	311	.
TOTAL		6,200	4,005	.
2. Imports				
Yarn:	Cotton	10,900	867	867
	Wool	200	2	3
	manmade		852	852
	TOTAL	11,100	1,721	1,722
Fabrics:	Cotton	8,700	269	267
	Flax	500	55	
	Cellulose	600	658	705
	Synthetics	2,000		
	TOTAL	11,800	982	972
Clothing:	Cotton	400		
	Wool	700		
	Cellulose	300		
	Synthetics	300		
	TOTAL	1,700		
Other manufactures:			3,197	
	Cotton	2,500		
	Wool	1,500		
	Cellulose	700		
	Synthetics	3,000		
	TOTAL	7,700		
Used and new clothing		---	3,847	6,136
Used and new rags		---	2,285	
GRAND TOTAL IMPORT		32,200	14,984	
GRAND TOTAL FIBRE EQUIVALENT		36,700		

		FAO	CBS	UN International Trade Statistics Year Book
		tonnes	tonnes	tonnes
3. Export				
Fabrics:	Cotton	100	99	.
	TOTAL	100	99	.
IMPORT-EXPORT BALANCE		32,100	14,885	.
TOTAL AVAILABLE FOR HOME USE		38,300	15,938	.
Population, mio		11.1	11.1	.
kg/capita		3.45	1.44	.

Sources: - FAO, World Apparel Fibre Consumption Survey 1985, pp.70, 72

- CBS, External Trade Statistics of Ghana; Central Bureau of Statistics, Statistical Service Board 1976, 1978, 1979, 1980 (Briner, Technical report, annex 1, p. 33)
- International Trade Statistics Yearbook 1983, United Nations, Department of International Economic and Social Affairs, Statistical Office; pp. 340, 341

W.H. Eckert/rd
20 February 1986

Note on figures for fibre availability in Ghana

During a related industrial planning exercise of the textile sub-sector in Ghana, carried out by UNIDO consultant, DP/GHA/82/030 - Industrial Planning and Programming, the fibre consumption in kg per capita was used as basis for demand calculation. It was found that substantial divergencies between the appropriate figures of 'FAO, World Apparel Fibre Consumption Survey 1983' and that of the Central Bureau of Statistics in Accra, Ghana occured. Not considering any conversion into fibre equivalent (this is not taken into account in the National Statistics) in 1980, FAO reports a per-capita fibre consumption of 3.45 kg, the National Statistics amount only to 1.44 kg.

Since 1980 is the only year wherefrom reports from both sources are available, a comparison of data from FAO and CBS was made for that year. Similar data are recorded only in exports. All other positions indicate that FAO figures are much higher than those of CBS as can be seen from the attached table.

Additionally both sources have been compared with the appropriate figures from the UN International Trade Statistics Yearbook 1983 for the year 1980. As far as reported a high grade of identity with the CBS data is visible. There is no similarity to FAO data.

Basically FAO's World Apparel Fibre Consumption Survey 1985 could be a useful instrument for comprehensive planning exercises and demand forecasts in fibre production and textile industries. Therefore, it would be useful to learn what are the reasons behind the divergencies in the case of Ghana.

Annex 3

Installed Spinning capacity

Plant	Spindles installed	Spindles ready to work	Spindles which can be made operationable within the planing period and without excessive costs
Spintex	10296	10296	
(rotors)	288	288	
Freedom	12240	9792	2448
GTMC	11662	11662	
Akosombo	30240	24863	5377
Tema Textiles	20203	12960	
West Coast Sp.*	17000	1986	
Juapong	35000	16000	
	136929	87342	7825

95672 = 70 % of installed spindles

* The remaining 1986 spindles in operation at Westcoast Spinning are only about 10% of the numbers of spindles for an economic spinning production. A rehabilitation of this spinning capacity is hardly worthwile.

Installed weaving capacity

Plant	looms installed	looms ready to weave	est. no. of looms which can be made operationable within the planning period without excessive costs	
Spintex	145	145		
Freedom	240	240		
GTMC	1114	680		
	144	72		
Akosombo	1113	397	501 (=70%)	
Tema Nylon	38	38		
Tema Textiles	498	402	96 (=100%)	
Juapong	882	500	191 (=50%)	
Seraphim	600	240		360 cannibalized
Zakour	18	14		
Loyalty	75		75 (?)	nil working
Tejtex	45	27		
Textile Tricot	46	46		76 cannibalized
	4958	2801	863	
		3664	= 74 %	of looms installed

Not visited weaving mills, which have been considered in an overall percentage in capecity calculation

Plant	looms installed	
Unitex	60	
Millet	84	
United Textiles	114	
NIC	85	
total looms	343	= 6,9 % of 4958

In capacity calcutated with + 5%

Annex 5

Installed knitting capacity

Plant	Circular knitting machines	Flat knitting machines	Rashel warp knitt. machines	estimated machinery efficiency %	Capacity 2 shifts TMT
Overseas knitwear	12	1	3	75	.15
Tejtex **	41	5	22	70	.93
Nitra	50			85	3.4
Terrycot	10		20	75	.47
Zakour*	2(+10)	(1)	7(+1)	70	.12
Loyalty **	43	41		70	1.1
Textile Spinning**	3	5		70	.06
Abna Rawura**		9		)	.07
	161 (10)	61 (+1)	52 (+1)		6.3

* Machines in ( ) and

** most of the machinery of these companies have not run for a long time

Capacity I therefore is estimated to be not more than 70 % of Capacity II.

For not visited factories, Tricotex Ltd, Chanrai Ltd, Intra Knitting Works, Camb Knitting, Karikari Mensah Ltd, NIC Knitting factory, Fabric knitting dyeing Ltd, Sunyani New Knitting Ind., 35 % capacity is added.

Annex 6

Installed processing capacity

Plant		MLM per year in 2 shifts
Scintex		9.6
Freedom	*	9
GTMC		16
Akosombo	*	20
Tema Textiles	*	7.2
GTP		8
Seraphim Surgicals	*	8.4
Loyalty	*	6.8
° Tejtex	*	5
° Terrycot		2
° Overseas knitwear		.75
° Zakour		.6
		93.35
For not visited knitting factories added + 3.5 %		4.65
	Total	98 MLM

* The processing equipment of these mills needs rehabilitation to work in full capacity. Capacity I therefore is reduced to 70 % of capacity II, that is 69 MLM.

° Processing of knitted fabric mostly is a very simple finishing process. In some mills, for lack of an operationable dryer, the fabric is even dryed in the sun.

Kente / Adinkra Weavers
Ass. Ltd.,
Minutes 30.11.84

Folio 17 minutes 4 & 5 refer, please.

2. The National Co-op. Kente/Adinkra Weavers Association Ltd. wrote to the PNDC to request for assistance in obtaining yarn and cloth inputs direct from local sources, instead of having to pass through middle men. The letter was referred to this Ministry by the PNDC, and at a meeting held here with the Kente Weavers representatives, the Kente Yarn Manufacturers, and this Ministry's officials, it was decided that the Kente Weavers Co-op Association should organise themselves and furnish this Ministry with details of the Weavers Co-operatives as well as Weavers who do not belong to the Co-op to enable us determine their exact yarn requirements (see folio 17).

Folios 20 to 200 are the report on a series of meetings at District and Regional Levels detailing the various co-op societies.

COMMENTS

1. It could be observed that there are 3801 or approximately 4000 persons involved in Kente Cloth Weaving, and for every month each Weaver requires 25 packets. A total of 100,000 packets is therefore required each month, and a packet contains 30 hanks and weighs 1½ kgs. (lately 1(hanks weighing 1 kg).

2. The respective production capacities of the various yarn Producing Mills is: Tema Thread Co. Ltd. 120,000 pkts/yr or 180,000 kgs; West Coast Spinning Dyeing Co.; 2,442,000kgs: B.H. Industries Ltd. 60,000 kgs; and Textils Spinning Works: 90,000 kg.

Capacity II 3. Total installed capacity is therefore approximately 3 million kgs. as against a requirement of 1,200,000 pkts or 2 million kgs.
Capacity I

4. It is obvious then that the installed capacity is more than adequate, provided sufficient raw materials and spare parts could be made available to the local factories.

5. The total import licence granted the Kente Yarn Manufacturers during the 1984 Core Import Programme was $1,024,373 i.e. broken down as follows:

Company	Amount granted	Level of Production
West Coast Spinning/Dyeing Co. Ltd.	$ 578,663	10%
Tema Thread Co. Ltd.	$ 225,210	5%
Textile Spinning Works	$ 147,000	12.5%
B.H. Industries Ltd.	$ 73,000	25%
Total	$1,024,373	Average 14% = 388T

Production 1984 →

Annex 8

Labour costs in Ghana

Minimum daily wage (base) = ₵ 70.--

Typical wage structure:

Basic wage	₵ 85.--
Housing 20 %	₵ 17.--
Medical service	₵ 13.--
Canteen	₵ 35.--
Transport	₵ 10.--
Leave allowance bonus, seerance	₵ 20.--
* Social security 12,5 %	₵ 11.--
	₵191.--
13th month	₵ 9.--
Total	₵200.--/ day

* Worker pays 5 % in addition.

Average hourly wage rate = ₵ 25.--.

Annex 9

Costs per operator hour in spinning / weaving

Succession 1983	Country	$ / hr	fringe benefits %	work hours per week
1	Netherlands	9,79	68	40
2	Belgium	8,84	75	37
3	Switzerland	8,65	31	43
4	USA	7,82	30	42,7
5	Germany (FRG)	7,34	55	40
6	Austria	7	104	40
7	Italy	6,35	79	40
8	Japan	6,28	51	42
9	France	6,07	69	39
10	United Kingdom	5,46	29	37,5
11	Greece	4,30	46	40
12	Spain	3,97	77	40
13	South Korea	1,89	54	48
14	Hongkong	1,65	16	48
15	Taiwan	1,64	37	48
16	Brazil	1,63	81	48
17	Portugal	1,29	55	43,3
18	Turkey	1,19	81	48
19	Egypt	0,9	26	48
20	India	0,7	32	48
21	Pakistan	0,49	67	48
22	China	0,26	10	
23	Indonesia	0,22	11	42
	Ghana 1985 *	0,41 (0,15)**	135	40

* Basis wage ¢ 85 / day, total labor costs ¢ 200 / day

**Unofficial exchange rate

Source: Werner International

Annex 10

Hours of operation of equipment per year

Spinning and weaving 1984

Country	working on Sunday possible	work days per year	work hours per year
Taiwan	x	356	8544
Hongkong	x	354	8496
India	x	354	8496
South Korea	x	353	8472
Turkey	x	302	7248
Brazil		303	6818
Italy	x	272	6528
Japan		270	6480
Belgium	x	266	6384
USA		257	6168
Switzerland	x	255	6120
Austria	x	240	5760
United Kingdom	x	233	5592
Netherlands		232	5568
Greece		231	5544
Germany (FRG)		230	5520
Hungary		230	5520
Denmark	x	228	5472
Sweden	x	225	5400
France	x	227	5312
Ghana		250	2000 -6000

Source: Werner International

Foreign currency requirements for local lint cotton

UNIDO

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Ministry of Industries, Science and Technology, Accra, Ghana.
Tel: 63652
66049

United Nations Development Programme,
P. O. Box 1423,
Accra, Ghana.
Cable: UNDEVPRO, ACCRA
Telef: 2195.

REF: ....

DATE 31st October, 1985

FOREIGN EXCHANGE REQUIREMENTS FOR 20,000 - 150,000 TARGETED ACREAGE OF LAND UNDER COTTON CULTIVATION 1986/1994 SEASON

800 lbs/acre, 35% lint — 2.54 TMT
550 " " " " — 1.75 "

			20,000 ac. US $	150,000 ac. US $
1.	Direct Farm Inputs			
a)	Seeds	-	13,000.00	97,500.00
b)	Fertilizers	-	401,000.00	3,007,500.00
c)	Insecticide	-	380,000.00	2,850,000.00
d)	Dry Cell Battery	-	7,800.00	58,500.00
			801,800.00	6,013,500.00
2.	Heavy Vehicles			
a)	30 Tonner Art. Trucks	-	360,000.00	1,786,666.00
b)	7 - 10 Tonner Trucks			
c)	Station Pick-ups			
d)	Cars/Light Vans for - Administrative staff			
3.	Light Vehicle			
a)	Motor Cycles	-	65,000.00	325,000.00
4.	Ginning			
a)	Wires	-	250,000.00	1,750,000.00
b)	Wrappers			
c)	Jute Bags			
5.	Farm Machinery			
a)	Tractors	-	1,000,000.00	3,000,000.00
b)	Bullock Ploughs			
6.	Spares for Items (2,3,4, & 5)		150,000.00	750,000.00
	Totals -		2,626,800.00	13,625,166.00

Variable costs = 1, 4, 6 = $ 1'201'800
(Investments = 2, 3, 5 = $ [illegible])
Depreciation: 10% = $ 142'530
Foreign currency / Year = $ 1'344'330
= $ 0.72 per kg lint cotton at a yield of 550 lbs/acre

B.B. LAL
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