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OPPORTUNITY STUDY  
FOR THE DEVELOPMENT OF THE  
AFRICAN TRADITIONAL TEXTILE INDUSTRY

Report of Mission  
to  
Mali

29 December 1989 - 10 January 1990

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Vienna

411

**OPPORTUNITY STUDY  
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## I. INTRODUCTION

### A. Purpose of Opportunity Study

1. The purpose of the Opportunity Study, findings, recommended follow-up activities and conclusions are documented in the comprehensive report for Burkino Faso, Mali and Senegal. It shall be read first, and is applicable for consideration as a long-range UNIDO programme of assistance to promote and increase productivity of the Malien traditional handcrafted textile industry.

2. The following report includes;

a. aspects of the Malien Government's concerns and policies in specific relationship to its traditional cotton textile industry and strategies for its development. Specific issues discussed with government representatives and UNDP officials are summarized, which include suggestions for international assistance for product and production development, marketing, export promotion, and training (Annex 1);

b. discussion of rural textile development strategies, including identification of potentially valuable products and their location of production;

c. interviews with urban based designers and concepts for manufacturing finished products (Annex 2);

d. a description of Malien traditional textiles. Interviews with artisans, entrepreneurs, exporters and importers will reveal their circumstances (Annex 3);

e. an account of the current market outlet and suggestions for its development;

f. conclusions and recommendations for follow-up activities.

### B. The National Development Strategy

1. Mali's National Development strategy is described by the UNDP Resident Representative, Mr. Gitera, and summarized by Ms. Martin, UNIDO, Vienna, in the report of November, 1989. It states that the main objective of UNDP's assistance for the fourth Country Programme, approved in June, 1987, is to assist development of Malien institutions and natural resources. The programme includes emphasis on reinforcement of the capacity of the Government to plan, manage and stimulate the development of the country, and to assist training to generate employment particularly concerning:

- a. rural populations in highly manpower intensive activities;
  - b. support of grass root initiatives;
  - c. the role of women in these initiatives as a priority.
2. Themes of employment and private sector promotion are likely to be focused upon during the 5th Cycle IPF.
  3. Project ideas discussed with UNIDO in May, 1989, include assistance to the Direction Nationale des Industries in planning activities and establishing an infrastructure to promote small-scale industries.

#### C. UNDP

Mr. Peter Gil - Representant Resident Adjoint Principal

1. Discussions with Mr. Peter Gil formulated concrete terms of reference for developing small industry, particularly to increase employment for the talented Malien artisans.
2. A major concern in strategies of development is to realize the undeveloped business sense of entrepreneurs who must be trained in financial management and marketing.
3. Mr. Gil cited worthwhile development of small enterprise projects to finish traditional textiles into marketable products for domestic and international consumption. We discussed clothing and household products to include upholstery for the indigenous bamboo furniture industry, as well as a range of products for the interior, which are lacking in the domestic market.
4. He emphasized the significance of the grass root approach which is becoming a focus for World Bank and other international assistance programmes. He suggested I visit Mary deWitt who manages a Small enterprise Development Programme (SED) in Segou for the Peace Corps. (Annex 6)
5. He acquainted me with a micro-capital fund being initiated by UNDP to provide small capital grants to mobilize self-help projects. It is designed for quick dispersal as a grant and credit scheme. Training programmes for entrepreneurs, such as the Peace Corps project, require outside funding to develop their projects and may also be candidates for the fund (Annex 4).
6. Mr. Peter Gil suggested that I try to join the UNIDO staff attending the 29 February 1990 Round Table for Employment at Bamako, or

submit my Opportunity Study to them for review at the conference. Micro-enterprise development, based on artisan programmes, is of great significance, as are comprehensive programmes which attempt to create a significant impact on the industry.

## II. MEETINGS WITH GOVERNMENT REPRESENTATIVES

### A. Ministere de l'Industrie (MIHE):

Mr. Dramone Traore, Conseiller Technique du MIHE

1. I had the opportunity to meet with Mr. Dramone Traore frequently, and he coordinated my programme.
2. Cotton is a major raw material export of 35,000,000,000 CFA (US\$125,000,000) per year. Only five per cent is transformed into products.
3. The potential to utilize cotton for finished products by the formal and informal sectors of the textile industry is a priority.
4. Mr. Dramone Traore was keen to initiate an infrastructure which would be devoted to the long-range development and promotion of the Malien traditional handcrafted textiles. We discussed the possibility of establishing an autonomous organization under the Ministry to coordinate activities with all ministries and to be assisted by UNIDO.
5. He agreed to supervise the formulation of the project by coordinating participation of all concerned ministries. He will also coordinate activities for the international market research programme proposed as Phases I and II in the Regional Opportunity Study Report.
6. The UNIDO project may include specific assistance to organize promotion of the textile industry during the Malien Textile Trade Show in 1991, particularly to increase attendance of international importers.

### B. Centre Malien du Commerce Exterieur (CMCE):

Mr. Hama-Ag Mahmoud, Directeur General,  
Mr. Abdoulaye Sanoko, Chef de la Division Exchanges Commerciaux et Etudes

1. The function of CMCE is to promote and develop products for exportation in an attempt to reduce national imports and encourage domestic productivity.

2. Mr. Mahmoud was very interested in collaboration with UNIDO to:
  - a. provide artisans with training programmes to develop their knowledge of the sophistication of the international market;
  - b. organize increased production of highest quality;
  - c. adopt production to market research to understand appropriate product design for domestic African and international consumption;
3. Mr. Mahmoud expressed concern to coordinate my visit with CCIM and their promotional programme.
4. He specified need for international assistance to design publicity and publications to promote Malien traditional textiles.

C. Centre Malien du Commerce Exterieur (CMCE):

Mr. Abdoulaye Sanoko, Chef de la Division Exchanges Commerciaux et Etudes  
 Mr. Souleymane Sangare, Charge d'Etude Bureau Autisant

1. Mr. Sanoko and Mr. Sangare greatly assisted me during my mission, and attended my meetings with Mr. Dramone Traore, MIHE, Mr. Dada Traore, CCIM, with Mme Mahdrane<sup>and</sup> Musee Nationale du Mali, to coordinate my activities for a concrete follow-up by all concerned ministries and participants.
2. They are in the process of completing an "Inventory of Potentialities of the Malien Artisan." I reviewed their research and publication on handcrafted textiles and basketry. The information includes:
  - a. identification of products;
  - b. location of producers;
  - c. raw materials and origins;
  - d. schedule of rural productivity;
  - e. capacity of production
  - f. FOB prices (Annex 5)
3. Mr. Sanoko was eager to extend their research to include products I recommended as potentially valuable for exportation; and agreed with the necessity to modify and design finished products.
4. His concerns to be addressed by a comprehensive programme of assistance for artisans particularly of the rural sector are:



a. coordination with the Ministry of Internal Domestic Affairs, Direction Nationale de l'Action Cooperative and Direction Nationale de la Formation et Animation Rurale;

b. develop an infrastructure that provides a network of activities including:

(i) collection and quality control of raw materials and production;

(ii) organization of feedback from market research from expositions and its dissemination to relevant producers;

(iii) organization of an association for exporters who can also impart training to producers;

(iv) arrangement and extension of banking facilities to enable small producers to procure bulk rates for input investments, to develop production facilities and purchase equipment, as well as expand market contacts.

4. Mr. Souleymane Sangare→ participated in my visits to the Musee Nationale due Mali→, the purpose of which was to:

a. research authentic older designs of great merit, which can be prototypes for design modification;

b. identify rural textiles of marketable value for future research of current production and potential for revival;

c. review collection of the Dogon weavers to be photographed for immediate follow-up because the cloth exemplified the utilization of fine natural indigo weaving of handspun cotton, and unique patterns of embroidery.

5. Mr. Sanoko suggested facilities for quality control may be available from Society Generale de Surveillance, a multinational European based company recently contracted by the Malien Government.

D. Chambre de Commerce d' Industrie du Mali: CCIM:

Mr. Daba Traore→, Secretaire General

Mr. Andre→ Coulibaly, Chef de Service de la Promotion Industrielle et Artisanale→

1. I had the opportunity to meet Mr. Traore on several occasions to discuss future collaboration. He was kind enough to arrange my

contacts with artisans and entrepreneurs. He is currently very involved with the artisan sector and plans to devote more attention to their promotion in the future, as well as develop programmes to impart technical assistance.

2. He summarized a previous German assistance programme coordinated with the Malien government to provide loans for artisans and entrepreneurs through the Bank of Africa. The programme also included financial management training courses. The programme terminated.

3. Mr. Daba Traore recently visited the United States to study opportunities to develop commerce for Malien private businesses. He emphasized that intensive market research in the developed countries, particularly the United States, would be well utilized to initiate a concrete long-range programme of assistance. He realized the many stages involved in an in depth study and planned to actively participate.

4. Mr. Daba Traore planned to participate with other government officials to write a proposal to UNIDO containing strategies for mutual collaboration to develop and promote the traditional textile industry.

### III. MALIEN TRADITIONAL HANDCRAFTED TEXTILES

#### A. Rural Traditional Handcrafted Textiles: Their Potential and Strategies for their Development

1. Artisans of the rural sector produce diversified and unique textiles which comprise a significant proportion of the Malien traditional textile industry. Many of these textiles have received international acclaim and are exported by traders who collect them. International demand well exceeds their current supply and this demand can be greatly increased if the products are appropriately modified and also transformed into finished products. Such development specifically requires:

a. increased access to rural areas by the establishment of an infrastructure to create a communication network between the market and the rural producers;

b. that traders must be encouraged to better serve the rural sector by assisting them to increase market contacts;

c. that grass root assistance programmes must be increased to organize artisans to increase their productivity;

d. long-range strategies to encourage rural producers to become self-sufficient as traders (Annex 6); and

e. financial assistance to encourage such development to be made available by government, United Nations and other channels (Annex 7).

2. During my brief mission, I located only several examples of textiles produced in the rural sector.

a. It is certain that the list can be easily expanded. The products of the rural sector are:

(i) handspun cotton fiber;

(ii) natural indigo textiles;

(iii) all naturally-dyed textiles;

(iv) mud cloth (bogolantani);

(v) woollen blankets (Khasa );

(vi) cotton strip weaves (dali fani , coba, petite band, blankets and tapis).

b. They are recommended priorities for a rural development programme.

3. There are many other textile products produced in the rural sector, often consumed for local use. These products rarely reach the urban markets. Many are remnants of cherished textile traditions which are reknown in published historical accounts of Mali's rich textile history. Examples are available in international museums. They are worthy of research to assess how they may be revived and produced in quantity, particularly for impressive exportation.

4. Further research at the Musee Nationale du Mali is reommended to identify other potentially marketable rural products.

a. Mali is fortunate to have the reknown collection of West African traditional textiles at the Musee Nationale du Mali, which has strong ties to the Musee d'Histoire Culturelle de l'Universite de Californie à Los Angeles.

b. The Director, Mr. Samuel Sidibe, was kind enough to allow access to the collection of antiques and earlier twentieth century examples. The textiles can be reviewed to assist in locating rural traditions worthy of preservation and development.

c. The pieces can also serve for design diversification concepts to enhance colour, quality and design of contemporary production. Authentic traditional character is most valuable and easily revived in contemporary production featuring natural dye, handspun and handwoven techniques.

d. Segou and Mopti regions are recommended as priority regions because they both have large populations of artisans who produce a diverse range of textiles:

(i) Segou: mud cloth, cotton strip handweaves such as coba, petite band, and cotton blankets;

(ii) Mopti - Khasa , mud cloth, and the weaving and embroidery of the Dogon peoples.

e. The collection of weaving from the Dogon weavers, located in the Fifth Region villages such as Koro, Bankass and Bandiagara (see map, Annex 8), have produced indigo woven pagnes and shawls of considerable aesthetic appeal. They also embroider the handspun, handwoven cloth with unique patterns.

(i) Their weaving is very valuable, and a rural development programme for the Dogon weavers is suggested for priority consideration (Annex 9).

(ii) The potential market includes exportation. The pagnes and shawls could be easily marketed or finished into exquisite clothing, pillows, covers, and handbags, for example.

5. A feasibility study is recommended of these regions of the Mali rural sector and their potential marketable products.

## B. Urban Producers, Designers and Concepts for Finishing Products

1. Bamaki is a major center for the production of Malien handcrafted textiles. It is also the main market outlet for the nation's production. The main production includes:

- a. tie-and-dyes;
- b. batiks;
- c. strip handweaves, including cotton dali fani and tapis.

2. Interviews with urban based artisans, designers and entrepreneurs reveal that they:

- a. are underemployed and could realize a far larger production capacity if they had improved market contacts;
- b. had insufficient facilities and knowledge of designs for sophisticated finished products;
- c. achieve greater success when organized in cooperatives, and this form of organized production is a practical direction for the future;
- d. required professional and financial assistance to expand their capabilities;
- e. are dependent upon government assistance to promote their production, particularly for international contacts.

3. Although I encountered many innovative artisans, I was only introduced to one designer who had fabricated exclusive finished clothing and was familiar with the international market.

- a. Mme. Fatoumata Mah Drame, from Bamako, is an experienced fashion designer who is also President of AFCEM - Association des Femmes Cooperative Entrepreneurs du Mali.

She has traveled to European countries and the United States to promote here export-oriented garments. She designs exclusive African and international styles, for formal and casual wear.

Mme. Mah Drame is a celebrity, who has been selected for international training programmes, financed by US A.I.D., and CCIM, and is promoted by their promotional exhibitions.

- b. She has successfully manufactured and filled orders for exportation, and has in hand several orders from her recent tour, including 400 garments for an importer in Cleveland, Ohio. Her collection is most impressive. However, her premises was recently destroyed by a fire. Her losses were 7,000,000 CFA or (US\$25,000) of stock.

c. Mr. Dramone Traore→, Conseiller Technique, MIHE, suggested that Mme. Mah Drame→ and I discuss a strategy for developing the textile industry, including assistance for her programme.

(i) She agreed that an appropriate initial step is a market research phase where a broader market base is approached for future Malien contacts.

(ii) There is a need for quality control facilities coordinated by a staff familiar with handcrafted textiles and finished products. She suggested that it could be established under her supervision.

(iii) Design and production of prototypes of finished products, particularly scarves and clothing, can be manufactured under her supervision within her premises.

(iv) Financial assistance would help her:

d. An opportunity/feasibility study is recommended to assist Mme. Mah Drame→ expand her production and marketing experience, as well as coordinate the production of prototypes for market research described as Phase I and II in Regional Report.

4. The development of the manufacture of finished products can best be organized in Bamako where there is a large population of talented and skilled tailors who are currently engaged in custom work, and underemployed. They can easily be subcontracted and, in the long range, be provided with efficient small-scale industrial units for larger productions.

The preliminary steps required to develop this industry are:

a. test market research to determine the most appropriate product designs;

b. increased market <sup>+</sup>contacts for entrepreneurs to identify profitable production concepts;

c. professional international assistance to assist establish these facilities;

d. financial backing, including access to bank loans.

### C. Malien Traditional Handcrafted Textiles

## 1. Introduction

- a. My comprehensive report for Burkino Faso, Mali and Senegal provides a much more detailed account of this section, particularly Section II, "Discovering the Traditional Textiles of West Africa and Their Potential."
- b. Distinct characteristics of Malien dye, batik, handweaves, and basketry will be mentioned, as well as the textiles unique to Mali.
- c. Interviews and evaluations of individual producing artisans and entrepreneurs will be included (Annex 2).

## 2. Handwoven Cotton Strip Cloth

### a. Dali fani

(i) a type of Malien strip weaving, is patterned according diversified traditions of each region. The strips are sewn together to produce pagnes, and some for boubous and men's floor length robes. Handspun and, more often, industrial spun fibres are utilized;

(ii) The weavers work on commission and attempt to market their surplus production at Market Days. There were countless varieties available in Boko. (Annex 4)

Secou, a region producing high quality dali fani for pagnes had four major varieties:

(iii) Dali fani is unique in quality and design. The supply well exceeds the current domestic demand to the point that many weavers will soon abandon their art for a substitute means of income.

### b. Cotton Strip Weave Blankets and Tapis

(i) Many weavers from the rural sector come to Bamako to weave tapis and blankets during the dry season. I was informed the production is common to many rural villages, particularly where the Peul tribe settled.

(ii) A popular composition of the contemporary production utilized industrial spun fibres and very bold primary colours. The quality of weaving remains remarkable, as are the intricate techniques employed to

create the patterns interspersed with stripes of contrasting proportions. However, the tapis and blankets would have more international appeal and value if handspun fibres were utilized and colours were more subtle, as in the older examples in the Musee Nationale du Mali.

(iii) It is recommended that an opportunity study for strip handweaves research more successful means of market promotion, identify designs for most suitable finished products, and determine export potential for unfinished and finished products.

### 3. The Khasa (woolen blankets)

a. The Khasa is found in West African market places and has been exported to many countries for many years. However, according to interviews with exporters, the quantity has diminished in the last three years (Annex 3).

b. Possible reasons for this decline are:

(i) International trends for ethnic arts have become more inclined toward practical finished products:

(ii) The wool is very rough and many developing countries offer much softer wool.

(iii) Many Khasas have curled corners because the braiding to finish the weaving edge is too tight.

(iv) Without quality control, current production is less refined.

c. An Opportunity Study is recommended to research how to impart market specifications to weavers to improve quality and develop finished products.

### 3. Mud Cloth (Bogolantini)

a. Mud cloth, unique to Mali, is successfully exported as pagnes to the United States and France. Courtiers and interior designers transform the cloth into exclusive finished products, and the pagnes are very popular in stores featuring high quality international crafts.



b. The appeal of mud cloth is its striking ethnic design, painted on handspun cotton and handwoven strips, and hand sewn together. Equally valuable is the fact that it utilized an intricate natural dye process.

(i) The black pattern is painted on the yellow-dyed cloth with river mud or clay. Tones of black are created by the oxidation of clay combined with the natural yellow dye, galamar.

(ii) The yellow is then lightened with caustic soda to selected tones, even to white.

(iii) Lighter and brighter colours are also feasible if the galamar is uncooked.

c. In one example, the recurring linear pattern is said to imitate the body of a crocodile, and the double zig-zag motives, the legs of a cricket. This background information is included on a label of cloth marketed in the States and exemplifies the kind of promotional publicity required to attract sales.

d. Market feedback in the States indicates that the cloth is most appealing, but demand well exceeds the supply. It can be improved by:

(i) increasing design diversification based upon the wealth of traditional designs;

(ii) price levels can reflect intricacy of work and quality of cloth;

(iii) lightening the yellow base colour to white or natural;

(iv) increasing availability of brown and black cloths, by traditionally using "kola" for brown. It is barely available in the market;

(v) researching other natural dyes that can create a larger colour range.

Fine quality mud cloth currently retails for US\$52.00 when distributed by wholesalers. The price level is successful.

e. The production of mud cloth is in villages, each creating distinct patterns. All the mud cloth is handwoven by men, from

handspun cotton fibres spun by women, and women also dye and paint the designs. The production is located in:

- (i) San: 100-200 families are engaged in production. Their production allows one dealer to collect 400 pagnes per month. He sells 120 per month, often less;
- (ii) Banamba: the Sirakorola Cooperative of 20 - 25 women work year round and produce 100 pieces per month;
- (iii) Kolokani;
- (iv) Markala: the Dingongola Cooperative of 50 mudcloth artisans produce 160 per month.

#### 4. Tie Dye

Mali produces two valuable tie dye products which can be immensely popular as an export. The industry deserves serious attention for increased development and promotion.

- a. Malien tie-dyes for boubous are reknown throughout West Africa. To increase sales overseas, the finest qualities of imported bessain can be substituted by less expensive qualities, and in the future, indigenous industrial cloths can be designed as suitable substitutions. The cloth must have a lustre or sheen of bessain to enhance the design.
- b. Equally valuable, especially for exportation are the tie dyes on handspun and handwoven cloth using natural indigo. Examples were used for pagnes and boubous, but the industry is barely developed. Other natural dyes suitable for tie dye are recommended for research and development.
- c. Tie dye cloth can also be designed into scarves of divesified dimensions in fashion overseas. It is a tremendous industry.
- d. Tie dye is recommended for interior design products.

#### 5. Batik

I did not find many outstanding batiks except for those dyed with natural indigo. Price levels and quality must be compared



led 9042 - Mat: Corbeilles gigognes Bobo bicolores - Ø 22 à 25,5 cm - h 9,5 à 13 cm  
Nested two-coloured Bobo baskets

to Burkino Faso and Asian productions exported from Indonesia and Malaysia.

## 6. Basketry

Many Malien baskets have been successfully exported. Several designs are recommended for a programme to increase production and market outlet (Annex 5).

a. The production can include:

(i) Calabash stitched with leather and covered with basket tops;

(ii) large, crude baskets are in vogue and in demand overseas;

(iii) natts and de bin' (matts) which can be finished into window shades, beach nats, lamp shades, place-mats for the table.

b. Baskets should be designed in an array of sizes to create a nest, suitable for shipping and market display. CMCE cited export to Germany in 1987 of Calabash nests of four, maximum size 60 cm, FOB 6 000 CFA (US\$21.00).

c. Malien basketry is very popular overseas and increased market contacts can catalyze increased production.

## D. The Market Outlet

1. The development of sophisticated market outlets, such as emporiums with displays suggesting innovative concepts of how the textiles can be utilized for clothing and to enhance the household, create an indispensable ambiance which promotes market consumption. Such emporiums become the focal point for tourists and importers who are presented with the total range of available products, as well as contacts with producers. It is mandatory to assist the private sector organize these prerequisite facilities to catalyze development of the handcrafted textile industry.

2. Current market outlets:

a. Bamako Main Market - a collection of traditional crafts are marketed by shopkeepers. Their collection of national products

includes productions from rural regions. One of the shopkeepers is an experienced exporter.

b. Maison des Artisans - Mr. Yama dou Racine Keita, Directeur: it is a semi private and government owned promotion facility under the Ministry of Culture and linked with the Institute Nationale des Arts.

c. La Paysanne - established by the Quakers in the 1970s to help rural women's groups sell their textiles in Bamako. Since 1979, the German Protestant Church Agency for Cooperation funds the display center along with Christian Aid from England, who are active with weavers in Segou, NIE LENI.

(i) The Germans provided dye technology to improve quality of tie dye.

(ii) La Paysanne provides a market outlet for such producers as NIE LENI, mud cloth artisans of the Markala Cooperative; tie dye; and clothing which utilizes hand-printed cloth.

(iii) Casual, simple clothing designs are successful, but could be profoundly elaborated upon with the assistance of a professional designer.

d. Market Day - rural artisans bring their production to outdoor market places on specific days of the week. Traders come to buy their work.

I visited Segou on Market Day. Large quantities of exquisitely handwoven textiles well exceeded the daily demand. The consequence was intense competition and price levels became nearly unprofitable for the weavers.

e. Malien urban artists and entrepreneurs have exhibitions at institutions, hotels and diplomatic facilities such as the French Cultural Centre, and participate in promotional domestic and international exhibitions organized by CCIM.

f. Most artisans, tailors and entrepreneurs produce custom work against a commission.

#### IV. CONCLUSIONS AND RECOMMENDATIONS FOR FOLLOW-UP ACTIVITIES

## A. Conclusions

1. Mali is world reknown for its unique and diversified tradition of handcrafted textiles. Despite the fact that Malien and Africans from many countries, and of all strata of society, cherish the cloth and proudly use it for their clothing, the capacity of current production well exceeds its consumption. Small quantities are exported, hardly reflective of its demand.

The tragic result is that artisans are so underemployed or unemployed that they can barely survive and seek other means of employment, also hardly available to them. Unless drastic measures are taken to assist them, many textile traditions face rapid extinction.

2. A comprehensive programme to develop this industry must attempt to remedy the following problems and deficiencies:

- a. lack of adequate government infrastructure to assist the private sector to promote and increase its production;
- b. underdeveloped support of grass root programmes;
- c. undeveloped business sense of entrepreneurs;
- d. lack of international exposure, whereby publicity and promotional activities have not realized their potential impact;
- e. Mali does not have government or privately owned design centres to encourage the development of finished product designs for the traditional textile industry. Such a facility can also translate contemporary market demand into marketable products;
- f. lack of textile training institutes for improving and developing the traditional textiles and skilled management;
- g. lack of adequate facilities for importers, Market outlets do not present the range of the national production;
- h. lack of quality control facilities to assure importers of consistent international standards;
- i. Exportation from Mali is best by air.
- j. Although air-freight expenses are reasonable in comparison to other developing countries (ie. Bamako to NYC US\$3.00 - 4.00 per Kg depending on total weight), Malien exporters are subject

to 8% government taxes, and on some items 20%. The tax increases the price level so that final FOB prices are not competitive with other West African countries.

## B. Recommendations

1. Development of opportunities for Malien textile artisans assures labour intensive industrialization of raw cotton, and increased revenues to the disadvantaged segments of the population.
2. International professional assistance is requested to assist the Malien Government formulate policies and management of a programme to create ease of the private sector to develop and increase productivity of the traditional handcrafted textile industry.
3. Potential products of optimal market ability which require assistance to develop their production are:
  - a. handspun cotton fibres;
  - b. textiles utilizing natural dyes, particularly indigo;
  - c. mud cloth;
  - d. weaving of Dogon peoples;
  - e. tie dye;
  - f. strip handweaves;
  - g. basketry.
4. To assist CMCE expand its "Inventory of Potentialities of the Malien Artisans" to include rural textile products which may be developed or revived because of their potential market value, market research should include prototypes.
5. Identify finished products to receive priority consideration for development based upon the results of the UNIDO Market Research Opportunity Study.
6. Utilize the Musee Nationale du Mali to identify design modifications and products for rural textile development projects.
7. Coordinate facilities for product design.

8. Design indigenous substitutes for the imported bessain utilized by tie dye artisans, particularly for exportation.
9. Extend assistance to organize promotion of the textile industry for Mali's Textile Trade show in 1991.
10. Expand market outlet facilities and presentations of textiles to attract sophisticated clientele and visitors to Mali. The facility should promote exportation. Joint ownership by entrepreneurs can be researched. Rural producers may be provided facilities on a rental basis.
11. Define and assist the establishment of suitable facilities for quality control, particularly for exported products.
12. Identify a system of extending banking facilities to producers so they may expand their operation.
13. Identify and assist in developing practical training programmes for members of the traditional textile industry, ranging from exporters to artisans and students.
14. Many dyers in the informal sector have advanced capabilities in dye technology. Their production capacity can be greatly increased to provide colour-fast materials to a scattered population of weavers.
15. Dye technology of COMOTEX requires improvement before industrial fibres are utilized in export production. Research <sup>the</sup> assistance by French Government, Bank de Developpment.
16. Promotional activities require development of professional publicity to attract increased business. Fashion shows promoting traditional and international styles can enhance international promotional activities.
17. Encourage government to provide tax-free benefits for imported inputs and exported textiles.
18. Recommended Opportunity and/or Feasibility studies include:
  - a. International Market Research Programme;
  - b. Rural Development Programme;
  - c. Assistance for the development of a sophisticated emporium to present national production of handcrafted textiles, possibly owned by cooperatives of entrepreneurs;



d. Available and/or recommendations for facilities for quality control, ie. Societe— General de Surveillance;

e. Assistance to Mme. Foutoumata Mah Drame—;

f. Assistance to producers of:

(i) strip handweaves of cotton and wool;

(ii) tie dye;

(iii) mud cloth;

(iv) Dogon handweaves;

(v) natural dyes and textiles, particularly indigo.

LIST OF PERSONS MET  
(Mali Opportunity Study)

UNITED NATIONS

United Nations Development Program, UNDP

Mr. Peter Gil, Representant Resident Adjoint Principal  
Mrs. Cecilia Berthaud, Assistant Resident Representative  
Mr. Oumar Sako, Representant d'UNDP  
Ms. Konate, Programme Officer

GOVERNMENT REPRESENTATIVES

Ministere de l'Industrie, MIHE

Mr. Dramone Traore, Conseiller Technique

Chambre de Commerce D'Industrie

Mr. Daba Traore, Secretaire General  
Mr. Mary Andre Coulibaly, Chef de Service de la Promotion Industrielle et Artisanat

Centre Malien du Commerce Exterieur, CMCE

Mr. Hama-Ag Haqq, Directeur General  
Mr. Abdculaye Sanoko, Chef de la Division  
Mr. Souleymaore Sangare, Charge d'Etude Bureau Artisanat

Le Centre d'Etudes et de la Promotion Industrielles, CEPT

Mr. Sy Sada Diane, Directeur General Adjoint

Musee National du Mali

Mr. Samuel Sidibe, Director

OTHERS

Ecole Superieure de Industries Textiles ESITEX

Mr. Die Roger Pare, Le Chef du Projet

Bank Mondiale

Mr. Mama Garba Jabo

NON-GOVERNMENT AND BILATERAL ASSISTANCE

Peace Corps

Ms. Hillary Whittaker, Director

Mme. Jill Donahue, Districe Adjoint Developpment Petites Entreprises

Ms. Mary de Witt, Field Officer, Developpment Petites Entreprises SED

U.S. A.I.D.

Mr. Dennis Brennan

INTERPRETERS

Ms. Korotimy Thera

Mr. Chekene, CITRI

LIST OF ARTISANS, ENTREPRENEURS, IMPORTERS, AND EXPORTERS  
(Mali Opportunity Study)

ARTISANS AND ENTREPRENEURS

NIELENI, Tapis de Segou

Mme Awa Cisse, Tie Dye Artist a Badalobougou

SERVULART, Segou  
Mr. Mamadu Aguibou Ba, Coordinator

Cooperative Artisal de Couture, COOPAC  
Mme. Fatou D'Piaye, Directeur

Beaute Mah  
Mme. Fatoumata Mahdrame

Dingongola Cooperative, Markola  
Mme. Aissata Traore, Directeur

EXPORTERS

Mali  
Mr. Mamadou Traore  
Mme. Fatoumata Mahdrame  
Mr. Issa Sako  
Mr. Oomar Cisse

New York  
Mr. Peter Nelson

Smithsonian Institute, Washington, D.C.  
Ms. Andrea Snyder, Buyer

Agnes B. Paris  
Mr. Frederic Alcanta

DISTRIBUTION: Mali Opportunity Study

Mr. Dramone Traore, Conseiller Technique MIHE

Mr. Daba Traore, Directeur General CCIM

Mr. Hamma-Ag Mahmoud, Directeur General CMCE

Mr. Die Roger Pare, Directeur ESITEX

Mr. Peter Gil, UNDP

5741

ANNEX 3

**THE PRODUCT** Strip Weaves for tapis and dali fani pagnes

**LOCATION:** Bamako

**OTHER PRODUCT LOCATIONS:**

**NAMES OF PRODUCERS VISITED:**

**TECHNIQUE:** handweaves

**RAW MATERIAL CONTENTS:** industrial spun cotton thread

**CLOTH AS UNFINISHED PRODUCT:** maximum 6 1/2 inch strips

**TRADITIONAL DIMENSIONS:**

**CURRENT FINISHED PRODUCTS:** Pagnes and tapis

**APPROXIMATE PRICE LEVEL:** Tapis - 6,000-8,000 CFA  
(US\$21.50-30.50)

**HISTORY OF MARKET OUTLET:**

domestic:	X
Africa:	X
International:	X

**NATURE OF PRODUCTION:** Each man is responsible for his own procurement of raw materials and sales. 75-100 men come from rural region to Bamako, rent acres of land outside city. They work in groups of 3 across a yard, 3 men sit opposite. They come in dry season, return home to agriculture in rainy season.

**CAPACITY OF CURRENT PRODUCTION:** They have tailors at the field who stitch their strips.

POTENTIAL

unrealized potential

MARKET APPEAL:

The patterns are exceptional, as was the quality; finished products are recommended.

SUGGESTED FINISHED PRODUCTS:

Faso dali fani - table-cloths, clothing, sashes  
Tapis - upholstery for beach chairs and lawn furniture, bedcovers

SUGGESTED MARKET OUTLET

(1) Direct vs. Distribution:

X

(2) Interior Design:

X

(3) Clothing:

X

(4) Ethnic Arts:

X

Regional Specification:

Capacity of Supply and  
Demand of Product:

Supply exceeds demand.

RECOMENDATIONS FOR ASSISTANCE:

QUALITY IMPROVEMENT:

Colour fastness requires research. Strip sewing can be improved.

FINISHING FACILITIES:

Colours were harsh and require diversification. Colours could be improved by studying older examples.

DESIGN MODIFICATION:

The strips can be designed to join and be combined in more diversified patterns.

MARKETING ASSISTANCE:

There is a potential market for great quantities with assistance.

MISC:

REQUIREMENT FOR FURTHER  
OPPORTUNITY/FEASIBILITY STUDY:

5741

ANNEX 3

**THE PRODUCT** Khasa

**LOCATION:** Mopti Region

**OTHER PRODUCT LOCATIONS:**

**NAMES OF PRODUCERS VISITED:** Bamako Market

**TECHNIQUE:** handwoven

**RAW MATERIAL CONTENTS:** wool and often cotton warp

**CLOTH AS UNFINISHED PRODUCT:** Blanket with white, grey or black background; white is most typical.

**TRADITIONAL DIMENSIONS:**

**CURRENT FINISHED PRODUCTS:** none

**APPROXIMATE PRICE LEVEL:** FOB 8,000-25,000 CFA  
FOB (US\$28.00-89.00)

**HISTORY OF MARKET OUTLET:**

- domestic: X
- Africa: X
- International: X

**NATURE OF PRODUCTION:** cottage industry in rural sector

**CAPACITY OF CURRENT PRODUCTION:** 1 person requires two weeks to weave one khasa. A dealer can collect 100 per month and commission 100 within two months. Village production is total of 300 per month (50% less in rainy season)

1. Dialloube - 120 per month
2. Djenne - 120 per month
3. Ouromodi - 50 per month
4. Sendengue - 50 per month



**POTENTIAL**

The Khasa was once very popular, but has declined. Can be more marketable if dimensions are modified and quality of wool is improved.

**MARKET APPEAL:**

**SUGGESTED FINISHED PRODUCTS:**

Pillow covers, smaller objects as bags, tote bags, can weave heavier weight into floor mats, larger sizes for more international blanket dimension.

**SUGGESTED MARKET OUTLET**

- (1) Direct vs. Distribution: Distribution direct
- (2) Interior Design: X
- (3) Clothing:
- (4) Ethnic Arts: X

Regional Specification:  
 Capacity of Supply and Demand of Product: Supply is greater than demand

**RECOMENDATIONS FOR ASSISTANCE:**

**QUALITY IMPROVEMENT:** wool quality, edges are finished so they curl.

**FINISHING FACILITIES:** none

**DESIGN MODIFICATION:**

**MARKETING ASSISTANCE:**

**MISC:**

**REQUIREMENT FOR FURTHER OPPORTUNITY/FEASIBILITY STUDY**

5741

ANNEX 3

**THE PRODUCT**

Mud cloth (Bogolanfini)

**LOCATION:**

Markala

**OTHER PRODUCT LOCATIONS:**

**NAMES OF PRODUCERS VISITED:**

Aissata Traore, coordinator of  
Dingongola Cooperative for 100 women.  
50 produce mud cloth. They have two  
centres.

**TECHNIQUE:**

A printing process using natural dyes.  
Yellow base colour from galamar; black  
is painted river mud or clay which  
oxidizes in combination with galamar  
to produce the pattern.

**RAW MATERIAL CONTENTS:**

handspun and handwoven cloth

**CLOTH AS UNFINISHED PRODUCT:**

wall-hanging or pagne

**TRADITIONAL DIMENSIONS:**

**CURRENT FINISHED PRODUCTS:**

wall-hanging

**APPROXIMATE PRICE LEVEL:**

Simple: 2,500-5,000 CFA (US\$9-18)  
Intricate: 15,000 CFA (US\$3.50)

**HISTORY OF MARKET OUTLET:**

domestic:

Paysannes in Bamako and commissions

Africa:

X

International:

X USA, France

**NATURE OF PRODUCTION:**

Women work at the cooperative facility,  
a well built cement structure, with  
indoor, porch and hackyard space.  
One cloth takes 7-15 days to complete,  
depending upon intricacy of design.

**CAPACITY OF CURRENT PRODUCTION:**

50 women - four to two per month;  
3 women craft most intricate patterns,  
produce 6 per month.

ANNEX 3

POTENTIAL

They can sell much more if export contacts were developed.

MARKET APPEAL:

Very good

SUGGESTED FINISHED PRODUCTS:

SUGGESTED MARKET OUTLET

- |                              |      |
|------------------------------|------|
| (1) Direct vs. Distribution: | both |
| (2) Interior Design:         | X    |
| (3) Clothing:                | X    |
| (4) Ethnic Arts:             | X    |

Regional Specification:  
Capacity of Supply and Demand of  
Product:

Demand well exceeds supply of fine quality which reaches the international market place.

RECOMENDATIONS FOR ASSISTANCE:

expand market contacts

QUALITY IMPROVEMENT:

X

FINISHING FACILITIES:

X

DESIGN MODIFICATION:

X

MARKETING ASSISTANCE:

X

MISC:

The success of Dingongola has slowly developed since their establishment in 1975. First 8 years were non-profitable, but marketing facilities at Paysannes has greatly enhanced their success.

REQUIREMENT FOR FURTHER  
OPPORTUNITY/FEASIBILITY STUDY

X

5741

ANNEX 3

THE PRODUCT

Handwoven Cotton Yardage

LOCATION:

Servulart, Segou

OTHER PRODUCT LOCATIONS:

NAMES OF PRODUCERS VISITED:

Mamaku Aguibou Ba, *Coordinator*

TECHNIQUE:

handwoven

RAW MATERIAL CONTENTS:

COMATEX thread

CLOTH AS UNFINISHED PRODUCT:

TRADITIONAL DIMENSIONS:

CURRENT FINISHED PRODUCTS:

APPROXIMATE PRICE LEVEL:

HISTORY OF MARKET OUTLET:

domestic:

Africa:

International:

difficult to market their production  
20% sold in Segou  
60% sold in Bamako by COMATEX  
distributors for 7% commission  
Burkina Faso Salon International de  
l'Artisan

NATURE OF PRODUCTION:

Servulart is a small-scale industrial  
unit with 60 indigenously fabricated  
looms. They utilize industrial spun  
threads and weave bolts of cloth. Men  
weave, women prepare threads and  
assist in process.

CAPACITY OF CURRENT PRODUCTION:

50% of looms are operational. Profits  
reduced by 8% since 1986

POTENTIAL

The facility is well organized and equipped for production of 120cm width handweaving. The product may be more saleable if designed to accommodate domestic demand such as curtains or upholstery.

MARKET APPEAL:

SUGGESTED FINISHED PRODUCTS:

SUGGESTED MARKET OUTLET

- (1) Direct vs. Distribution: both
- (2) Interior Design:
- (3) Clothing:
- (4) Ethnic Arts: X
- Regional Specification:
- Capacity of Supply and Demand of Product:

RECOMENDATIONS FOR ASSISTANCE:

QUALITY IMPROVEMENT:

FINISHING FACILITIES:

DESIGN MODIFICATION:

Need assistance to redesign production. The cloth resembles industrial designed quality and character and may be more expensive.

MARKETING ASSISTANCE:

French assistance to project promised to arrange market outlets but then assistance ended before this phase.

MISC:

World Bank financed the project eight years and was initiated by CEPI. French technical assistance trained artisans to work on wider looms. They traditionally wove strips for pagnes and boubous. Modern looms financed by World Bank. COMATEX distributes cloth for 7 % commission and trades raw materials for finished cloth. They have a workers' association, CALAIBATON, which procures materials and conducts marketing, accounting and external relations.

REQUIREMENT FOR FURTHER OPPORTUNITY/FEASIBILITY STUDY:

5741

ANNEX 3

**THE PRODUCT** Tie and Dye Boubous and Pagnes

**LOCATION:** Badalobougou, Bamako

**OTHER PRODUCT LOCATIONS:** Niger riverbank and her premises

**NAMES OF PRODUCERS VISITED:** Mme. Awa Cisse

**TECHNIQUE:** tie and dye

**RAW MATERIAL CONTENTS:** imported bessain and German dyes

**CLOTH AS UNFINISHED PRODUCT:** boubou pieces

**TRADITIONAL DIMENSIONS:** 6 meters

**CURRENT FINISHED PRODUCTS:**

**APPROXIMATE PRICE LEVEL:** 1st quality bessain: 22,000-25,000  
CFA (US\$78.50-89.00);  
2nd quality bessain: 16,500 CFA

**HISTORY OF MARKET OUTLET:**

domestic:	X
Africa:	Burkina Faso, Ivory Coast
International:	Germany

**NATURE OF PRODUCTION:** 13 artisans machine stitch and hand tie cloth which is dyed by wooden heated fires alongside the riverbank. Cloth is rinsed in river. She works strictly on commission.

**CAPACITY OF CURRENT PRODUCTION:** 13 artisans - 50-100 boubous daily, depending on intricacy of design and demand. Average is 450 meters daily.

**POTENTIAL**

She can provide work for 25 artisans, but requires banking assistance to expand her production.

**MARKET APPEAL:**

The designs are among the finest tie dyes in West African and are very diversified. The bessain adds US\$10.00 per meter to price level - US\$60.00 per boubou. Substitute cloth can make price very attractive.

**SUGGESTED FINISHED PRODUCTS:**

**SUGGESTED MARKET OUTLET**

- |                              |   |
|------------------------------|---|
| (1) Direct vs. Distribution: | X |
| (2) Interior Design:         | X |
| (3) Clothing:                | X |
| (4) Ethnic Arts:             | X |

Regional Specification:  
Capacity of Supply and  
Demand of Product:

**RECOMENDATIONS FOR ASSISTANCE:**

**QUALITY IMPROVEMENT:**

**FINISHING FACILITIES:**

**DESIGN MODIFICATION:**

She can substitute imported bessain with handwoven indigenous cloth for export to Germany and USA to encourage market appeal and decrease price level.

**MARKETING ASSISTANCE:**

**MISC:**

Banking assistance is required to increase production.

**REQUIREMENT FOR FURTHER  
OPPORTUNITY/FEASIBILITY STUDY:**

5741

ANNEX 3

THE PRODUCT

Embroidered and Crocheted Clothes  
and Household Products

LOCATION:

Bamako

OTHER PRODUCT LOCATIONS:

NAMES OF PRODUCERS VISITED:

COOPAC, Cooperative Artisanne de  
Couture, Mme. Fatou N'Diaye, Director

TECHNIQUE:

crochet, dyeing, knitting, embroidery

RAW MATERIAL CONTENTS:

industrial cloth and threads

CLOTH AS UNFINISHED PRODUCT:

TRADITIONAL DIMENSIONS:

CURRENT FINISHED PRODUCTS:

table-cloths, bedcovers, shawls

APPROXIMATE PRICE LEVEL:

HISTORY OF MARKET OUTLET:

Exhibit at Bamako hotels and French  
Cultural Centre; mainly sell their work  
to diplomatic community.

domestic:

X

Africa:

International:

NATURE OF PRODUCTION:

Women come to a small shop to crochet,  
knit for training and production. The  
women finance the operation. Women  
receive two year training. Now 15  
members, 10 trainees. There are 11  
similar cooperatives in Bamako.

CAPACITY OF CURRENT PRODUCTION:

15 women generated 1,500,000 CFA  
before fire in 1989 (US\$1,786.00)



ANNEX 3

POTENTIAL

The cooperative organization provides a facility for production and can be developed with assistance of professional designers.

MARKET APPEAL:

domestic

SUGGESTED FINISHED PRODUCTS:

SUGGESTED MARKET OUTLET

- (1) Direct vs. Distribution: X
- (2) Interior Design: X
- (3) Clothing: X
- (4) Ethnic Arts: X
  
- Regional Specification: X
- Capacity of Supply and Demand of Product:

RECOMENDATIONS FOR ASSISTANCE:

Loan credits, as it is now very difficult to arrange banking credit.

QUALITY IMPROVEMENT:

FINISHING FACILITIES:

DESIGN MODIFICATION:

MARKETING ASSISTANCE:

MISC:

REQUIREMENT FOR FURTHER OPPORTUNITY/FEASIBILITY STUDY:

SEGOU DALI FANI

Annex to <sup>4</sup>

Handweaves

Segou, a region producing high quality dalefani for pagnes, had four major varieties:

1. COBA TRADITIONAL -  $7\frac{1}{2}$ " Strips of 3 colour stripes  
2,000 CFA (US\$ 7.00)
2. COBA MOYEN - 3" stripes of pattern interspersed with solid black  
3,000 CFA (US\$ 10.70)
3. PETITE BAND -  $2\frac{1}{4}$ " strips of intricate inlay patterns. 4,000 CFA (US\$ 14.00)
4. "SUSSI" BAND - <sup>BAND</sup> 7" patterned stripes - 7" width.  
2,500 CFA (US\$ 9.00)

## ANNEX 6

### ASSISTANCE FROM NON-GOVERNMENT ORGANIZATIONS

#### Peace Corps

Ms. Hillary Whittaker, Directeur

Ms. Jill Donahue, Associate Director, Small Enterprise Development

Ms. Mary de Witt, Field Officer for Small Enterprise Development, Segou

1. Peace Corps volunteers have an impressive training in French national language, and cultural traditions prior to field work. They are mainly attached to the agricultural sector, but some volunteers also organize classes under SED (Small Enterprise Development Project) within the local Chambers of Commerce. To encourage self-sufficiency of entrepreneurs, US A.I.D. funds the salary for Malien teachers who offer courses on: marketing, inventory, accounting and taxation.
2. The programme caters to various levels of literacy. There is also training in cooperative organization and training. Ms. Whittaker hopes to catalyze more cooperative development for artisans to encourage a more stable year round income for the agriculturists.
3. Ms. Whittaker encouraged collaboration with a comprehensive assistance programme which can provide professional assistance in marketing, design and technology. She suggested these inputs could be managed by volunteers who could man an operation to create self-sufficiency among entrepreneurs most effectively.
4. She recommended, as did Mr. Peter Gil, that I visit Ms. Mary de Witt, in Segou, to become familiar with SED and her innovative assistance to a weaving cooperative.
5. Mary deWitt's main responsibility is to SED. She helped organize a men's group, Soundiata, which has 24 weavers. They received a \$600 grant from the American based organization, Aid to Artisans, to purchase enough raw materials to establish an inventory of production.
6. Mary deWitt organized a market research to determine what products would be most profitable, and the weavers now weave Petite Band. They produce 40 pagnes daily at a profit of 650 CFA (US\$2.30 per pagne). They market their production to traders who visit Segou for Market Day. Production well exceeded demand and competition created non-profitable price levels.

#### US A.I.D.

Mr. Brennan, Director

1. We discussed the significance of generating employment by increasing small enterprise development. Such assistance is greatly needed by Malien artisans who can realize sustained income if better organized and assisted to meet the potential demands of a broader market.
2. Mr. Brennan supported ideas of an international programme that would develop grass root sophisticated international market strategies, and was interested in coordinating efforts with Peace Corps programmes.

PROMOTERS FOR MICRO-ENTERPRISE

The African Development Foundation

Ms. Wendy Wilson, Regional Manager for Sohel  
Ms. Jennifer Astone, Grant Analyst

1. The African Development Foundation is Congressionally funded and based in Washington, D.C. It funds private groups with innovative ideas for developing private enterprise. It serves 22 African countries and established a network of country offices, staffed by indigenous professionals. Grants range from \$25,000 to \$250,000, and include cottage and small industry projects.
2. It provides assistance for planning, technological and operational development. One project funded in Bamako, Mali, was a tie dye cooperative. BGTB coordinated by Assiaton Diallo for twenty women. The results were very successful and the women continue to market their production to the domestic ~~and international~~ markets, and the Malien community.
3. Ms. Jennifer Astone stated that their efforts are for individual projects. They have not coordinated projects toward expanding the international market outlet, which is woefully undeveloped. She also agreed that the African textiles industry could realize great expansion if finished products were designed and produced.

APDF: Service for Promotion and Investment in Africa  
Mr. S. Soumahoro - in charge in Ivory Coast

*Loans to artisans are provided by the following organizations:*

FED: Federal European Development Fund

Aid to Artisans

Ms. Claire Smith, Connecticut, USA, reported small grants (ie. US\$600).

SPAF: Small Project Assistance Fund

Mr. Gary Vizzo, Segou, reported loans are available for Peace Corps projects, financed by US A.I.D. (ie. 500,000 CFA or US\$1785).

MALI

Carte administrative

- Frontières
- Limites de Région
- Limites de Cercle
- Capitale
- Chef-lieu de Région
- Chef-lieu de Cercle
- ⓐ Numéro des Régions



## ANNEX 9

### THE WEAVING OF DOGON PEOPLES OF MOPTI REGION

Examples of woven indigo cotton located in the collection of the Musee Nationale du Mali can be viewed for purposes of design assistance, and to identify the tradition of the Dogon's peoples.

#### Reference numbers include:

88 - 2 - 97	strips of indigo shades
88 - 2 - 99	strips of indigo shades
88 - 2 - 44	strips including applique
88 - 2 - 35	strips with plaid pattern (refer to photo of contemporary example)
88 - 2 - 93	strips with embroidery
88 - 2 - 93	
88 - 2 - 61	
88 - 2 - 59A	
88 - 2 - 67	

Wealthy Dogon women used the cloth as a shawl and others for pagnes.

# INTERNATIONAL INDUSTRIAL DEVELOPMENT FOUNDATION

ONE UNITED NATIONS PLAZA, ROOM DC1-1110, NEW YORK, N.Y. 10017

TELEPHONE: (212) 963-6890

## PURPOSE

The International Industrial Development Foundation was established in 1987 in the United States for the purpose of fostering the development of industry in developing countries. The United Nations Industrial Development Organization (UNIDO) assisted in its establishment in full consultation with the U.S. Government. UNIDO is the UN Specialized Agency whose primary objective is the promotion and acceleration of industrial development in developing countries and the promotion of industrial development and co-operation on global, regional and national, as well as sectoral, levels.

The concept of the Foundation originated from discussions by the U.S. business community and UNIDO. The Foundation will allow the business community to assist developing countries and, at the same time, be afforded the advantage of a tax deductible contribution.

## POLICIES

The Foundation recognizes that the living conditions of economically disadvantaged people in developing countries can be improved through human resource development, development and transfer of technology and the mobilization of financial resources for development. The Foundation will focus its efforts on the least-developed countries. Attention will also be given to:-

- \* small and medium scale industries
- \* enterprise-to-enterprise co-operation
- \* promoting the role of women in development
- \* protection of the environment
- \* industrial rehabilitation
- \* economies in the use of energy

## FUNCTIONS

The Foundation provides financial and technical support to projects in developing countries and facilitates exchange of information by bringing together representatives of United States industrial, academic and financial organizations with their counterparts in developing countries.

It promotes international co-operation by sponsoring consultations and meetings, fellowship programmes and seminars, and sending U.S. experts to developing countries.

The Foundation supports a range of projects aimed at meeting basic human needs, technology and human resources development. For example, it provides experts, equipment and training for an integrated pilot plant for demonstrating production and repair of tools, machinery and spare parts. It sponsors fellowships and study tours at universities and industrial facilities designated to train personnel from developing countries.

Because of UNIDO's technical expertise in industrial development, and taking advantage of its worldwide regional network, the Foundation uses UNIDO as an executing agency in the implementation of industrial technical assistance projects. The Foundation, however, operates completely independently of UNIDO, with full discretion and control of its activities. It also co-operates with other organizations.

#### FUNDING

The Foundation is a non-profit, tax-exempt organization under Section 501 (c) (3) of the IRS Code and depends on contributions from corporations, foundations and individuals for its support. Donations, in any amount, can be made by checks payable to the International Industrial Development Foundation and sent to the New York Office of UNIDO.

#### USE OF GRANTS

In accordance with the Foundation's Bylaws, funds are disbursed outside the United States for specific projects within the scope of the Foundation's objectives which have been approved by the Board of Directors. UNIDO as an executing agency is accountable to the Foundation.

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# ESTITEX

École Supérieure des Industries Textiles





# ESITEX

## École Supérieure des Industries Textiles


B.P. 323 SÉGOU - République du Mali

Tél. 32.05.25 Téléx 4002

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— deuxièmement, qui dit textile dans notre région, pense avant tout COTON. Plus de 250 000 tonnes de coton fibre sont produites par campagne dans les pays de la C.E.A.O. Seulement 10 % font l'objet d'une transformation industrielle ;

— troisièmement, l'existence d'une industrie textile employant plus de 20 000 personnes et totalisant en 1985 plus de 100 milliards de francs CFA d'investissement.

Et pourtant, en dépit de ces atouts, malgré les investissements importants en matériel qui ont été réalisés et les études de conception de produits et de recherche de nouveaux marchés, on constate que l'industrie textile ouest-africaine ne se développe pas suffisamment et manque de compétitivité. Une analyse du secteur montre que cette industrie est largement sous encadrée.

Devant une telle situation et convaincus que le potentiel en cadres techniques d'une entreprise est à la fois une conséquence de son niveau de développement et un facteur important de ce développement, les Chefs d'État de la C.E.A.O. ont décidé la création d'une structure de formation professionnelle et de perfectionnement de techniciens et de cadres de haut niveau aptes à animer et gérer avec efficacité le développement de la branche textile.

Des études ont donc été menées et ont abouti à la signature le 31 octobre 1983, par les Chefs d'État du BURKINA FASO, de la CÔTE-D'IVOIRE, du MALI, de la MAURITANIE, du NIGER et du SÉNÉGAL, de l'ACCORD CONSTITUTIF portant convention de création et statuts d'une École Supérieure des Industries Textiles (ESITEX) à implanter à Ségou au Mali.

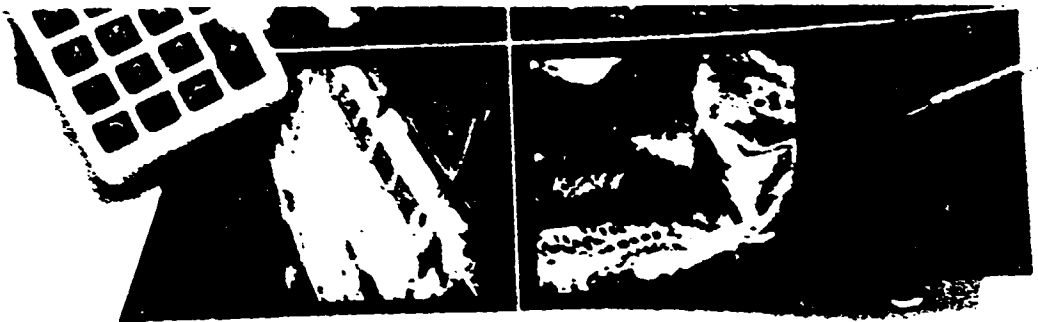
Cette importante décision vient combler à souhait le vide que constitue l'absence d'une structure de formation textile dans cette partie de l'Afrique.

L'ESITEX qui ouvrira ses portes en 1989, est une institution spécialisée de la Communauté Économique de l'Afrique de l'Ouest en matière d'enseignement, de formation et de recherche textile, qui ambitionne de se hisser rapidement à un niveau de compétence internationale.

**L'AVENIR DU TEXTILE OUEST-AFRICAÏN EST  
AUX RESSOURCES HUMAINES !**

**Le Chef du Projet ESITEX  
PARE Dié Roger**





# Naissance d'un projet

Les pays de la **COMMUNAUTÉ ÉCONOMIQUE DE L'AFRIQUE DE L'OUEST** : **LE BÉNIN, LE BURKINA FASO, LA CÔTE-D'IVOIRE, LE MALI, LA MAURITANIE, LE NIGER ET LE SÉNÉGAL**, déjà unis par l'histoire et la géographie, partagent la même conviction profonde qu'une croissance plus rapide, plus soutenue et mieux équilibrée de leurs économies, commande la réalisation entre leurs États, d'une zone d'échanges organisée et la mise en œuvre, au niveau régional, d'une politique active de coopération.

C'est pourquoi, après avoir consacré les premières années de son fonctionnement au développement des échanges intra-communautaires, la **C.E.A.O.** a décidé d'accorder la priorité des priorités au développement des ressources humaines indispensables dans les principaux secteurs de leurs économies : former d'abord les gestionnaires de notre développement.

La cohérence de cette démarche a conduit, dans le domaine du textile, à la création de l'**ESITEX**, Institution spécialisée de la **C.E.A.O.** en matière d'enseignement, de formation et de recherche, à vocation inter-africaine.

L'industrie textile a largement contribué au développement industriel des États de l'Afrique de l'Ouest.

Réduite à quelques complexes au lendemain des indépendances, cette industrie s'est développée pour atteindre aujourd'hui la dimension internationale.

Plus que dans d'autres domaines industriels, les pays de la sous-région ouest-africaine pourraient maîtriser dans le secteur textile, la totalité de la filière. Mais cette maîtrise suppose celle des moyens et des stratégies.

C'est dire, combien notre compétitivité, notre capacité d'innover tant dans le domaine des produits que dans celui des méthodes de production, notre crédibilité et notre professionnalisme sont des facteurs indispensables à la survie et au développement de notre industrie textile. Cette réussite passe nécessairement par l'acquisition de la compétence, en d'autres termes, par la **FORMATION** permettant de disposer de nos propres équipes d'animateurs.

L'Afrique de l'Ouest possède, en effet, trois atouts majeurs susceptibles d'assurer à son industrie textile une expansion soutenue :

— premièrement, son marché du textile, déjà potentiellement considérable, est en augmentation rapide du fait de la poussée démographique dans la zone géographique concernée. La consommation de fibres textiles est, actuellement, estimée à 3 kg par habitant contre 15 kg pour l'Europe et 16 kg pour l'Amérique du Nord. Pour les seuls pays de la **C.E.A.O.**, une étude récente a révélé l'existence d'un marché de plus de 300 milliards de francs CFA, alors que le chiffre d'affaires global des usines implantées dans la zone n'est que de quelques milliards de francs CFA. La production est donc loin de couvrir les besoins.



# ESITEX

# ESITEX : Horizon futur, les moyens de demain

Une étude très approfondie réalisée par une équipe d'une grande compétence a permis de concevoir et de réaliser l'ESITEX.

## 1 - Locaux :

Un ensemble immobilier d'une conception moderne de plus de 5 000 M<sup>2</sup> couverts sur un site de 50 hectares abrite :

- l'administration,
- les locaux d'enseignement (salles de cours, laboratoires, salles de travaux pratiques, bibliothèque),
- l'hébergement des élèves, le restaurant et le foyer,
- un plateau sportif complète ces installations.

## 2 - Équipements :

Pour atteindre ses objectifs l'ESITEX s'est doté des équipements les plus modernes existants sur le marché de la machine textile.

Ce sont plus de 1.500.000.000 F CFA qui ont été investis en matériel pour la filature, le tissage, l'ennoblissement, les laboratoires (métrologie textile, chimie, automatisme, informatique, mécanique, électricité, etc.).



## 3 - Corps enseignant :

Un corps professoral composé d'ingénieurs et de Techniciens textiles ayant une expérience confirmée dans la profession et une formation pédagogique complémentaire assurera l'enseignement spécialisé.

## 4 - Premiers partenaires :

Des accords inter-établissements pour des échanges pédagogiques ont été passés avec les Écoles suivantes :

- l'École Supérieure des Industries Textiles d'Épinal (ESITE) ;
- l'École Nationale Supérieure de l'Industrie Textile de Mulhouse (ENSITM) ;
- l'École Supérieure des Techniques Industrielles et Textiles à Villeneuve-d'Ascq (ESTIT) ;
- l'École Nationale Supérieure des Arts et Industries Textiles à Roubaix (ENSAIT) ;
- l'Institut Universitaire de Chimie de Lille ;
- l'Institut Textile et Chimique de Lyon (ITEC).

Dans le cadre de ces accords Inter-Établissements, ces partenaires s'engagent à assurer pendant plusieurs années, une assistance technique pédagogique. Ceci constitue un atout pour la réussite et la crédibilité de l'ESITEX. Pour atteindre l'objectif d'efficacité et de qualité qu'elle s'est fixé, l'ESITEX se veut plus qu'une institution. Elle est équipée pour organiser des séminaires, colloques et conférences pouvant regrouper des instituts similaires, des constructeurs de matériel textile, des industriels. Elle sera le lieu de rencontre privilégié des professionnels de l'industrie textile.



# Une Ecole au cœur de la C.E.A.O.

## Situation privilégiée :

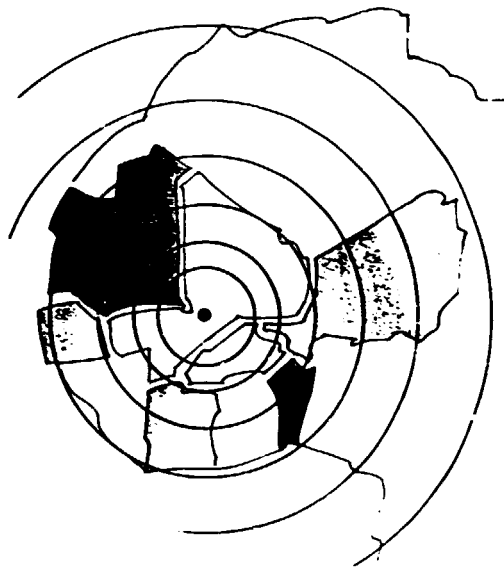
La première École Textile Internationale Africaine pour la formation des Cadres est implantée à Ségou. L'ESITEX est à 230 km de BAMAKO, capitale du Mali, et au cœur de la C.E.A.O. Elle bénéficie ainsi d'un environnement communautaire textile privilégié. Son site, en bordure du Niger, large d'un kilomètre, apporte le calme et la fraîcheur indispensables à une réussite scolaire de haut niveau.

## Vocation et objectifs de l'ESITEX :

Aux termes de l'accord constitutif signé par les États membres fondateurs, la vocation première de l'ESITEX est d'assurer l'enseignement, la formation, le perfectionnement et la recherche/développement avec pour objectif de fournir à l'Industrie Textile, un personnel technique d'encadrement, de direction, de conception et d'exécution de haut niveau suffisamment qualifié pour mettre en œuvre les programmes et les techniques de production dans les principaux secteurs de l'Industrie Textile.

A cette fin, elle accomplit notamment les missions suivantes :

- 1) Formation initiale ou « formation première » de longue durée, s'adressant à des élèves issus du milieu scolaire et débouchant sur un diplôme :
  - d'ingénieur textile,
  - de technicien supérieur des Industries Textiles.
- 2) Formation continue, s'adressant à un public issu des entreprises et débouchant sur un perfectionnement et une promotion professionnelle et permettant d'obtenir :
  - le brevet d'agent de maîtrise,
  - le brevet d'agent de maintenance,
  - le certificat d'aptitude professionnelle de régleur.
- 3) Recherche appliquée en liaison étroite avec les industries et les administrations.
- 4) Information, documentation, conseil et expertise dans divers domaines textiles.
- 5) Collaboration avec les institutions nationales, régionales et internationales œuvrant directement ou indirectement dans une des activités sus-mentionnées.



## Organes :

Les organes de l'ESITEX sont :

- la Conférence des Chefs d'État de la C.E.A.
- le Conseil des Ministres de la C.E.A.O.,
- le Conseil d'Administration,
- le Conseil de Perfectionnement,
- la Direction,
- le Comité d'Enseignement.

## Membres :

- 1) L'ESITEX est composée de membres fondateurs et éventuellement de membres associés.
- 2) Les membres fondateurs sont les États membres de la Communauté Économique de l'Afrique de l'Ouest (C.E.A.O.).
- 3) Les membres associés sont tous les autres États africains, désireux de participer à l'ESITEX et ayant été agréés par la Conférence des Chefs d'État de la C.E.A.O.

## Statut juridique :

L'ESITEX est un établissement spécialisé de la Communauté en matière d'enseignement de formation et de recherche, doté de la personnalité morale, de l'autonomie financière et administrative.

## Régime de l'école et capacité d'accueil :

L'École peut accueillir 180 à 200 élèves encadrés par 25 enseignants. Le régime est l'Internat.

## Diplômes et certificats :

Les diplômes ou certificats délivrés par l'ESITEX sont admis en équivalence avec ceux délivrés par les établissements comparables, nationaux ou étrangers dans tous les États membres.



# Techniciens Supérieurs ESITEX

## TEXTILE et ENNOBLISSEMENT

### Durée des études :

L'ensemble du programme est réparti sur deux années scolaires. Un stage ouvrier d'un mois dans une entreprise textile avant la 1<sup>re</sup> année et un stage de 1 à 2 mois en fin de 1<sup>re</sup> année seront réalisés et feront l'objet d'un rapport qui sera présenté et noté par le Chef d'Entreprise et par les professeurs de l'École.

### Conditions d'admission :

- a/ Sur titre pour les titulaires du baccalauréat (séries scientifique ou technologique) ou brevet de technicien à caractère industriel.
- b/ Sélection sur dossier d'après les résultats scolaires des deux dernières années.

### Sanction des études :

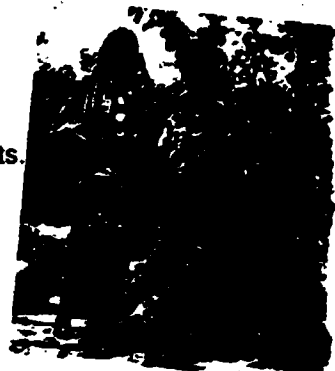
Le brevet de technicien supérieur est délivré à la suite d'un contrôle continu des connaissances tout au long de la scolarité.

Ce brevet délivré par l'ESITEX est admis en équivalence avec ceux délivrés par les établissements comparables nationaux ou étrangers dans les États membres.

### Options :

Deux options sont prévues :

- une option "textile" filature et tissage
- une option "ennoblissement" blanchiment teinture impression et apprêts.



## PROGRAMME D'ENSEIGNEMENT

### 1<sup>re</sup> et 2<sup>e</sup> années

#### I. Tronc commun aux deux options

- Formation scientifique :  
576 heures

Mathématiques statistiques.  
Électricité - électronique.  
Mécanique.  
Automatismes - régulation.  
Informatique.  
Dessin industriel.  
Physique-chimie.

- Formation sciences  
humaines économiques  
et sociales : 320 heures

Expression écrite et orale.  
Langue étrangère (anglais).  
Comptabilité, gestion économie.  
Commerce.  
Travail, hygiène, sécurité.  
Organisation, ordonnancement,  
ingénierie.  
Créativité.  
Relations humaines.

#### II. Formation technique 1 024 heures

2.1. Option filature tissage  
Matières textiles.  
Métrologie textile.  
Filature.

Tissage - non tissés.  
Chimie initiation.  
Bonneterie - confection (initiations).  
Maintenance.  
Contrôle de fabrication.

2.2. Option ennoblissement  
Métrologie textile.

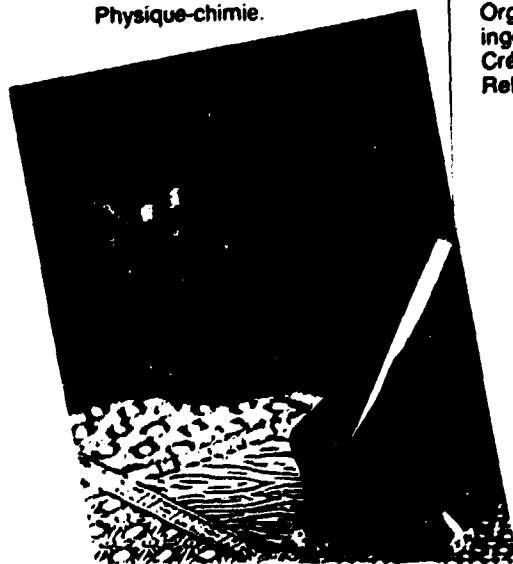
Chimie.  
Chimie minérale.  
Chimie organique.  
Chimie macromoléculaire.  
TP chimie.

Chimie traitement textile.  
Maintenance.

Filature tissage.  
Bonneterie - confection (initiations).  
Contrôle de fabrication.

Ces cours comportent un large part de travaux pratiques en ateliers et laboratoires.

Ce programme est complété par des conférences à l'école et des visites d'usine.





# SECTIONS D'ENSEIGNEMENT

## Ingénieurs Diplômés ESITEX

### Durée des études :

3 années dont 2 à l'École et 1 année de recherche appliquée en entreprise.  
Un stage de 1 mois en entreprise est effectué à la fin de la première année.

### Conditions d'admission :

- a/ Sur titres après examen du dossier scolaire pour :
- les titulaires d'un DUT technologique ou scientifique
  - les titulaires d'un DEUG
- b/ Sur concours pour :
- étudiants de maths spéciales
  - titulaires BTS technologique ou scientifique.

### Sanction des études :

Diplôme d'Ingénieur de l'École Supérieure des Industries Textiles, délivré à la suite d'un contrôle continu des connaissances tout au long de la scolarité et à l'issue de la présentation des travaux de recherche appliquée réalisés en 3<sup>e</sup> année.

Ce diplôme délivré par l'ESITEX est admis en équivalence avec ceux délivrés par les établissements comparables nationaux ou étrangers dans les États membres.

## PROGRAMME D'ENSEIGNEMENT

### 1<sup>re</sup> et 2<sup>e</sup> années

#### • Formation scientifique

Méthodes statistiques.  
Physique-chimie.  
Mécanique.  
Électricité - électronique automatisée : informatique.  
Dessin industriel.

#### • Formation technique

Matières premières naturelles et chimiques.  
Les filés - procédés de filature : fils continus, fibres courtes et longues.  
Les surfaces textiles : tissus, tricots, non-tissés.  
Les traitements de finition : blanchiment, teinture, apprêts.  
Les matériels pour réaliser ces fabrications.  
Les contrôles de fabrication.  
Initiation aux techniques de la confection et des techniques de la maille.  
Ordonnancement - ingénierie.  
Ces cours comportent une large part de travaux pratiques en ateliers et laboratoires.

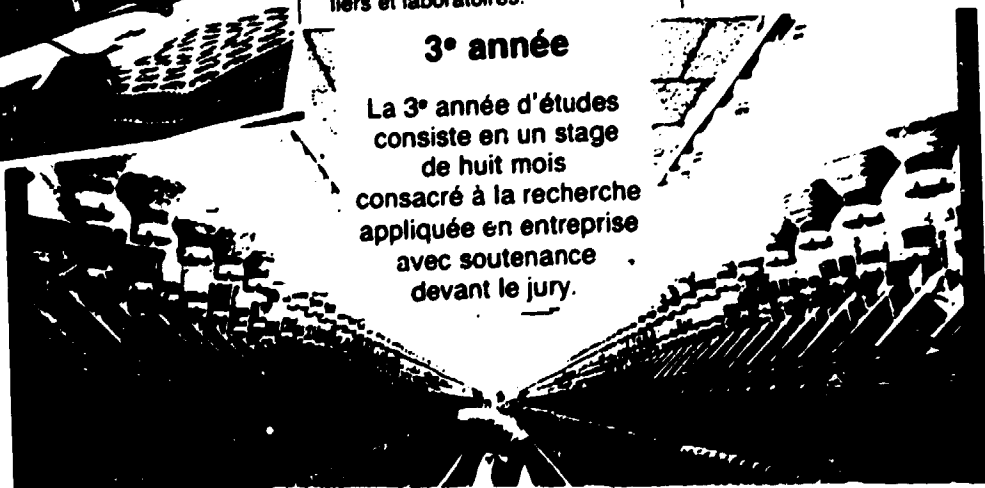
#### • Formation économique, sociale et humaine

Expression écrite et orale : correspondance, comptes rendus, exposés oraux.  
Langue étrangère (anglais).  
Législation du travail.  
Organisation.  
Économie et gestion d'entreprises.  
Ce programme est complété par des conférences à l'école et visites d'usines.



### 3<sup>e</sup> année

La 3<sup>e</sup> année d'études consiste en un stage de huit mois consacré à la recherche appliquée en entreprise avec soutenance devant le jury.



# Agents de maintenance

## Durée de la formation :

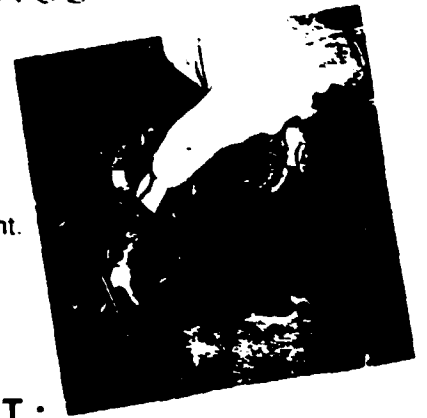
Durée totale 40 semaines de 30 heures, soit 1 200 heures de cours.

## Conditions d'admission :

Etre titulaire d'un CAP mécanique ou électricité ou niveau équivalent.

## Sanction des études :

L'ESITEX délivre un "Brevet d'Agent de Maintenance".



## PROGRAMME D'ENSEIGNEMENT :

L'enseignement se répartira de la façon suivante.

### Enseignement général scientifique : 480 heures

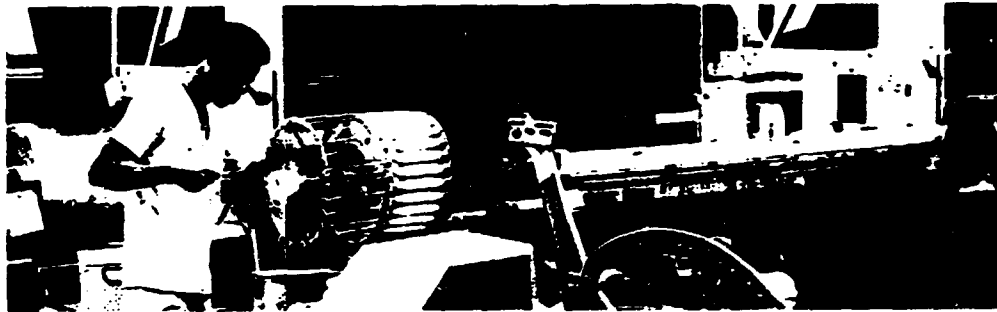
Calcul.  
Mécanique  
Électricité.  
Electrotechnique - électronique.  
Automatismes pneumatiques.  
Dessin industriel.

### Relations humaines : 320 heures

Commandement.  
Pédagogie.  
Expression écrite et orale.  
Hygiène et sécurité.  
Organisation législation.

### Travaux pratiques de maintenance : 400 heures

Métrieologie.  
Filature.  
Tissage.  
Électricité électronique.  
Automatisme - pneumatique.



## Durée de la formation :

La formation est réalisée sur une durée de 20 semaines soit 660 heures d'enseignement.

## Conditions d'admission :

Titulaire du certificat étude primaire ou avoir le niveau équivalent et ayant une expérience en entreprise.

## Sanction de la formation :

L'ESITEX délivre après contrôle des connaissances un "Certificat d'Aptitude Professionnelle".

## PROGRAMME D'ENSEIGNEMENT :

La formation se réalise suivant deux options :

- option filature
- option tissage.

Les cours d'enseignement général sont communs aux deux options.

### I. Enseignement général et scientifique : 320 heures

Calcul.  
Mécanique et dessin industriel.  
Électricité.  
Automatisme.  
Hygiène et sécurité

### II. Enseignement textile : 280 heures

Filature ou tissage.  
Technologie des machines.  
Travaux pratiques textiles.  
Métrieologie.

Les travaux pratiques représentent 65 % de l'enseignement textile.

# Agents de Maîtrise

## Durée de la formation :

Pour un cycle complet, durée 40 semaines, soit 1 200 heures.

## Conditions d'admission :

Etre titulaire du BEPC ou équivalent et justifier d'une expérience professionnelle réelle.

## Sanction des études :

L'ESITEX délivre à la suite d'un contrôle général, le "Brevet d'Agent de Maîtrise".

## PROGRAMME D'ENSEIGNEMENT :

La formation des Agents de Maîtrise est décomposée en quatre modules de durée identique à savoir 300 heures chacun. Dès que le stagiaire a satisfait aux épreuves d'un module et acquis les connaissances requises, il passe au module 2 et ainsi de suite.

## MATIÈRES ENSEIGNÉES :

### Module 1 :

- calcul de base
- expression écrite et orale.

### Module 2 :

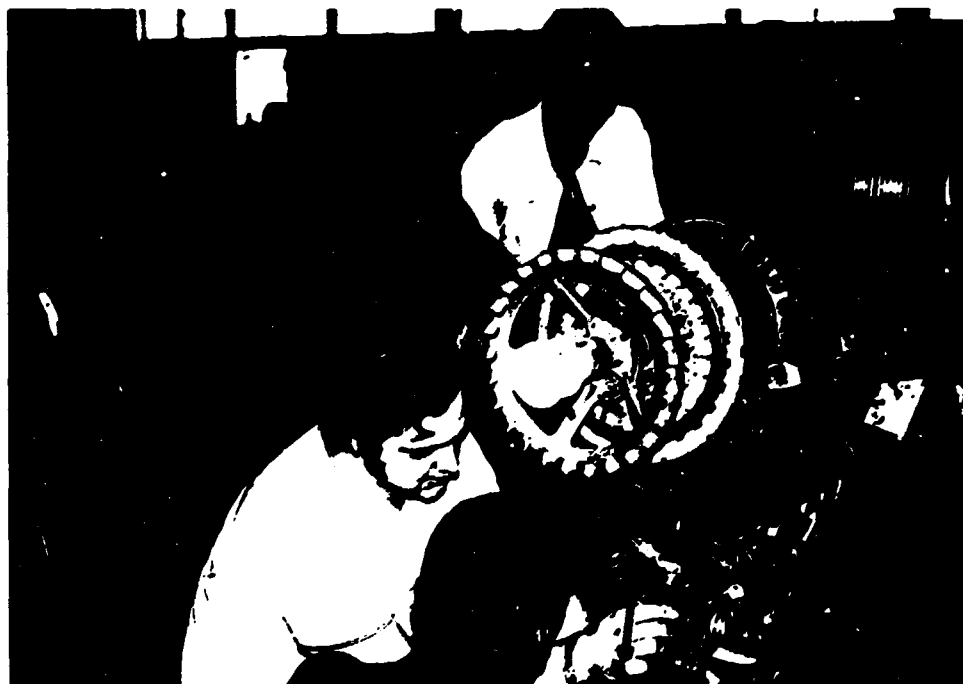
- mécanique et dessin industriel
- électronique - électrotechnique
- automatisme
- TP maintenance

### Module 3 :

- chimie et/ou technologie des machines
- travaux pratiques
- contrôle

### Module 4 :

- commandement
- pédagogie
- hygiène sécurité
- législation du travail



# Au service de la Profession Textile

## Domaines d'intervention :

- Filature.
- Tissage.
- Métrologie textile.
- Chimie textile.
- Laboratoire teinture.
- Maintenance.
- Formation de base du personnel des Entreprises Textiles.
- Connaissance des textiles pour utilisateurs et vendeurs.
- Recherche développement.

## Sections d'enseignements :

### Formation première :

- Ingénieurs diplômés.
- Techniciens supérieurs option "Textile".
- Techniciens supérieurs option "Ennoblement".
- Agents de Maîtrise.
- Régleurs filature-tissage.
- Agents de maintenance.

### Formation continue :

100 à 150 stagiaires par an.

Entretien et perfectionnement des connaissances.

### 2 formules de stage :

- inter-entreprises à l'ESITEX à Ségou ou autre lieu éventuellement,
- intra-entreprises sur demande et sous forme d'interventions adaptées à des besoins spécifiques.

## Service aux entreprises :

Les laboratoires de l'ESITEX peuvent intervenir pour les contrôles de fabrication et pour l'analyse des matières premières textiles et des produits finis.

- Essais sur cotons et filés.
- Essais sur tissus.
- Essais divers, solidité teinture, analyse de tissus teints.
- Traitement des eaux, etc.

# La Formation Continue

## TEXTILE et ENNOBLISSEMENT

### Entretien et perfectionnement des connaissances :

2 formules de stage :

- inter-entreprises à l'ESITEX ou autre localité suivant effectif à former.
- intra-entreprises sur demande et sous forme d'interventions adaptées à des besoins spécifiques.

### Domaines d'intervention :

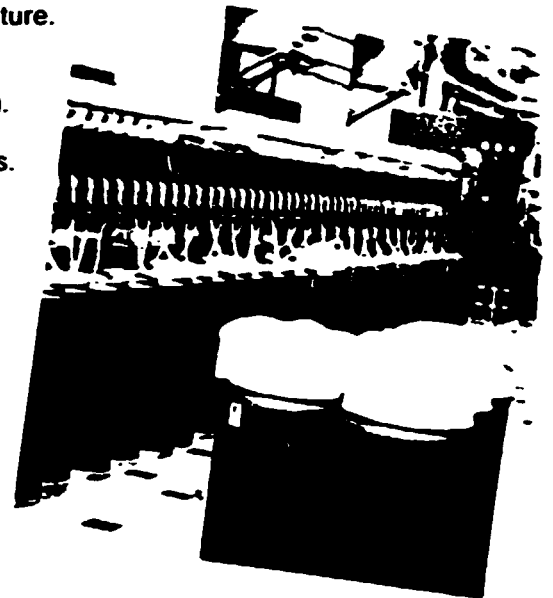
- Perfectionnement des régleurs et agents de maîtrise pour la filature (coton) et le tissage.

*Filature* : soigneurs de machines à filer

formation à l'électronique des machines textiles.

*Tissage* : tisserands, échantillonnage, fabrication préparation CAO/DAO appliquée au textile.

- Métrologie textile.
- Perfectionnement agent laboratoire chimie textile et teinture.
- Maintenance mécanique, électricité, automatismes.
- Informatique, productique.
- Formation à la connaissance de l'Entreprise (Économie).
- Prix de revient - productivité.
- Formation de base du personnel des Entreprises textiles.
- Initiation textile pour utilisateurs et vendeurs.



# ESITEX



## EXTRAITS DU RÈGLEMENT INTÉRIEUR

Le régime de l'école est l'internat. Les élèves prennent leurs repas au restaurant de l'école. Les cours ont lieu en principe de 8 h à 11 h et de 15 h à 18 h, soit 33 heures de cours par semaine dont 3 heures de sport obligatoires.

La présence aux cours, travaux pratiques et visites d'usines est obligatoire.

La réussite des élèves ne dépend pas d'un examen de fin d'année, mais d'un travail régulier contrôlé tant au long de l'année par des interrogations (notées de 0 à 20).

Moyenne générale obligatoire de 12/20 pour chacune des années d'études (ainsi que pour le rapport du stage de fin d'études Ingénieur) sans moyenne inférieure à 10 pour toutes les matières techniques et sans moyenne particulière inférieure à 5 pour toutes les autres matières.

Le redoublement peut être accordé exceptionnellement une seule fois après avis du conseil des professeurs.

Les décisions du jury sont sans appel.

Les élèves des sections TS désirant se présenter au concours d'entrée en section Ingénieur, ne peuvent faire état de candidature qu'à la condition d'avoir obtenu un avis favorable du Conseil des professeurs, à l'issue de la 2<sup>e</sup> année TS et d'être obligatoirement dans le premier quart du classement général.

Les stages entre les années d'enseignement pendant les vacances sont obligatoires et font l'objet d'un rapport qui sera remis au professeur principal.

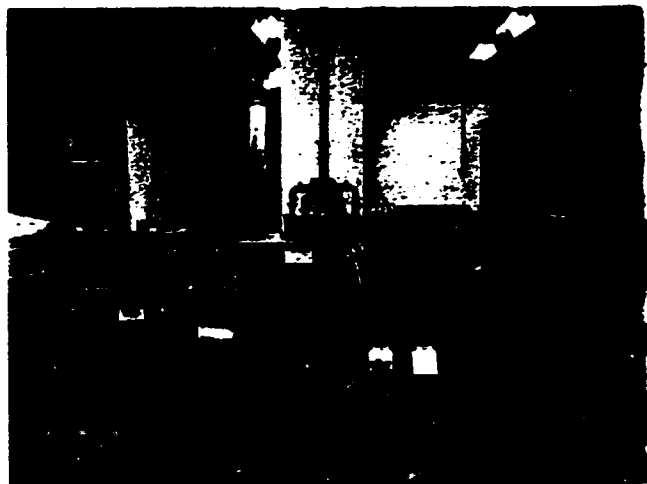


# Laboratoire d'Analyses, d'Essais et de Contrôles Textiles

Les laboratoires de l'ESITEX interviennent pour le contrôle de fabrication et dans l'analyse des produits finis.

De la matière première au produit fini teint et/ou imprimé.

- *Analyses coton*
  - longueur des fibres
  - résistances des fibres
  - pourcentage de déchets, etc.
- *Analyses des filés*
  - titre
  - régularité
  - torsion
  - résistance
  - taux de reprise, etc.
- *Essais sur tissus*
  - analyse texture, titre chaîne et trame
  - comptage
  - résistance dynamométrique
  - abrasion
  - éclatement, déchirure, hydrofugation, etc.
- *Essais sur tissus finis*
  - solidité à la lumière
  - dosage des fibres dans un mélange
  - composition colorimétrie, etc.



## Débouchés

- Filature.
- Tissage.
- Ennoblement.
- Laboratoires de contrôle.
- Technico-commercial.
- Engineering et assistance technique.
- Service des douanes.
- Services hospitaliers.
- Achats et entretiens des produits textiles et hygiène pansements
- Intendance.
- Enseignement.
- Laboratoire de recherche.

L'école interviendra pour faciliter le placement des élèves dans l'industrie.