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PRE-FEASIBILITY STUDY

DEVELOPMENT POTENTIAL OF THE MOROCCAN GARMENT INDUSTRY

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MANAGEMENT
AND
PRODUCTION
ENGINEERS
GENEVA
SWITZERLAND

PRE-FEASIBILITY STUDY

DEVELOPMENT POTENTIAL OF THE MOROCCAN GARMENT INDUSTRY

DATE OF STUDY : August 03 - 31, 1971

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and the
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CAPELIN ASSOCIATES LIMITED

Geneva, October 26, 1971
MR/MJM/mcpb

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1. PURPOSE AND SCOPE OF STUDY

The purpose of this study is defined in the purchase order No. 1-15-0763 of the United Nations Industrial Development Organization. The main points covered are :

- Examination of the conclusions of the survey conducted by the Moroccan government on the garment industry
- Survey of present conditions in Moroccan garment factories
- Assessing the potential of present facilities and recommendations to increase the utilization
- Establishment of a profile of a typical garment factory

It has been the aim of this study to identify the problems faced by the Moroccan garment industry and to make recommendations concerning these problems. However we must emphasize that to establish a coordinated programme for the promotion and development of the Moroccan garment industry would require a more detailed study followed by several concrete projects.

During the field studies the main objectives defined by UNIDO were taken into account but we have included as well the desiderata of the Moroccan authorities and technicians on some particular aspects of the situation.

As a matter of fact, Mr. Belkhayat, General Director of the Ministry of Industry, Commerce, Mines and Merchant Navy and Mr. Benhayoun, General Director of the Industrial Studies

Office have emphasized their interest in the development of a typical layout project for a garment factory that eventually would use the fabric produced in COTEF (Complexe Textile de Fès). This aspect has been investigated and the profile of the garment factory included in Chapter 8 could be applied to develop a detailed plant layout and project of a garment factory at COTEF.

The meetings we had with Mr. Varlot, textile advisor to the Ministry of Industry have helped to clarify several points of the survey conducted by the Ministry in 1970. The goverment is interested in aiding the general development of the garment industry, but with the specific aim of promoting exports of clothing. This priority is justified by the following situation :

- The local market for ready-to-wear garments is growing very slowly.
- The Moroccan garment industry has a very low degree of utilization.
- The Moroccan textile industry is overproducing some kinds of fabrics. The new textile industrial complex of Fès (COTEF) will further aggravate this overproduction.
- The export of this fabric surplus in the form of garments is therefore the aim of the goverment.

However, this overproduction is only one aspect of the whole Moroccan garment industry. Other branches of the industry have fabric shortages or quality problems.

On the other hand, there are many conditions which favour the Moroccan garment industry. The time is specially opportune for making every effort to export to the European countries; and this opportunity should be used to invite and favour foreign investments in this area, either direct or in association with Moroccan companies.

To summarize, this report exposes the main problems facing the Moroccan garment industry and recommends some actions to overcome them. Almost each one of these recommendations needs a development project of its own. For many of these projects a very specialized cooperation (commercial and technical) from abroad would be neccessary until the Moroccan personnel can continue by themselves on this assistance programme to the garment industry.

2. FIELD SURVEY

The first phase of the survey in Morocco was devoted to the gathering, discussion and analysis of all statistics, information and documents available from official sources on the Moroccan garment industry.

During this phase the following important meetings took place :

- with Mr. Belkhayat and Mr. Benhayoun of the Ministry of Industry to discuss its policy and objectives
- with Mr. Varlot textile advisor to the Ministry to discuss and analyse the main aspects of the survey of the 3-31 August
- with Mr. Jaidi at the Service d'études économiques du Bureau d'Etudes Interministeriel to discuss the conditions for investment offered in Morocco
- with Mr. Benjelloun, "président en fonction" of the Moroccan garment manufacturersto discuss the main problems facing the industry

The second phase of the field survey was the visiting of a cross section of garment factories. The selection and preparation of these visits was done with Mr. Varlot. The sample surveyed included all main articles being manufactured industrially in Morocco. Among the factories visited was one of the best organized ones in Morocco and, in general, all can be considered to be in the upper bracket of the Moroccan clothing industry.

FACILITIES VISITED	ARTICLES PRODUCED	EMPLOYEES
COTEX	in project	--
SAMIC	work clothing	140
CONFECTION ELEGANCE	children and women clothing	110
MANUFACTURE DE LINGERIE	lingerie	200
IMC	shirts and pijamas	520
VEMA	women's dresses	60
MCI	administrative clothing (uniforms, work clothing)	120

The vacation period made visits to other factories difficult, but we believe that the sample surveyed covers a sufficient variety of articles and company sizes to expose the problems faced by the whole industry.

3. REVIEW AND ANALYSIS

This phase was conducted in our Geneva offices by the Technical Committee of Capelin Associates Limited.

The information gathered in the field was analysed. From this a series of hypotheses were formulated, discussed and evaluated, the result being the conclusions and recommendations shown in Chapters 9 and 10.

Most of the data from the field survey were compared with similar data obtained during the studies that Capelin Associates Ltd. conducted in 1969 and 1970 on the garment industry of the countries of the Common Market and in 1971 of the French garment industry ordered by the French government.

The factory profile of a garment manufacturing unit provides the information indicated on the item No. 1.01.C-IV of the UNIDO contract. This information gives the basis for a detailed plant layout and feasibility project to be carried out later on.

4. ANALYSIS OF THE MOROCCAN GOVERNMENT SURVEY OF THE GARMENT INDUSTRY

The whole report was analysed by our Technical Committee and comparisons were established with the industries of the countries belonging to the E.E.C. as well as other European and extra-European countries.

We found the report complete and accurate, and commendable for the honesty with which all problems were treated.

The technical areas of the report, however, were not as thorough as those relating to structure, market, etc. For this reason a great deal of time during our field visits was devoted to developing complementary material on the technical aspects.

The following chapters contain our comments on the conclusions of the Moroccan government survey in the light of our observations in Morocco and experience in other countries.

4.1. Raw Material Supply

In spite of the increasing importance and capacity of the textile industry, the supplies of fabric for the garment industry are limited with the exception of cheap and medium quality materials for shirts etc. This limits the development of the clothing industry to medium and low quality articles such as shirts, pyjamas, work clothing, etc.

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4 [illegible]

[illegible] Morocco. However, [illegible] to copy [illegible] styles, [illegible]

On the [illegible] in an [illegible] productive capacity [illegible], and [illegible] to this, most of the factories in the [illegible] work under their capacity. The [illegible] this means that production of the [illegible] could [illegible] and that were found.

Traditional garments represent a very important market but for the moment they are [illegible] exclusively by local tailors.

The evolution of the internal market is still slow. This means that the [illegible] of modern clothing, both for men and women, will not be [illegible] for a long period of time, because a large [illegible] of the population is still very attached to traditional garments, specially in rural areas.

The [illegible] of utilization of the industry's potential is very striking. It is easy to see that the industry makes no great effort to fully utilize its capacity. In most of the factories surveyed this situation is accepted as fate that must be supported and no attempt is made to find one of the possible solutions.

The origin of such an attitude can be traced to the fact that most of the consumption is in the low price bracket. These types of garments could be produced in long series in industrialized factories but are now made in small lots which are still successfully competing on price with the industry.

In general, the factories have no commercial policy and lack flexibility and adaptability, especially those manufacturing administrative garments. These should try to shift to other types of clothing or become more export oriented.

The creation of a "Fashion Center" as is proposed in the Moroccan Survey could help to orient such companies in the right direction, by coordinating the efforts of individual companies who could carry out the studies and research which would be of benefit to the whole industry while sharing the expenses among all members.

4.3. Industry Structure

The 247 garment factories registered as such have an average size of 26 employees. Only 10 have more than 100 employees. By comparison, the average size of a European factory is 60 employees.

In Morocco no factory has more than 200 employees, whereas in Europe 20 % of all personnel work in factories of more than 200 employees.

This gives an idea of how weak the structure of Moroccan industry is. We have seen that it is extemely rare that a factory has a methods and time study department and therefore no systematic effort towards research and development is possible.

The ratio of supervisors and technicians to operators is much lower in Morocco than in European countries. This shortage is further aggravated by the fact that they have very little, if any, training in the basic principles of managing garment factories.

In Europe the ratio is normally one supervisor or technician for every 25 direct operators. In some factories this can be even as high as 1 supervisor for every 15 operators. In the factories surveyed in Morocco the average ratio is one supervisor for 45 operators.

The use of specialized machinery is prohibitively expensive for the small factories, and where it is used it is underloaded. The rational use of such machines plus modern attachments and work aids is however essential to keep costs and quality of production to a competitive level.

A definite marketing policy and appropriate commercial services are lacking in most of the factories visited. This results in a price competition for a limited market, rather than creating or finding profitable new markets.

4.4. Prices and Profitability

The prices of some articles - those using imported fabrics - are quite high on the domestic market. This should encourage manufacturers to produce these articles provided that the Moroccan textile industry can supply the required fabrics at competetive prices and quality.

The price structure of most articles is :

70 %	raw materials
10 % - 15 %	overhead
15 % - 20 %	labour

By comparison the price structure in the Common Market countries is :

45 % - 55 %	raw materials
23 % - 33 %	overhead
25 % - 35 %	labour

The cost of articles produced on a contract basis for foreign clients with the raw materials supplied from abroad compares very favourably with the one of other countries competing for international markets, in particular :

Shirts	DH 2 - 6 *)
Work trousers	DH 2 - 5,5
Women's underwear	DH 0.9 - 1,8

*) 1 Dirham = 1 French Franc

However, as the report states, some of the lower "contract" prices are quoted by factories using home workers or paying salaries lower than the offical levels. This, of course, cannot be done by well established factories.

The return on investment (including the working capital) is claimed to be from 20 to 25 %, which is extremely high and compares with 13 % in France.

However, the availability of capital is limited and many of the factories have to make tremendous efforts to finance their excessive stocks and/or to support the low utilization of the manufacturing facilities for long slack periods (as is the case for the manufacturers of administrative clothing.

4.5. Possibilities on the External Markets

The report of the Moroccan government claims that the extremely low labour costs create a good opportunity for conquering the European market. This is only partially true because some of the advantages of low salaries are being offset by the low productivity of most of the factories (we estimated it at a level of 40 % compared with European factories).

To give an example, a shirt which in Morocco takes 50 minutes to manufacture would take 20 in Europe and a pair of trousers which takes 70 minutes would require only 30 in Europe.

Work done on a contract basis for foreign account suffers from the delays and costs of transporting the fabric to Morocco. Additionally the delays in obtaining the necessary government permits limit still further the possibilities of producing certain types of articles.

The European market is becoming more and more oriented (even in shirts and leisure apparel) to high quality products and fast-changing fashions. The majority of Moroccan firms have however too weak a structure and therefore cannot make the effort to obtain the necessary degree of quality and creativity to become competitive, nor can they make the marketing efforts required.

We estimate that only a very small number of firms (about 7 to 10) fullfil at present the conditions necessary to become effective on the export market, either alone or in association with a foreign partner.

As the report states, a tremendous effort is needed - with the help of the government - so that the Moroccan industry can be gradually brought to a level where effective and continued work in exports is possible.

To be able to take advantage of the relatively low salaries of the Moroccan industry and the favourable conditions that the proximity to Europe and the commercial agreements with the E.E.C. offer, it is necessary to raise the productivity of the factories and the quality of the garments manufactured as those of their counterparts in Europe. Otherwise, all potential gains offered by the lower Moroccan production costs would be wiped out by the high price of supplies and transport.

4.6. Internal Market Development

It is undeniable that the market is growing in volume; further, we have found that the elasticity of consumption for garments is very favourable (1.25). It has, however, to be borne in mind that, in absolute figures, the per capita consumption and the income growth rate are very low, so that the high elasticity of consumption for clothing means little additional purchasing power.

It is however difficult to forecast the future for industry on the home market due to the large number of tailors and to the strong position of traditional home or tailor made garments.

Nevertheless the Moroccan garment industry should try to develop on the internal market a greater share for industrial garments. The individual efforts of manufacturers are not enough; it is necessary that a common organized action similar to that carried out in several European countries by manufacturers associations be directed to :

- standardization of Moroccan sizes
- replacing imports of European clothing by Moroccan production
- promotion of modern garments in the villages. By this we do not mean an immediate change to European fashions, but as a first step the industrial production of traditional garments.

The diversification of articles and more fashion orientation can help, but a heavy national campaign to promote more consumption of modern garments would be necessary. This would also be an important step to accelerate the industrialization of the country.

The rate of consumption growth in Morocco is 2.4% as compared with about 5.0% in the E.E.C.. The elasticity of consumption of 1.25 shows however, that the population is prepared to spend a comparatively high amount of their income on clothing.

Of further support to domestic manufacturers is the high import duties which protect the industry from external price competition.

This gives the Moroccan industry the possibility of reorganizing and with growing efficiency it will be possible to lower prices which in turn will make it possible to lower the customs barriers.

5. STUDY OF PRESENT MANUFACTURING FACILITIES

The Moroccan "Direction de l'industrie" has published a "Répertoire des Etablissements industriels de confection" where all manufacturers employing more than 6 operators are listed. These are classified by products manufactured and by size of employment. Five categories, according to the size of the factory, are listed : less than 6 operators, from 6 to 30, from 30 to 50, from 50 to 100 and more than 100. We selected the factories, in cooperation with Mr. Varlot, taking a sample of factories having more than 50 operatives and covering a wide range of articles.

A questionnaire was developed as a basis for the interviews (see Annex No. II) and in all the cases the interviewee was either the owner or the general manager.

Only one of the factories visited-(I C, producing shirts and pyjamas) - can be compared in all respects with a European counterpart. It is the only one which has clear objectives and good management. All others have important deficiencies. This is due principally to the open and progressive attitude of the owner. He has visited several foreign factories and strives to attain the same level of efficiency as in Europe, by using external assistance.

5.1. Labour

- Recruitment. In all factories visited recruitment is easy as the available labour is plentiful. Some factories report that there are two or three candidates for each opening.

- Selection. Preference is normally accorded to experienced operators. However, one of the more advanced factories is using scientific tests for selection and takes people without any experience to whom a formalized training is then given.

- Training. It is generally informal and provided on the job by the supervisor. Only one factory has a training school.

- Age and Sex. The number of young people applying for positions is high and in most of the factories 90% of the operators are under 25 years of age. Management prefers to employ men rather than women, because it has been found that men have more dexterity and accuracy than women. This is due to the traditional structure of Morocco where all handicrafts are the exclusivity of men, and most of the men applying to work come from handicrafts.

- Discipline. This seems to be good in all factories visited. Management reported no problems due to grievances, quarrels or lack of punctuality.

- Absenteeism. It is extremely low, particularly in those factories where people are on piece work. Absenteeism varies between 2% and 5%.

- Turnover. It is also low, compared with Europe, and usually is between 5% and 10%.

5.2. Middle Management

- Recruitment and Selection. The most advanced factories in the sample surveyed have European middle managers and these had Moroccan assistant supervisors. The objective is to train the Moroccan supervisors to a level where they can replace the Europeans. The main reason for this situation is that no Moroccan supervisor has a proper training for supervisory functions. In the factories without Europeans, the lack of exposure to a modern industrial climate will continue to prevent the development of a qualified Moroccan middle management.

- Ratio of Supervisors to Operators. In most of the factories we found ratios of 1:50, that is one supervisor for 50 operators, which is insufficient. Only, in the most advanced factory we found a ratio of 1:25, which is satisfactory.

- Training. No specialized schools exist in Morocco to train middle management for the garment industry. Some of the Moroccan supervisors have had a very rudimentary training in private trade schools in Casablanca, but this is usually limited to elementary pattern making and cutting.

- Organization and functions of Supervisors. The supervisors perform in the majority of cases only the rôle of maintaining discipline. The functions of production control (balancing) and quality control are disregarded and the training of operators, methods improvement and efficiency development are almost inexistent.

5.3. Technical Structure

Only one of the factories visited had a "Methods and Time Study Office" (Bureau de Methodes). In the other factories there is no person with time study training or methods improvement knowledge assigned to the specific job of methods and time improvement.

Pieces rates are set empirically. No productivity controls are used in any of the factories visited.

Some of the managers feel that there is no need of such controls. Some are satisfied with the level of productivity (even if it is extremely low) because of the low capacity utilization of the factory for commercial reasons.

This situation has led to an insufficient motivation of the operators. In spite of their good will and discipline, the pace and efficiency observed are on average under 50% of European standards.

The attitude of some managers encountered is quite negative - or at least sceptical - towards modern methods to develop and to control efficiency. They think that the relatively low salaries paid in Morocco compensate the disadvantages of low productivity.

5.4. Management

In most of the cases, the owner is also the manager. In the two progressive factories visited, the manager had a good preparation, both technical and commercial. In two other factories we found the management to be of a quite low level, especially in the technical and managerial areas.

The marketing aspects were found to be neglected. The same can be said of many other essential managerial functions (cost control, financial control, planning, etc.)

5.5. Work Conditions, System of Work, Machinery

In the factories visited, we found extreme variations of work conditions. One factory visited has no windows, improper work conditions and dirty floors; some others have practically all the facilities of a modern factory.

In general, factories are too crowded, providing less than the standard 6 m^2 per work station, which prevails in modern European factories.

The [illegible]

[illegible]

The [illegible]

Machine [illegible]

Worksta[illegible]

6. [illegible]

1. [illegible]

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2. [illegible] have the size and the [illegible] to be able to [illegible] in the export market.

3. [illegible] for the [illegible] :

- [illegible]
- [illegible]
- [illegible]
- [illegible] light clothing

4. [illegible] relatively modern but very badly utilized. No [illegible] and no work aids have been seen in most of the factories visited. Labour is skilled but working without the benefit of modern methods.

5. The management structure is extremely weak. There is inefficient middle management and their training and knowledge is very deficient.

6. There is an almost universal lack of long- and medium-range planning in the companies. Further, there appears to be a lack of the flexibility and initiative to adapt production to the market needs and demand.

7. Short time planning and work loading is also deficient and is responsible for an important loss of productivity.

8. Labour in the most efficient factories visited is accustomed to piece work and is well motivated towards monetary rewards which is a positive factor. We have observed, however, extreme variations from one factory to another, in the efficiency and tempo of the operators.

To summarise, we repeat that the factories surveyed are technically deficient. This is confirmed by the production statistics given in the Moroccan report. Based on European levels of productivity and our observations in the factories surveyed we estimate that an increase of 20% to 40% in the efficiency of Moroccan factories could be achieved in a short term. A further and progressive improvement of the industry on a long term basis (10 years at a minimum) could lead to a level of productivity comparable with the European one.

The techniques recommended to improve the efficiency in the short and medium term are the following :

- better layout and flow of work
- better station development
- extensive use of attachments and work aids
- improved manufacturing systems
- product engineering
- improved quality
- training of middle management
- training and control of operators
- use of medium-range planning procedures
- work loading techniques

None of these techniques requires major capital investments.

7. STUDY OF PLANS CONNECTED WITH INSTALLATION OF "COMPLEXE TEXTILE DE FES (COTEF)"

A visit to the Complexe Textile de Fès was made on Saturday, August 7 with Messrs. Varlot and Basler. We were received by Messrs. Abdeslam and Ragon.

Mr. Abdeslam explained to us in detail the objectives of COTEF as well as the intended use of garment manufacturing as a vehicle for export.

The plant will include 50 000 spindles, 1 000 looms and will have an installation for finishing, mercerizing, sanforizing and printing of the fabrics produced.

The expected annual fabric production is 35 000 000 m^2 of cotton, fibranne, synthetic fibers, or mixed. The quality level, which had in principle been projected as medium, will be raised in order to conform to the demand of the garment industry and the export markets.

The starting of the COTEF will in itself create important problems in the domestic market. As a matter of fact, the production of the Moroccan textile industry is, at present, already sufficient for the needs of the country in the range of fabrics which COTEF will produce. The functioning of the COTEF will therefore provoke a huge overproduction which will affect the private textile industry very adversely, if no other outlets are found. At present, the only acceptable solution appears to be the conversion of these fabrics into

finished garments, for which an export market may exist.

7.1. Recommended Garment Production Units

We advise that several garment production units be created within the polygon of the COTEF and outside it, in the Fès or Tangier areas.

For reasons of specialization, structure and control, these units should not exceed 250 employees. Furthermore, it is intended to attract foreign investors and these will be more interested in a unit of this size, the specialization of which insures a good productivity level yet requires only a limited capital investment.

The 6 hectares which are available within the premises are more than sufficient for the garment manufacturing units suggested. But, we suggest to examine as well the possibility of locating them nearer to Fès or Tangier.

7.2. Types of Garments to be Considered for Production

According to the information given by Mr. Abdesalam the COTEF will be able to produce, among other materials, some 5 million meters of cotton polyester popeline which will have to be absorbed by garment manufacturing. As this is a very urgent problem, the first priority would be to consider the manufacturing of shirt and pyjamas. This quantity of material represents approximately 2.5 million shirts or 1.5 million pyjamas per year.

A second unit should be envisaged to produce blue jeans and work wear.

A third unit should be projected to manufacture light suits, trousers and printed dresses. This would reduce the risks during the first stage of development, as various complementary articles will be produced. The development of sales will indicate the necessity of enlarging the unit or of building a second more specialized one.

7.3. Establishment of a Pilot-type Garment Installation

It was suggested by Messrs. Belkhayat, Benhayoun and all the other technicians contacted that this should be given priority.

The project should be developed for the COTEF shirt manufacturing unit. It should be completed by the end of 1971 so as to make it possible to contact potential foreign investors with definite plans.

The pilot project would include the following studies :

- analysis of the garments to be produced
  . range of operations
  . production times
- bill of equipment necessary
- calculation of the cutting, sewing and finishing units
- study of the complementary service areas, factory layout
- detailed implementation of the various factory departments
- evaluation of the budget of installation
- starting programme

8. PROFILE OF A FACTORY FOR GARMENT MANUFACTURING

As has been stated in the preceding chapter No.7, one of the most promising articles to be manufactured in Morocco is shirts.

There are several factors which support this choice :

- The experience accumulated in this area by the Moroccan industry and technicians
- the possibility of using the cotton-synthetic popelin to be produced at COTEF at prices and in qualities competitive with foreign manufacturers
- the successful execution of export contracts for shirts

Shirts and pyjamas have some common operations and they can use the same type of equipment. However, work flow considerations as well as quality and training requirements discourage the simultaneous manufacture of both articles. It is recommended that the production units for shirts and pyjamas be completely separate, because their manufacturing approach is quite different.

8.1. Location

The area of Fès, as it is proposed by COTEF, seems adequate. With a population of 300 000 persons it provides sufficient personnel availability.

However, the area of Tangier - Tetuan appears even more appropriate. There is already some clothing industry in the area, which means more possibilities of finding the services required by a garment factory. The salaries of the Tangier's area are low. It is close to the European markets and transport to Europe is faster and cheaper from this area. In addition transport of fabrics from COTEF to Tangier is cheaper than the transport of finished garments.

8.2. Capacity Production Programme

We recommend to establish a unit employing arcund 200 direct operators. This size has been proved to be ideal from the point of view of management utilization, control and economic production modules. Being a labour intensive industry, the garment industry needs close contact with and control over the operators which is the most effective within units of this size.

The productivity level in such a factory - with modern methods and adequate operator training - could be at least 20 shirts per operator per day, giving a daily production capacity of 4 000 shirts. With 270 working days per year the total yearly capacity could reach 1 080 000 shirts.

For most potential investors the quoted production will be adequate and more convenient than greater quantities.

8.3. Labour requirements

As has been said, the factory would require 200 direct operators for the cutting, sewing and finishing operations.

In addition one factory manager and one assistant would be needed.

The middle management staff required would be four supervisors and five specialists for efficiency control, time study, quality control, training and balancing.

As indirect labour two mechanics, four service operators and about three storeroom workers, would be needed. Office, cleaning and similar staff has not been calculated.

The operators should be carefully selected according to special dexterity tests. The age bracket advisable is from 16 to 22 years.

8.4. Raw Materials

A production of 4 000 shirts per day would require about 8 000 m^2 of fabric per day. This is 2 160 000 m^2 per year. This would be about half of the popelin production planned for COTEF.

Trimmings, such as interlinings, buttons, thread, etc. are required in variable quantities and could be partially supplied by the Moroccan industry.

8.5. Capital Cost

The unit should be built as a single story factory with a total surface of 4 000 m^2 which would be allocated as follows :

1 800 m^2	for sewing and finishing
1 200 m^2	for cutting
600 m^2	for warehousing (raw materials and finished stock)
400 m^2	for offices and services
4 000 m^2	

The total land surface for such a unit should be of about 10 000 m^2 to allow for approach road , parking, some open space and extension to the building if an emergency arises.

The cost of land would be (taking an average price of 15 DH per m^2)

10 000 x 15 = 150 000 DH

The cost of the building would be (taking an average price of 300 DH per m^2)

4 000 x 300 = 1 200 000 DH

The equipment cost of a garment factory is estimated at 6 000 DH per work station. This includes work aids, attachments and accessories.

Therefore the cost of equipment would be

200 x 6 000 = 1 200 000 DH.

The total capital investment would therefore amount to 2 550 000 DH.

8.6. Manufacturing (Production) Costs

It is estimated in the Government survey that the present cost structure of a shirt sold on a contract basis at a price of 2.5 DH is as follows:

0.5 DH cash flow (20%) (cash flow equal profit before taxes and depreciation)
1.0 DH direct labour
0.5 DH indirect labour
0.5 DH overhead
2.5 DH

We estimate that with a modern factory using efficient methods a productivity of 20 shirts per operator should be easily obtained and therefore the cost structure of a shirt manufactured in this unit could be :

0.52 DH direct labour
0.25 DH indirect labour
0.25 DH overhead
0.23 DH cash flow
1.25 DH

Therefore it would be theoretically possible to produce the shirts at half the price of those quoted in the report and still obtain approximately the same profitability. (The cash flow would be $\frac{.23}{1.25} = 18.4\%$)

8.7 Application to Other Garments

Although this profile is expressed in terms of a shirt factory

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0.52 DH direct l[illegible]our
0.25 DH indir[illegible] labour
0.25 DH ove[illegible]ad
0.23 DH c[illegible] flow
1.25 DH

Therefo[illegible]t would be theoretically possibl[illegible]o produce the shirt[illegible] half the price of those quoted in t[illegible] report and sti[illegible] obtain approximately the same profitabili[illegible]. (The cash f[illegible] would be $\frac{.23}{1.25} = 18.4\%$)

8.7 Application to Other Garments

Although this profile is expressed in terms of a shirt fac[illegible]y

a similar projection can be done for other articles where direct labour and productivity levels would remain constant and only the work content per article would vary.

9. RECOMMENDATIONS

1. The owners and managers of garment factories need information and instruction on costing methods, production operation standard times, machine utilization, planning, budgeting, etc. This information should be conveyed to them regularly through conferences, courses, etc., and would encourage them to adopt the modern management techniques required.

2. A centre providing technical assistance to the manufacturers (similar to CETIM in Brazil) would be necessary, and also one where modern techniques of marketing and sales are taught.

3. Training of middle management should be provided on a formal basis. Inter-firm courses would be the best solution. There exist accelerated training programmes to bring supervisors with practical experience to acquire the essential modern supervisory techniques within four to six weeks.

4. Association and merging of existing companies should be encouraged. This would provide the size and financial means necessary to afford a proper management structure.

5. Help must be provided in contacting potential clients abroad for factories which could enter the export market (shirts, pyjamas, work clothing and related garments).

6. [illegible] with foreign investors [illegible] specially to promote exports and [illegible]

7. [illegible] shares in association with [illegible] could be used to interest foreign [illegible]. The unit should not exceed 250 operatives [illegible] most favourable size and would be the [illegible] to interest foreign investors.

8. [illegible] for investment in the case of Tangier [illegible] units of some 20 operatives each for the [illegible] light garments (dresses, [illegible] clothing) that could also use fabric from [illegible].

9. Since [illegible] producing in a short period, the projects of the factories connected with it should be carried out with priority.

10. To [illegible] development of the existing industry, consideration should be given to developing the factories located in the [illegible] Tangier - Tétouan - Casablanca, especially the [illegible] which have over 20 operatives. For this a detailed programme should be prepared involving :

- [illegible] technical assistance
- training of top and middle management
- introduction of modern manufacturing systems
- [illegible] of the 4 factories for association, investment and [illegible] collection abroad
- [illegible] on the merging of factories

- simplify procedure for permits for temporary imports of new materials and shorten customs formalities

11. To accelerate the development of the Moroccan garment industry a systematic assistance would be required. This could be done in two ways :

a) the training of Moroccan specialists abroad
b) the creation of a private or government consulting organization staffed initially with foreign consultants whose aim should be to carry out reorganization programmes and to train Moroccan consultants.

The solution under b) is by far the more effective and more economical one. This solution has recently been adopted in Algeria where a government-private joint venture has been established in the consulting field.

10. CONCLUSION

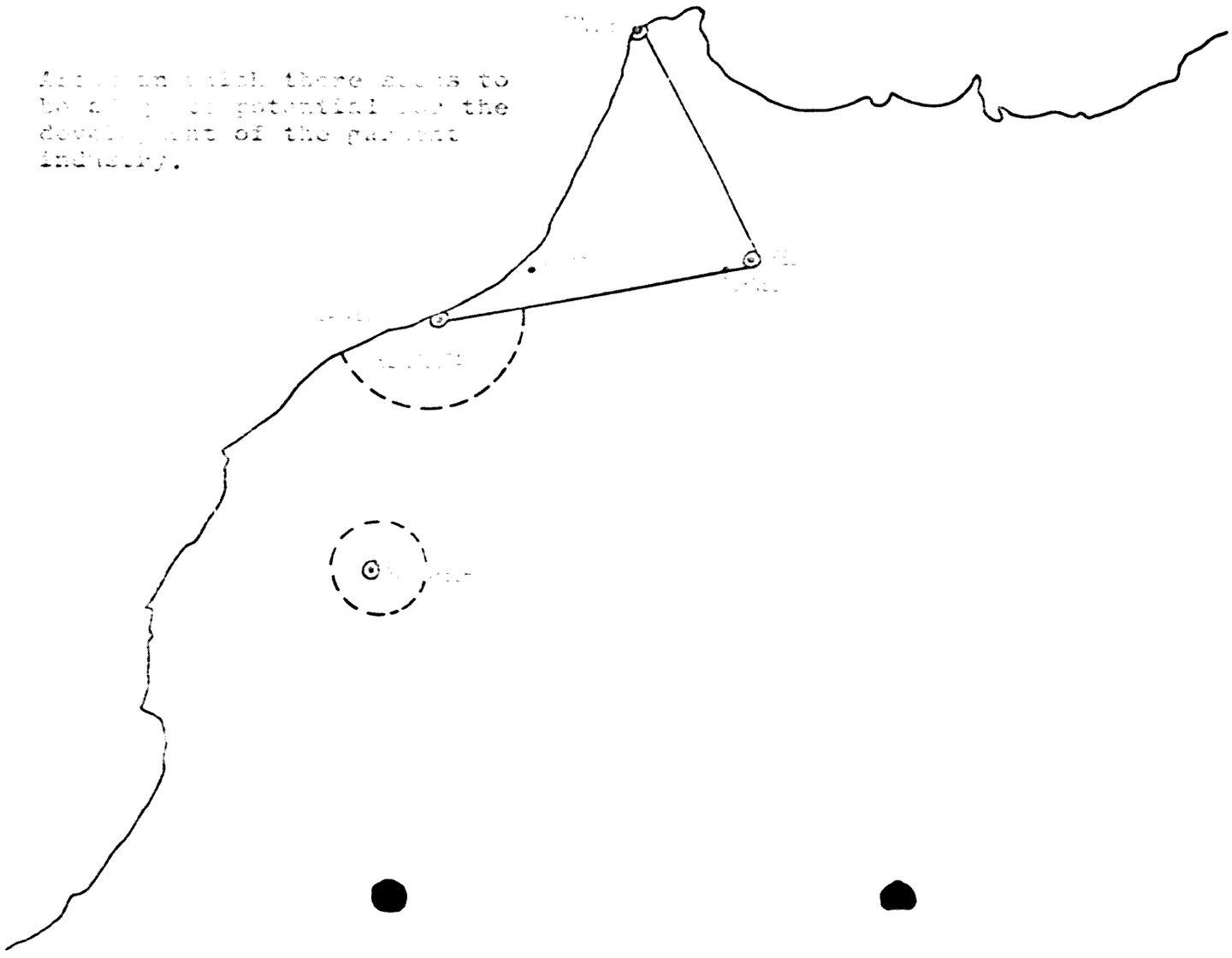
We hope that our recommendations will contribute to develop the Moroccan garment industry and will show the ways in which it can be accomplished.

We wish to thank everybody from official agencies and private companies who have so effectively given their help in the gathering of information during our field visits.

With the compliments of

CAPELIN ASSOCIATES LIMITED

ANNEX - I



ANNEX - II

BASIC QUESTIONS FOR INTERVIEWS

Labour

- Recruitment conditions
- Selection basis
- Basic training - duration - methods used
- Age and sex of personnel
- Adaptability to working conditions
- Absenteeism - punctuality
- Labour turnover
- Psychological conditions
- Motivation - involvement
- Earnings - piece work - other benefits

Middle Management

- Recruitment - selection - training
- Is there a training programme in the factory ?
- Functions
- Earnings
- Motivation - leadership qualities
- How is production and balancing controlled ?
- How is quality controlled ?
- Ratio supervisors - operators

Management

- Organization structure of factory
- Functions of top management
- Training and knowledge of Labour industry
- Commercial approach
- Financial approach - cost control
- What management system is used in the factory ?
  Autocratic - paternalistic - democratic - delegation ?
- What kind of management control are used in the factory ?

Planning and Production Control

- How are orders processed ?
- Is work done for stock ?
- Factory work loading - production progress
- Planning follow up
- Plant capacity utilization, best percentage ?
- Basic balancing
- Daily balancing. Hourly production control
- Role of supervision for production control

Quality Control

- How does quality compare with foreign counterparts ?
- Fabric quality control
- What are the main defects found in fabric ?
- Is fabric rejected ?
- Quality specification. Do they exist ?
- Types of inspection
- How is the training for quality ?
- Written controls on quality

Plant layout and working condition

- Flow of work. Is it kept rational ?
- Storage areas
- Cutting room
- Sewing room - flow of work
  - storage areas
  - aisles
  - How many m^2 per work station ?
- Lighting - system
- Power distribution - safety factors
- Air conditioned - heat - ventilation - noise
- Seats
- Machine layout and station development

Machinery, System of Work, Methods

- Machines - brands - age and state of maintenance
- Special machines - proportion - Are they adequate ? Are they properly utilized ?
- What kind of attachments do exist ? Are they used properly ?
- Work aids
- System of work : synchro, independent bundle system, progressive bundle system, others
- Is there any methods and time office ?
- Do the supervisors know how to time operators and control efficiency ?
- Are methods consistent throughout the factory ?
- Rythm and tempo of operators
- Is efficiency controlled ? How ?
- Is there an on-the-job training programme ?
- Are the standard times correct ?

Motivation

- How is the psychological climate ?
- Are operators well motivated ?
- What is the attitude of the supervisors and the management ?

Factory Potential

- What is the present level of utilization ?
- What is the actual level of efficiency by Capelin standards ?
- Why does the factory not have a better productivity level ?
- What is the quality level ? Can it be improved ? Where and how ?
- Is work done for export ? What are the problems connected with export ?
- Is there any interest in exporting ? What are the difficulties to export ? Too expensive - poor quality - no contacts ?
- Is room available to expand the factory ?
- Is the administrative work involved in exporting considered too complicated ?

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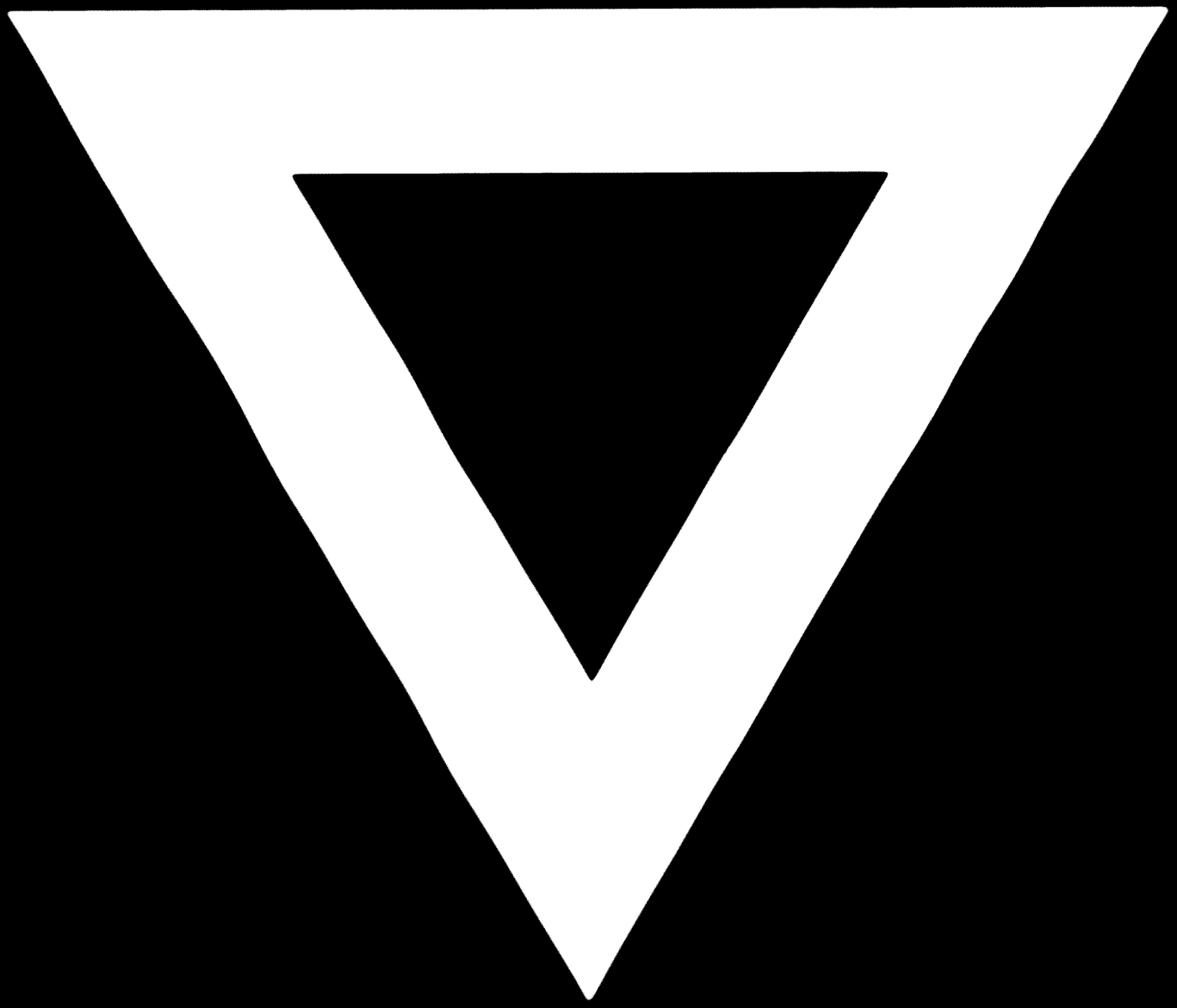

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