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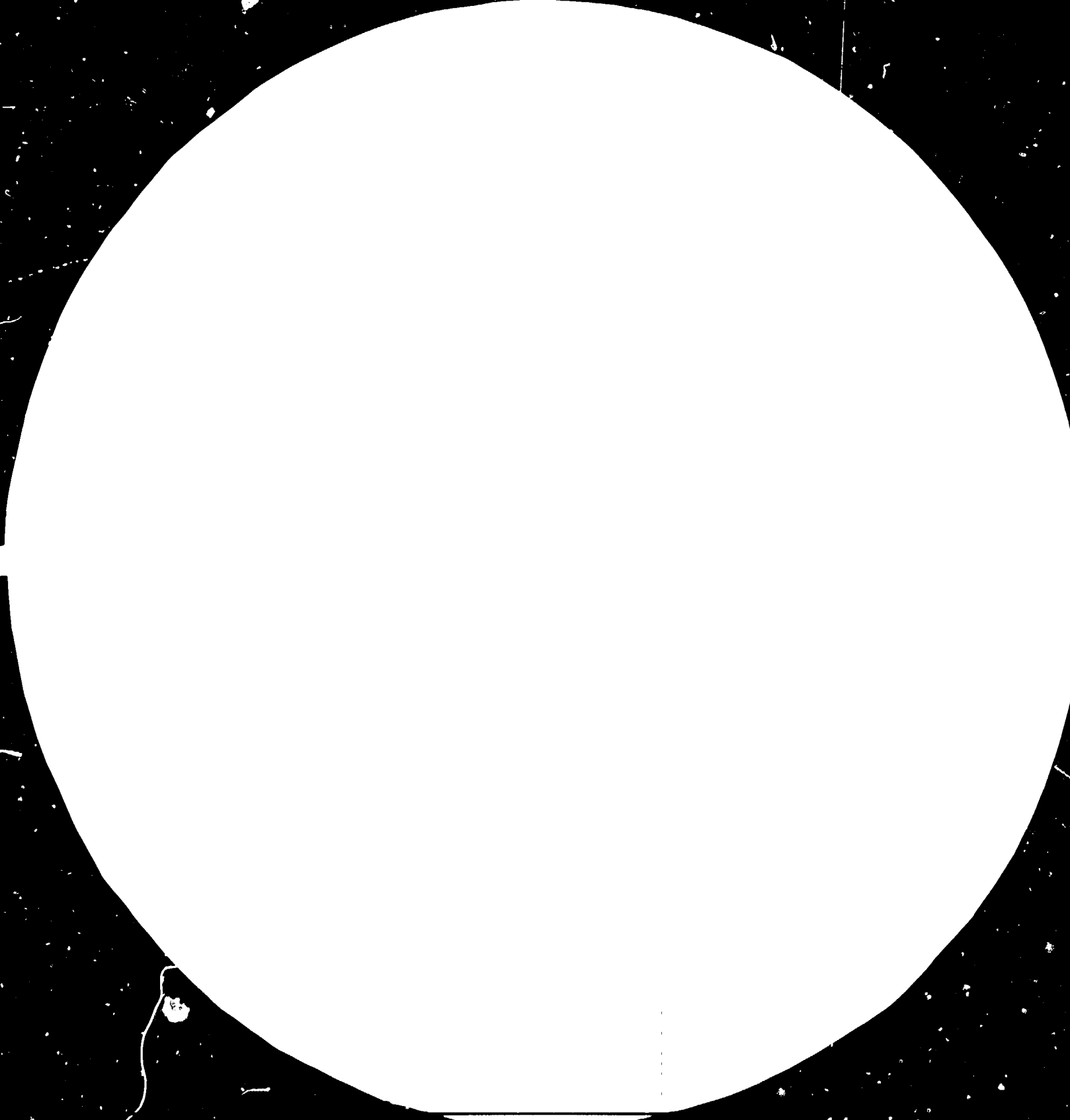
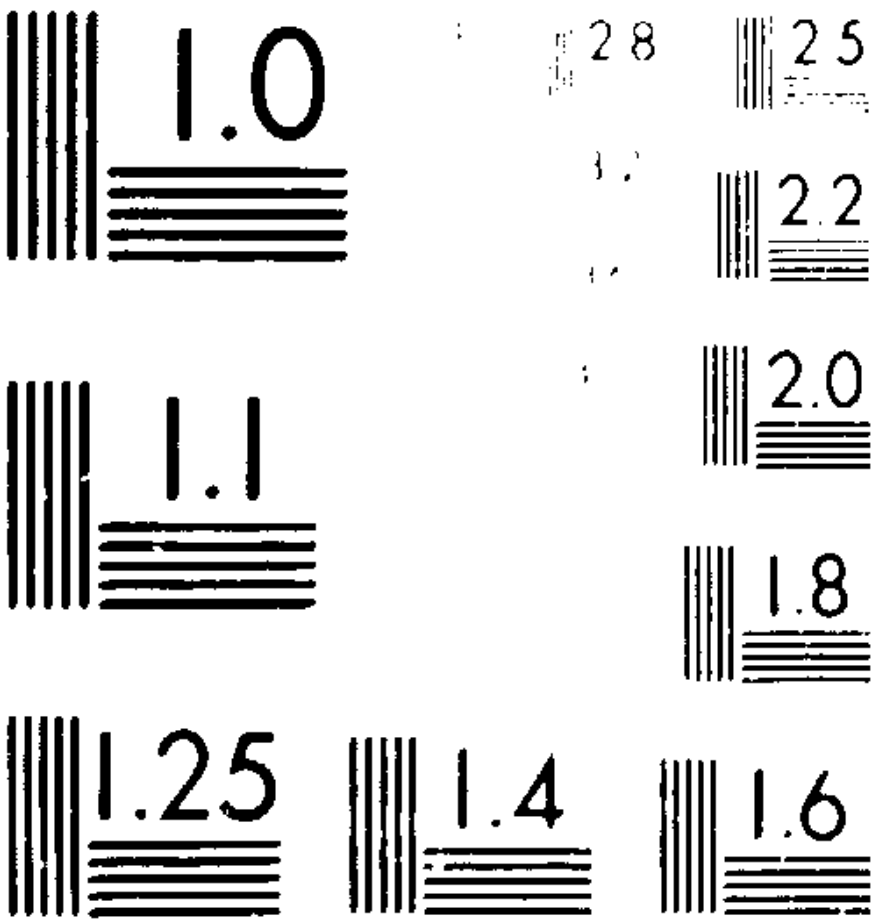
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

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23 November 1982
English

TEXTILE TESTING AND QUALITY CONTROL (Phase II)

DP/NIR/78/001

NIGERIA

TERMINAL REPORT

Prepared for the Government of Nigeria by the United Nations Industrial Development Organization, executing agency for the United Nations Development Programme.

Based on the work of Dr. G. S. Aschner (D.Sc., M.Phil., C.Eng.)

Adviser on quality control

United Nations Industrial Development Organization
Vienna

Note: This report is automatically disrestricted after May 1983

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EXPLANATORY NOTES

In the report the following abbreviations can be found:

Federal Institute of Industrial Research, Oshodi - FIIR or Institute
Nigerian Standards Organization - NSO
American Society for Testing & Materials - ASTM
British Standards - BS
International Standard Organization - ISO
American Association of Textile Chemists and Colorists - AATCC
German Standards (Deutsche Industrie Normen) - DIN
Hungarian Standards (Magyar Szabvany)- MSZ
Naira - ₦

The rest of the abbreviations are in correlation with those used by the United Nations Industrial Development Organization.

The exchange rate of the ₦ during the period of the project:

1 U.S.$ = 0,652₦

ABSTRACT

TEXTILE TESTING AND QUALITY CONTROL (PHASEII)
DP/NIR/78/001

The purpose of the project is to render technical assistance to the Nigerian Government in textile testing and quality control. This included the equipping of the Federal Institute of Industrial Research with different textile testing apparatuses and the training of the staff, referring to the utilisation of these units, as well as maintenance, respectively. Duration of the field-mission extended from 5 August till 27 November, 1982.

The objectives of the project were the followings

- selection of the necessary laboratory testing equipment
- assist in placing the equipment in order
- instal the equipment and supervise its initial operation
- correct damage or initiate replacement when necessary
- train the personnel in the operation and maintenance
- assist in the preparation of national standards
- advise for further assistance.

All these targets were fully met and beside that additional expertise and activity were carried out.

Recommendations were made on the following -

- further expansion of the project, involving a pilot plant
- accessories to be acquired
- reconstruction of the laboratory building and making furniture

- the availability of water of good quality
- finding the local alternative of different materials needed to excute and to standardize tests
- organization of a symposium and extension of the expert's assignment.

INTRODUCTION

A. Project Background

Although the world textile industry is generally in state of serious depression and has been suffering for several years, there has tended to be a growth pattern in both spinning and weaving of short staple fibres throughout Africa. In the area of the textile industry Nigeria is one of the leading countries in Africa and the rate of growth is above the average African level. The increase of installed short staple spinning capacities between 1969-1979 represents a staggering 188.8%, the highest in Africa. The growth of the installed looms between the same period is 83.1%, the second largest in Africa.

The textile industry in the country consists of approximately 120 mills, 35 of which are integrated mills while the remaining have varying capacities and types of operation. In 1979 there were about 691 thousand spindles and 13,215 looms, well over 1,000 knitting machines of various types and a lot of modern dyeing and finishing plants installed and operating throughout the country. This industry is the biggest employer of industrial labour force. According to the latest sources, less than 0.4% of the whole population, actually 274,738 workers are engaged by the industry and the textile industry is responsible for 63,786; which is more than 23% of the total manufacturing labour force. (Federal Office of Statistics, Lagos: Digest of Statistics, Vol. 27, 1979).

Within the textile industry, cotton and synthetic industry play a prominent role, while the development of the wool and carpet industry is expected in the near future.

In 1971 the Government of Nigeria expressed its desire for UNIDO assistance to provide the FIIR with the necessary basic equipment for textile testing and quality control and to train personnel in the utilisation of the equipment. Taking into consideration the limited number of equipment involved in the project the project's objective was achieved. There was a need, however, to introduce a wi der range of equipment and to train the personnel in the use and repair of this equipment.

At present, there is not a single institution in the textile and clothing industry in the country which is equipped to meet the needs either of the Government or of the industry in testing and quality control. The FIIR, which already has some of the basic equipment and trained personnel, is the most suitable institution to be developed and strengthened to meet these needs in association with the Nigerian Standards Organization.

The FIIR, which is under the Federal Ministry of Science and Technology, was established in 1955, to assist the industrialisation of the country through research on the industrial use of local raw materials and through the development of local technologies. The Institute also renders technical assistance to the existing industry, either Government or privately owned, by the provision of laboratory facilities for analyses of their products and seeking solutions to their technical and production problems. Further on, the Institute's activity extends to the solution of economic and statistical problems raised by the factories, firms, etc. The Textile Unit of FIIR has been an integral part of the Institute since its establishment. The unit engages in research and quality control. Also offers technical assistance to governmental agencies. The staff of the unit has served on technical committees of the NSO for the establishment of standards for textiles and allied products.

Most of the experimental work for the establishment of these standards was done in the unit. The NSO has continually made use of the facilities in the unit by sending samples for quality control evaluation for the issuance of the Certification Mark to Industries. The unit offers training courses for students and Quality Control Personnel.

Under the Third National Development Plan the FIIR has been allocated the sum of ₦1.32 million for the expansion and improvement of the laboratory facilities. More than 50% of this amount has been utilised for the building programme. An annual allocation of some ₦100,000 is to cover all equipment requirements of the Institute, which includes all laboratory and pilot plant equipment. There were, therefore, no funds available to enable the textile testing and quality control laboratory to become fully operational.

The Textile Industry in the country currently aims at increasing its share of the domestic market which is partly satisfied from imports. The project helps to achieve this aim by providing research, technical assistance and specialists capable of improving the quality of the local textile production.

B. Official Arrangements

The assistance for the present project was requested by FIIR through the Nigerian Government in 1978. The project document was approved on 5 March 1980 by the Government
28 March 1980 by UNIDO and on
3 April 1980 by the UNDP

The project became operational on 23 April, 1981 when the international expert arrived to Nigeria to make his suggestion on the equipment involved and on the fellowship training. This mission lasted for a month. The expert returned to Nigeria on

18 March, 1982 for another one-month-assignment, to supervise the unpacking of the equipment which have been delivered so far, to revise the fellowship training and to make some suggestions for the reconstruction of the laboratory building which would house the whole textile laboratory.

The present, last part of the project became operational on 5 August 1982 with the arrival of the expert for a four-month-mission to Nigeria to fulfil the objectives of the project.

The cooperating agency is FIIR.

C. Contribution

The contribution to be covered by the UNDP has come up to US $237,793.00 The detailed budget is attached in the Annexes (No.5). According to the original project document UNDP contribution was to be U.S.$218,150.00 This project budget has been revised several times, mainly because of the increased pro forma costs.

The contribution of the Nigerian Government totals ₦53,500.00 in kind and has not changed in the meantime.

I OBJECTIVES

Development Objective

Promotion of development in the textile industry based on local resources, adapting imported technologies and modifying existing technologies in order to achieve optimal results in quality and price.

Immediate Objective

To assist the Government through FIIR in

(i) establishing an adequate laboratory for testing and quality control of textile materials, products and related materials by expanding the present laboratory facilities at FIIR.

(ii) strengthening and developing the capabilities of FIIR's staff to provide the necessary services to Government and Private Sector.

(iii) developing the capability to render greater assistance in the preparation of national standards and to render assistance in the certification process.

The objectives have not been revised.

The immediate objectives have been fully met. In the course of the mission the equipment involved were installed, the staff of the FIIR has been trained (further training is expected during the fellowship training), further on guidance and directives were given to elaborate the referring local standards.

II. MAIN DUTIES OF THE JOB DESCRIPTION

Main duties according to the job description were as follow:-

- to select the necessary laboratory testing equipment
- to assist in placing the equipment in order
- to install the equipment and supervise its initial operation
- to correct damage and to initiate if necessary the replacement
- to train the personnel in the operation and maintenance
- to assist in the preparation of national standards
- to advise for further assistance

A copy of the Job Description is attached to the Annexes (No.1)

III. ACTIVITIES

A. Unpacking and Checking the Equipment

The list of equipment involved in the project is attached to the Annexes (No.4).

Condition of the parcels

No serious damage could be observed on the parcels.

Condition of the Equipment

On the basis of visual checking only the followings could be observed:-

- Conditioning cabinet (item No. 26): Two black handles (to open the front doors) were broken. UNIDO Headquarters were informed, they have carried out the necessary action. The supplier promised them to forward two pieces of the required handles. (These items have not been received till the compilement of this report).
- Visopan Projection Microscope (item No.30): One objective was missing (type 16/0.32) and there was not any measuring device enclosed. UNIDO Headquarters were informed, they have carried out the necessary action. All the missing parts have been received.

Operation Manuals

The operation manuals were generally enclosed with the equipment. It could be, observed, however, that the operation manuals for the Rapid Oil Extraction Tester (ROET) and for the Cloth Thickness Tester (item Nos. 18, 2) were missing. Both equipment were supplied by J. Heal and the necessary steps were taken by the Project Manager to initiate the acquisition of the missing manuals (Annex No.8/a). The manuals referring to ROET have arrived (Annex No.8/b).

On the other hand the Climatic Test Cabinet(item No.27) was equipped with 3 pieces of manuals of German Language. A letter was mailed to the Producer (Annex No.9) who has mailed the required English version of the manual.

B. Installation

Mechanical Operation of the Equipment

The equipment themselves were free from any mechanical failure and the moving parts could be moved or turned easily.

Electrical Operation of the Equipment

On all of the equipment running on the mains the plugs were changed or fitted to cope with the local sockets. Certain problems and difficulties have occurred which are to be listed in the following.

C. Faulty Equipment

1. Snag Tester, supplied by Custom Scientific Instruments (item No.10)
   The equipment was shipped with a motor which runs on 115 volts. Because of the local condition a new motor was required which operates on 220 volts. The Project Manager initiated the necessary action (Annex No. 10/a). In his response the supplier promised to have a new motor transferred (Annex No.10/b) which has actually failed to arrive in due time.

2. Bursting Strength Tester, supplied by J.H. Heal Et.Co.Ltd. (item No.3)
   After running for about 30 seconds the machine stopped and one of the relays was tripping. It was impossible to start the machine again. Another button has failed to function as well. A letter was mailed to the supplier (Annex 11/a) who in his response, gave a step by step instruction how to overcome the failure, which was actually a negative zero drift on the electronic system, thus simulating a burst (Annex 11/b). On the basis of the supplier's recommendation it was possible to repair the failures.

3. Statometer, supplied by Schroder (item No.19)
The equipment has failed to operate because the input terminal of the Deprez meter was broken. The equipment was dismantled, the broken parts very carefully soldered. The equipment, however, is not reliable in the operation, because of the high relative humidity. In the operation manual published by the producer the following is to be found:

> "The currents produced in the ionisation chamber are extremely small - approximately 10^{-10}amps. Therefore keep the instrument off from moisture which might cause leakage leading to errors".

Because of the high relative humidity before each use the equipment has to be dismantled and the Printed Circuit Board has to be cleaned with carbon tetrachloride, otherwise it is impossible to carry out reliable measuring. That was the reason why the expert suggested the selection of the Rothschild Static Voltmeter which operation principle differs completely and therefore this type of failure never occurs.

4. Random Tumbler Pilling Tester, supplied by Atlas Electric Dev. Comp., (item No.6)
The switch of the timing device was out of order, it was impossible to operate the machine. The push button switch was faulty presumably because of a shock during transportation. After dismantling and repairing, the timing device as well as the switch are free from any failure. The timing device was set and controled,and as a result of this it operates within the tolerance limit.

5. Drying equipment with precision balance, supplied by GISM (item No.26)
The sensitivity of the balance was less than it was required, further on it could not be set to the 0 position. The cause of the failure was improper factory fitting. The failure was repaired. The proper balance and the position of the ventilation system have been altered

during transportation. A sound was to be heard when the machine was in operation which was caused by one the facts described above. The ventilation system was repaired and properly positioned.

Further more, in the temperature control circuit there was a contact failure and the needle of the thermometer was stuck at two different places. All these failures have been repaired.

6. Scorch Tester, supplied by Atlas Electric Dev. Comp., (item No. 20)
The heating indicating light was out of order. It was requested from the producer to have another bulb unit shipped (Annex No.12/a). The bulb unit has not arrived, but the Producer has carried out the necessary measures (Annex No.12/b).

7. Carpet Thickness Gauge, supplied by Schroder, (item No.14)
The Carpet thickness gauge (CTG) produced by Schroder was equipped with a presser foot the area of which was 10 cm^2, while the Carpet Static Loading Tester (CSLT) type WIRA applied a pressure foot the area of which was 6 cm^2. In the British Standards (BS 4939: 1973) the following is stated:

> "Thickness tester" should have "a circular presser foot of area less than the compressed area of the test specimen".

The two equipment cannot be used together because compression is applied on a smaller area (6 cm^2) than the CTG is capable to measure.

As a result of certain correspondence a presser foot was mailed by the producer the area of which was 6 cm^2 but because the lesser weight of it, the specification for the specific load could not be met. According to BS 4051 a specific pressure

of 20± 0,3 gf/cm^2 has to be applied, and further on in the practice 100,1000 and 2200 gf/cm^2 specific weights are applied.

Because the self weight of the pressure foot (which was weighed in the laboratory of the University of Lagos) itself a specific weight of 24, 43 gf/cm^2 could only be achieved, which is by 22% higher than the required one. Because of the weight of the other components of the CTG neither the 100 nor the 1000 gf/cm^2 specific pressure can be performed, the differences are 76% and 5, 7%, respectively. The expert's letter on that subject, including the table for the calculation is enclosed in the Annexes (No. 13).

D. Training

The staff members were informed about the different standards referring to the tests. They were taught the most important, internationally accepted methods, like those prescribed by ISO, ASTM, AATCC, BS, DIN or MSZ. They became familiar with the handling and maintenance of the equipment They performed tests and each of them have demonstrated different testing method in the presence of their Head of Department.

Tables were given, which were based on the expert's experience, which assisted to select the right methods from the different alternatives. Further on,ideas were given on how to elaborate the local standards.

Besides the testing methods the necessary values for the evaluation were also given. These values were obtained either from the literature or were based on the expert's previous practice. These values enable the staff to evaluate and to classify the results achieved by carrying out tests.

E. Fellowship Training

A list was prepared, attached to the Annexes (No.6) containing the names of the staff selected for the Fellowship Training as well as the venue, time and duration of the training.

F. Further Accessories and Equipment to be Acquired

Accessories

The Schiefer type Abrasion Tester (item No.4) was delivered with one abradant only, the others, which are more important are obtainable as optional accessories. The following items should be acquired additionally enabling the full utilization of the abrasion tester:-

- spring steel blade abradant
- cross-cut tungsten tool steel blade abradant
- wearing brush
- carpet clamping device
- hold down press for clamping the carpet and felt.

All these are fully listed including their identification in the first point of the Recommendation.

Equipment

It would be advisable to expand the present project and to set up a pilot plant simulating the processes in a typical textile industry. This should complement the laboratory techniques and should assist to render more assistance to the local industry especially in the utilization of the local resources.

G. Other Activities

Giving Lecture at the Kaduna Polytechnic

The Head of Department of Textiles Technology of Kaduna Polytechnic has invited the Project Manager to give a lecture

on"UNIDO Projects at FIIR". (Annex No.14) The UNDP Office has agreed to present a paper on the above subject (Annex 15). The expert gave his lecture on 28 October, 1982. The Chairman was the Dean of the Polytechnic. There were about 200 participants. There was a discussion after the presentation and about 8 students asked different questions on the subject.

Cooperation with NSO (*)

On behalf of the expert, FIIR wrote a letter to the Director of NSO on 25 September, 1982, informing him about the availability of the expert for discussion on assistance on standardization and certification.

On return NSO invited the expert to attend their workshop organised on the World Standard Day, on 12 October, 1982. At this meeting there was a discussion between Mr. D. O. Ogun, Director of NSO and the expert. Later Mr. Ogun introduced Mr. N. A. Onwubuya, staff member of NSO, who was responsible for textile testing and quality control. They agreed that Mr. Onwubuya would pay a visit to FIIR sometime in November and he would have sufficient time to discuss the topic with the expert. Till the completion of this report Mr. Onwubuya has failed to come to FIIR.

Servicing Equipment involved in the previous Project

On the request of FIIR the international staff assisted not only in the installation of the equipment involved in the present project but they serviced and repaired other equipment which were delivered to FIIR in the course of the previous UNIDO project. These equipment have been operated for about 5 years without any major service.

To fulfil this request the Project Manager examined all these equipment and prepaired a list of failure as well as listed the necessary spare parts for the repair. These lists were mailed to the Electrical Expert who in turn took along with him while coming to Nigeria most of the required spare parts.

(*) See Ammendment (Annex XV)

After completing the installation of the equipment belonging to the present project the Electrical Engineer dealt with the servicing and repair of the previously mentioned old equipment.

Tools for the Laboratory

The day by day maintenance of the equipment running in the Textile laboratory requires some tools, like spanners, pliers, screwdrivers etc. The non existence of these has delayed the advance of the installation and jeopardized the efficiency of the every day activity. The expert prepared a list of the most important tools the presence of which were imperative. These tools were acquired by the Institute and are stored in the textile laboratory.

IV. MISSING EQUIPMENT

Some of the equipment have failed to arrive till the expiration of the international Expert's assignment. These equipment are as follows:-

item No. 8 Bundesmann water repellency tester
16 Mechanical treader for carpet
29 Compact micronaire
34 Aspiration psychrometer

V. ACHIEVEMENT OF THE IMMEDIATE OBJECTIVES

The immediate objectives were satisfied. FIIR possesses one of the best equipped laboratories in Africa for testing and quality control of textiles and allied materials. The Staff of FIIR has accummulated the necessary knowledge to utilize, that is,to run and to carry out the maintenance work on the equipment.

Having the knowledge of the most important standardized methods referring to testing, as well as the necessary data for evaluation FIIR's staff is able to elaborate the local testing and qualification standards. It should be emphasized that experience and knowledge of the staff will be further increased on completion of the fellowship training.

A symposium will be organized sometime in July, 1983 to celebrate the launching of the equipment and to inform the specialists all over Nigeria about the expanded facilities of the Institute. This symposium can be organized after the modification work of the laboratory has taken place, the equipment to supply the standard atmosphere for testing is installed and all the equipment are placed on their permanent position. FIIR has expressed its desire to extend the international expert's assignment by one or two months to finish the installation of those equipment which have not yet arrived, to assist in the final preparation and add his final touch, further on to present papers at the symposium.

The Head of the Textile Laboratory is due to prepare a publication to be revised by the expert on the equipment and on the testing method. This publication will be distributed at the symposium.

Further expansion of the project, which includes the equipment of FIIR with some additional instruments as well as with a pilot plant, respectively would increase the utilization and assist to achieve the objectives to a greater extent.

VI. FINDINGS

Time has proved that the development of the industry requires the presence of local Institutions which, through their research, control and service activity can accelerate the procedure of development. FIIR is an ideal organization in this respect. The counterpart staff has tried to do his best to fulfil the requirements. The Director of the Institute, Dr. O. A. Koleoso supported the activity of the Experts by all means and his assistance has a great effect on the achievements. The Head of the Textile Department, Dr. I. Aladeselu was an efficient partner of the international staff.

It has to be noted, however, that the lack of water and electrical supplies, which have occurred several times, further on the inclination of the trade unions to launch industrial actions have reduced the efficiency of the progress.

In spite of the latter, the experts are convinced that the present project has and will have a significant effect on the local industry. Further utilization can be greatly increased by the expansion of the project with equipment for a pilot plant.

VII. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The objectives of the project were as follows

- selection of the necessary laboratory testing equipment
- assist in placing the equipment in order
- instal the equipment and supervise its initial operation
- correct damage or initiate the replacement
- train the personnel in the operation and maintenance
- assist in the preparation of national standards
- advise for further assistance.

All these targets were fully achieved and beside that some additional expertise and activity were carried out, like

- expert's opinions were given referring to the reconstruction work to be carried out on the laboratory building and on the construction of certain equipment
- all those equipment which were included in the Phase 1 of the project were repaired and fully serviced
- public relation activity (presenting paper about UNIDO and about the UNIDO projects at FIIR)

B. Recommendations

1. Further Expansion of the Project (Activity needed by UNIDO)

The budget for the present project was accepted in 1978 In spite the several readjustments, certain necessary apparatuses and the equipment for the pilot plant have to be omitted because of the cost element.

The Institute already possesses pilot plants for food and food processing further on for the ceramics which are in operation. A pilot plant set-up simulating the processes in a typical textile industry should complement the laboratory techniques and should assist to render more assistance to the industry and to carry out more effective research activity.

2. Further Accessories to be acquired (Activity needed by UNIDO)

The Schiefer Type Abrasion Tester (Rubtester, type FF-25 was delivered with one abradant only, suitable to clamp abrasive paper or textile fabric. In the practice, however a lot of other abradants are used which are generally supplied by standard accessories. According to the producer of the equipment in question the required abradants are obtainable as optional accessories only. The following items should be acquired additionally enabling the full utilisation of the abrasion tester:-

- spring steel blade abradant
- cross-cut tungsten tool steel blade abradant
- wearing brush
- carpet clamping device
- mounting aid (hold-down press) for clamping carpets and felt

Photographs of these items were published in ASTM D 1175, as well as in AATCC Technical Manual volume 57, 1981/82 edition on page 361 and 362. Care has to be taken that the listed

accessories should match and fit the present abrasion tester, therefore it is strongly recommended to place the order at the supplier or producer of the unit in possession.

3. Reconstruction of the laboratory building and making cabinet, pedestral and furniture (activity needed by FIIR)

It was mentioned already in the expert's previous report, that the old laboratory building will house all the equipment of the textile laboratory. In the ground floor there are several other laboratories located for the time being. Modification of the laboratory building has not been affected because the new laboratory block which is to house the moving laboratories is yet to be furnished for occupation.

It was agreed during the discussion with the Nigerian counterpart on the modification of the laboratory building that the present textile laboratory, the analytical balances room and the Pulp and paper laboratory would be reconstructed to serve as the mechanical laboratory section of the textile unit. The equipment which creates the standard atmosphere for testing would control the environment of the mechanical laboratory only.

The Pulp and paper laboratory is to be moved to the wet laboratory in the chemical laboratory section of the unit. A separate, small room should be created for the safe conduct of the flammability test within the chemical laboratory. Because of the fire hazard the walls of this small room should be covered by fire-proof material. All the details were thoroughly discussed.

The present lighting system should also be reconstructed because of the piping system of the air conditioner unit and the alteration of the windows.

A pedestal should be created to hold the frame of the flammability tester, the size of which was given. The Evaluation Cabinet for the Random tumble pilling tester and the necessary furniture for the project are being constructed in the Institute's Carpentry Workshop.

4. The availability of water of good quality (activity needed by FIIR)

Certain equipment need water for the operation. In order to obtain correct measuring results non calcareous water should be used. Lime and chlorine contents of the water should be as low as possible. Therefore either deionized or distilled water should be used and a piping system with a pump to circulate the water should be created.

5. Finding the Nigerian alternative of different materials needed to execute and to standardize the tests (action needed by FIIR)

A lot of such materials are needed for the tests which are generally used up or destroyed but their characteristics have a great effect on the results. For instance an abrasive paper of special quality is necessary for more than one test method, special abrasive-resistant adhesive is needed for at least 2 test methods, a thread of a prescribed quality is needed to execute another test method etc. These materials can generally be obtained from foreign producers, but rather large quantities are needed for the test.

It is therefore recommended that the local alternatives of these materials should be found and parallel test should be carried out in the Institute to learn the correlation of the results which were obtained using the original materials and their local substitute.

On the basis of these parallel tests the local standards could be elaborated taking into consideration the local resources.

6. Organization of a symposium and extension of the expert's assignment (activity needed by UNIDO and FIIR

It was impossible to execute a symposium during this assignment because of the delay -

in the shipment of certain equipment

in the modification of the laboratory building without which the air conditioning equipment for the standard atmosphere cannot be installed, further on which made impossible to make proper base for some of the equipment.

FIIR wishes therefore to suggest an extension of the expert's assignment for a month or two, probably in July 1983 to enable the expert to complete the installation and participate at the symposium. By that time, the fellowship training of the staff would have taken place and the laboratory would be well equipped to give flawless demonstration during the launching of the equipment and the symposium on the application of the equipment.

LIST OF ANNEXES

Annex No.1

UNITED NATIONS

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

UNIDO

16 November 1981

PROJECT IN THE FEDERAL REPUBLIC OF NIGERIA

INTERNAL

JOB DESCRIPTION

DP/NIR/78/001/11-01/31.3.K

Post title Expert in Textile Testing Equipment and Standardisation

Duration Five months

Date required As soon as possible

Duty station Lagos

Purpose of project To promote development in the textile industry based on local resources, adapting imported technologies and modifying existing ones in order to achieve optimal results in quality and price

Duties The expert will work in co-operation with the personnel of the Federal Institute of Industrial Research (FIIR) and will specifically be expected to:

1. Review and evaluate the list of laboratory testing equipment still to be acquired and check the specifications.
2. Assist in placing the equipment orders.
3. Instal the equipment and supervise its initial operation.
4. Report and correct damage and, if not reparable, initiate the necessary steps for the repair or replacement.
5. Train the personnel in the operation and maintenance of the equipment, both on-the-job and through fellowships;
6. Assist in the preparation of national standards in the field of textiles and in rendering assistance in the certification process; this will be done in co-operation with the Nigerian Standards Organisation.

.../..

Applications and communications regarding this Job Description should be sent to

[illegible] Personnel Recruitment Section, Industrial Operations Division

7. Advise on the eventual need for further assistance.

The expert will also be expected to prepare a final report, setting out the findings of the mission and recommendations to the Government on further action which might be taken

ALIFICATIONS — University degree in Engineering or Applied Physical Sciences or equivalent experience in the assembly, installation, calibration, operation, maintenance and repair of scientific testing instruments, particularly those used for textile testing

NGUAGE — English

CKGROUND FORMATION — The textile industry in the country consists of approximately 120 mills, 35 of which are integrated mills (cotton and other fibres) while the remaining have varying capacities and types of operation. This industry is one of the biggest employers of the country's labour force. In 1972, the textile industry accounted for 22.1 per cent of the total manufacturing labour force and was the second largest contributor to manufacturing value added. Within the textile industry, cotton and synthetic industry play a prominent role, the jute and silk industry being less important. A development of the wool and carpet industry can be expected.

At the request of the Government, a project was developed which was designed to provide the Federal Institute of Industrial Research (FIIR) with basic equipment required for textile testing and quality control and to train personnel in the working, repair and maintenance and use of the equipment. The project's objectives have been achieved. There is a need, however, to introduce a wider range of equipment and to train personnel in the use and repair of this equipment.

At present, there is not a single institution in the textile and clothing industry in the country which is equipped to meet the needs either of the government or of industry in textile testing and quality control. The FIIR, which already has some of the basic equipment and trained personnel, is the most suitable institution to be developed and strengthened to meet these needs in association with the Nigerian Standards Organisation. Under the Third National Development Plan (197501980) the FIIR has been allocated the sum of N 1.32 million for the expansion and improvement of the laboratory facilities. Of this amount, approximately N 700,000 have been utilised for the building programme. The new laboratory buildings which will also house the textile testing and quality control laboratory are being completed. An annual allocation of some N 100,000 is to cover all equipment requirements of the Institute, which includes all laboratory and pilot plant equipment. There are, therefore, no funds available to enable the textile testing and quality control laboratory to become fully operational.

The textile industry in the country currently aims at increasing its share of the domestic market which is partly satisfied from imports. The present project will help to achieve this aim by providing research, technical assistance and specialists capable of improving the quality of local textile production.

Annex No. 2

The International Staff consisted of two members. Their names, nationalities, expertise and duration of service are as follows:-

Dr. G. S. Aschner, (Project Manager), Hungarian
Expert on Textile Testing and Quality Control

From 5 August till 27 November, 1982

Mr. A. Solymos, Hungarian
Electrical Engineer,

From 30 October till 27 November, 1982

Annex No. 3

Senior Counterpart Staff

In the following the names positions and specialization of the senior counterpart staff are given. The service they provided, with one exception, extended the whole duration of the international expert's presence in Nigeria.

Dr. I. Aladeselu, Assistant Chief Research Officer,
Head of Department
Specialisation: Polymer Sciences

Mr. O. M. Odutola, Research Officer Grade 1
Specialization: Fibre scientist

Mr. M. D. Balogun, Principal Technical Officer
Specialisation: Textile Technology

Miss E. O. Orekoya, Higher Technical Officer
Specialisation: Textile Finishing
Miss Orekoya joined the Institute in September 1982

The counterpart staff of the Electrical Engineer is as follows:-

Mr. A. Richards J. T., Technical Officer (Electrical)

Annex No. 4

Equipment Provided by UNIDO

In the course of the project the following equipment were provided by UNIDO. The cost of the equipment are available at UNIDO Headquarters. Asterisks mean that the equipment has not arrived to FIIR till the compilation of this report.

Tensile strength tester (Zwick)
Cloth thickness tester(Thorn)
Bursting strength tester (Heal)
Schiefer type abrasion tester or Rubtester (T.K.I.)
Accelerotor abrasion tester (Atlas)
Random tumble pilling tester (Atlas)
I.C.I. pilling box (Heal)
* Bundesmann water repellency tester (Textest)
Shirley type crease recovery tester (Shirley Dev.)
Snag tester (Custom Scientific Instr.)
I.C.I. Stitch damage tester (Heal)
Air permeability tester (Schroder)
Flamability tester (Heal)
Carpet thickness gauge (Schroder)
Carpet static loading tester (Wira)
* Mechanical treader for carpet (T.K.I.)
Staining tester (T.K.I.)
Rapid Oil extraction apparatus (Wira)
Statometer (Schroder)
Scorch tester (Atlas)
Perspiration tester (Atlas)
Automatic length programmed measuring reel (T.K.I.)
Board type yarn eveness tester (Baer)
Wave analyser, YET (T.K.I.)
Skein gauge (Wira)
Drying equipment with predying oven and balance (T.K.I.)

Annex No. 4 (cont'd)

Climatic test cabinet (Brabender)
Shearing apparatus (T.K.I.)
* Compact micronaire (Textest)
Projection microscope, Visopan (Reichert)
Bundle shrinkage tester (T.K.I.)
Labormixer (T.K.I.)
* Aspiration psychrometer (Textest)
Air conditioner (Parks Cramer)

Annex No. 5

Project Budget

COUNTRY	PROJECT NUMBER AND AMEND	SPECIFIC ACTIV	
NIGERIA	DP/NIR/78/001/F	31.3.k	

PROJECT TITLE

TEXTILE TESTING AND QUALITY CONTROL (PHASE II)

DATE OF ISSUE
82/07/03

PROJECT PERSONNEL EXPERTS POST/TITLE	TOTAL M/M	TOTAL $	1980 M/M	1980 $	1981 M/M	1981 $	1982 M/M	1982 $
11-01 TEXTILE CONSULTANT	6.0	45,470.00			1.0	5,720.00	5.0	43,750.00
11-02 ELECTRICAL ENGINEER	1.0	8,750.00					1.0	8,750.00
11-XX	7.0	58,220.00			1.0	5,720.00	6.0	52,500.00
15-00 EXPERTS TRAVEL		750.00						750.00
IX-XX	7.0	58,570.00			1.0	5,720.00	6.0	53,250.00
31-00 FELLOWSHIPS		20,400.00						20,400.00
49-00 EQUIPMENT		156,979.00				153,500.00		3,475.00
52-00 REPORTS		300.00						300.00
53-00 SUNDRIES		1,144.00		43.00		1,000.00		101.00
5X-XX		1,444.00		43.00		1,000.00		401.00
TOTAL	7.0	237,793.00		43.00	1.0	160,220.00	6.0	77,530.00

Annex No. 6

Fellowship Training

Dr. O. A. Koleoso, Director of Research

7 days	Philadelphia College of Textiles & Science, PA., U.S.A. or Southeastern Massachusetts University, MA, U.S.A. as an alternative
1 day	Textile Research Institute, NY., USA
7 days	Shirley Institute, Manchester, UK
4 days	HATRA, Nottingham, UK
5 days	Textile Research Institute (TKI), Budapest, Hungary
6 days	Institute for Quality Control in the Textile Industry (TEXIMEI), Budapest, Hungary
Total 30 days	

Dr. I. Aladeselu, Asst. Chief Research Officer, Head of Division

6 weeks	Philadelphia College of Textiles & Science PA.USA or Southeastern Massachusetts University, MA, USA as an alternative
3 weeks	HATRA, Nottingham, UK
3 weeks	Institute for Quality Control in the Textile Industry (TEXIMEI), Budapest, Hungary
Total 12 weeks	

Mr. M. O. Odutola, Research Officer Grade I

6 weeks	Shirley Institute, Manchester, UK
3 weeks	Textile Research Institute (TKI), Budapest, Hungary
3 weeks	Institute for Quality Control in the Textile Industry (TEXIMEI), Budapest, Hungary
Total 12 weeks	

Mr. M. D. Balogun, Principal Tech. Officer

6 weeks	Shirley Institute, Manchester, UK
6 weeks	University of Leeds, Dept. of Textile Industries
Total 12 weeks	

Remarks: Mr. Odutola and Mr. Balogun should be trained together at the Shirley Institute because of the cost element.

Annex No.6 (cont'd)

The addresses of the suggested Institutions for the training to be contacted are as follows (asterisks mean that contact has been already initiated, and it was accepted)

Hungary: TESCO
Nagy Lajos kiraly utja, Budapest XIV or

* METRIMPEX
Dept 756, P. O. Box 202, Budapest, H-1391
Person in charge: Ms A. Hargitai

U.K. * HATRA
7 Gregory Bouleward, Nottingham, NG7 6LD
Person in charge: Mr. D. W. Duke-Williams

* Shirley Institute
Didsbury, Manchester M20 8RX
Person in charge: Dr. Alasdair Maclean, Man.Dir.

University of Leeds, Dept. of Textile Industries
Leeds LS2 9JT, Yorkshire
Person in charge: Prof. P. Grosberg

U.S.A. * Philadelphia College of Textiles & Science
School House Lane and Henry Avenue, Philadelphia, PA 19144
Person in charge: Mr. Jeffrey B. Berlin, Ass.Dean of Adm.

* Southeastern Massachusetts University
North Dartmouth, Massachusetts 02747
Person in charge: Mr. Richard J. Ward, Dean

* Textile Research Institute
P. O. Box 625, Princeton, New Jersey 08540
Person in charge: Dr. Ludwig Rebenfeld, President.

Suggested date for the trainings:-

For Dr. O. A. Koleoso:- April, 1983
For the rest:- February - April, 1983

Annex No.7

UNIDO PROJECTS AT FIIRO

DR. G. S. ASCHNER, M.Phil., D.Sc. Eng., C. Eng.

U. N. ADVISER ON QUALITY CONTROL

UNIDO projects at the Federal Institute of Industrial Research have aimed to improve the testing capability of the textile department of the Institute and through it that of the whole Nigerian textile and clothing industry, establishing the necessary means for quality control. Summing up, the objectives of the projects were to render technical assistance to the Nigerian Government in textile testing and quality control. To be able to give you the full back ground information, further on because of the complexity of the projects I should like to discuss the topic under the following chapters:

Quality control in general

Situation of the textile industry in Nigeria

UNIDO projects

1. Quality Control in General

1.1 Definitions.

Quality: the totality of features and characteristics of a product or service that bear on its ability to satisfy a given need.

Quality control: the operational techniques and the activities which sustain a quality of product and service that will satisfy a given needs; also the use of such techniques and activities.

The aim of quality control is to provide quality that is satisfactory; (e.g. safe, adequate, dependable, and economical). The overall system involves integrating the quality aspects of several related steps including: the proper specification of what is wanted, design of the product or service to meet the requirements, production or installation to meet the full intent of the specification, inspection to determine whether the resulting product or service conforms to the applicable specification, and review of usage to provide for revision of specification. Effective utilization of these technologies and activities is an essential element in the economic control of quality.

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1.2 Role of the quality

An industrial product can be considered up to date if it fully and on a modern level meets the requirements of the period it was produced and is utilised. In our era the following basic desires may arise in the area of consumer products:

(i) fitness for intended use, fulfilled on a high quality level

(ii) satisfaction of the increasing aestetical demand of the consumers(f.i. an apparel product should be fashionable)

(iii) the maintenance of the product should be of minimum level and as simple as possible

(iv) the price of the product should reflect the value of the material and workmanship used up to an economical extent for the production.

Among these requirements you may find quality on the first place which has actually gained a leading role in the international exchange of goods.

We can not be satisfied with the such-as-happened-to-be approach of the quality, taking into consideration the basic need to save material and energy. We have to consider quality as the end product of a procedure or service controlled by technical, organizational and managerial means with a severity the extent of which is increasing.

1.3 Advantage and means of quality control

Advantages of quality control are as follows. The introduction of quality control

(i) improves the quality of products, increases their life-time and their reliability

(ii) increases the productivity of the production methods

(iii) decreases the cost of production and other costs which may arise in connection with the product

(iv) assists to meet the delivery date and by this means increases the marketability of products and services.

There is no time to discuss the means of quality control thoroughly or in details because this topic alone should make another entire paper. I should like to emphasis, however, the necessity of a national system, further on the producers have to develop their own quality control system which meets the requirements of the national one. The system and the professionals who create it and all the manpower working according to the system are the most important means of the quality control.

One of the basic necessities and the first stage of the quality control of any industrial production or the product itself is the reliable measurement. This refers to the production procedure of a given product and to the complex process of the total production of the producer unit, respectively. That is one of the reasons, why quality control equipment, apparatuses and instruments beare of a special importance in the quality control activity.

2. Situation of the Textile Industry in Nigeria.

Because of the 75-80 million subjects of Nigeria it is a huge consumer market for cars, motor bikes, radios, HiFi equipment, food, drinks and clothings. One of the most important items referring to the personal expenditure is the clothing. As far as I could realise personally the Nigerian people are fond of dresses, the colourful traditional robes and head gears, the different uniforms for the police and military forces further on for the students, etc. give evidence of that. The selection of the material is strongly biased by the quality and the pattern, expensive Swiss embroderies, hand woven Madrases, the best synthetic fibres available, exquisite jacquard patterns can often be seen worn by men and women on the streets of Lagos.

The industry in Nigeria is not strong enough at present, less than 0.4% of the whole population only is working in the industry. But the progress of the industry is amasingly high in many respects.

The textile industry is the most powerful, developed industry in the country. There are althogether 274,738 workers in the whole industry from which 63,786 are engaged by the textile industry.

To make perceptible the relative largeness of the textile industry, the next branch of the industry, which is second on the basis of the number of workers engaged is the food manufacturing employing about 41,129 workers,

and the third one is the wood and wood products with 24,723 employees only. Although the world textile industry is generally in the state of serious depression and has been suffering for several years, there has tended to be a growth pattern in both spinning and weaving of short staple fibres throughout Africa. Nigeria is one of the leading countries in Africa in the area of the textile industry, the rate of growth is above the average African level. From 1978 to 1979 the number of spindles increased by 2.67% (from 673 to 691 thousand), but most impressive is the figure which represents the increase of installed short staple spinning capacities between 1969-1979, which represent a staggering 188.8%, the highest in Africa. Even the change of the installed looms between the latter period is 83.1%, (present number of looms 13,215) the second largest in Africa (Sudan has achieved 97.4%). There are well over 1,000 knitting machines of various types and a lot of modern dyeing and finishing plants.

In the fabric consumption there is a decrease in respect of raw cotton and cellulosic artificial fibre, but an increase of about 14.8% in respect of synthetic fibres between 1978-1979.

It has to be established, however, that the rate of growth has decreased a lot during the last four years and the present growth is far from being enough. On the assumption that Nigeria has a population of about 80m people, then in 1979 the expenditure on textile machinery averaged slightly less than 30 pence per head. With an annual population growth rate of between 2.5 and 3% there is a great need for very much faster textile production growth, especially taking into consideration that about 20% of this population is under 14 years old.

It has to be realised further on that because of certain prejudice of the Nigerian people against the local made products or perhaps because of the lack of quality in certain Nigerian textile products or perhaps for some other reasons unknown, some of the machinery are in stand still. Taking for example the Nigerian embroidery industry, although imports are skyrocketing in spite of the import restrictions, there is a very substantial embroidery mill equipped with large number of giant Saurer embroidery frames standing idle and up for sale.

To summarise Nigeria place in the African textile industry in respect of number of

- spindles Nigeria is the second largest representing 11.4% of all spindles on African soil (on the top of the list is Egypt)
- rotors Nigeria is the fifth,
- operable looms with a minimum width of 75 cm, Nigeria is the second largest, responsible for the 9.6% of the total number in Africa (first is Egypt),

Further on, referring to the raw material consumed in respect of

- raw cotton Nigeria is the third largest representing the 8.4% of the total African consumption
- synthetic fibres Nigeria is the second largest, responsible for the 12.3% (on the top of the list is South Africa),
- total raw material consumption is the third largest in Africa, representing 10.0% of the total African consumption, only Egypt and South Africa is ahead of Nigeria.

These figures represent that Nigeria is a major force in the African textile industry. In retrospect, the development of this industry was amasingly high, since independence the rate of growth has been the fastest in the world. And it was achieved without the benefit of any labour with previous experience. It has to be noted, however, that since 1979 the rate of growth has decreased a lot, up to an amount which is far for being enough to cope with the population growth.

3. UNIDO Projects

3.1 Some information about UNIDO.

The United Nations Industrial Development Organization (UNIDO) was established in 1967 in Vienna "to promote and accelerate the industrialiazation of the developing countries". It was set up as an integral part of the United Nations. In fulfilling its mandate, UNIDO:

- provides assistance to developing countries, particularly to expand, modernize and operate their industries,
- undertakes operational activities, including measures for effective application of modern methods of industrial production, programming and planning, establishment and strengthening of industrial

institutions, development, adaption and transfer of technology, and training of personnel,

- assists developing countries in obtaining external financing for industrial projects,
- offers advisory services, in co-operation with other United Nations bodies, on the exploitation and efficient utilization of natural resources, industrial raw materials, by-products and new products,
- co-operates with regional commissions in industrial development planning and in regional consultations,
- provides a forum and acts as an instrument for the developing and industrialized countries in their contracts, consultations and negotiations directed towards industrialization of the developing countries,
- develops concepts and undertakes action-oriented studies and research programmes to facilitate the activities mentioned, and
- works to co-ordinate all activities of the United Nations system relating to industrial development.

3.2 Projects background

In 1971 the Government of Nigeria expressed its desire for UNIDO assistance to provide the FIIRO with the necessary equipment for textile testing and quality control. A project was developed to provide the Institute with the equipment which would be financed from Hungary Voluntary-Contribution Fund.

In October 1974 UNIDO advised the UNDP Resident Representative to Nigeria that a fund of US $53,700 has been approved for these equipment. Further on it was suggested that an international expert should be provided to install the equipment at FIIRO laboratories, as well as to train the staff for the operation and maintenance of the apparatuses, and that two staff members of the Institute should go on fellowship training to Hungary, respectively.

The project became operational in September 1976 with the arrival of the international expert to Nigeria, and with the start of the staff members for the fellowship training.

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The contribution to be covered by UNDP was originally US $12,600, which amount was later increased up to US. $28,350. That covered by the Government of Nigeria was N8,940.

The objective of the project was to provide the Government and private sector with a very depenable and reliable technical services to meet their demands for testing and quality control of textile materials and allied products. These included the aspiration of the Government to control the quality of the textile products produced in Nigeria as well as to have an efficient research center which can cope with the rapid development of the industry.

The immediate objectives were as follows:

To assist the Government through FIIRO in

(i) establishing an adequate laboratory for testing and quality control of textile materials, products and related materials by expanding the present FIIRO laboratory facilities.

(ii) strengthening and developing the capabilities of FIIRO's staff to provide the necessary services to Government and private sectors.

(iii) to be able to render a greater assistance in the preparation of national standards and render assistance in the certification process.

These objectives could only be approached but could not be attained by this project, because the quantity and the variety of equipment granted to FIIRO was not sufficient. Those were only parts of the most important apparatuses, but not enough to meet the needs. Therefore a list of additional equipment needed was prepared by the international expert and a suggestion made to the follow-up action. It was recommended therefore to expand the project; to involve more equipment and to provide further training to the staff. This recommendation was accepted by both the UNIDO, UNDP and the Government in the course of 1980.

The contribution to be covered by the UNDP according to the original plan of the new project (phase 2) has come up to US.$218,150, while that covered by the Government was N53,500. Because of the price increases that have taken place in the meantime UNDP has increased its contribution up to US.$237,793, while that of the Government has remained unchanged.

The phase 2 of the project became operational in April 1981, when the international expert returned to Nigeria and elaborated a plan, which included the list and type of the equipment required, the name of the suppliers, list of books and publications to be acquired and the courses, duration and venue further on the name of participants for the fellowship training. Testing equipment and apparatuses were selected with special care on the

- versatile utilisation
- need of the local industry, as well as that of the Institute
- serviceability
- optimal quality and price

3.3 Equipment involved in the projects

In the first project 13 apparatuses were involved. These were as follows:

Selector:

for estimating the contamination of cotton fibres

Fibre-bundle tensile strength tester:

for the determination of tensile strength and ultimate elongation of fibres in bundle

Automatic yarn tensile strength tester:

for the measurement of tensile strength and breaking elongation of spun products

Yarn eveness tester:

to measure the cross sectional mass fluctuation along yarn length

Cloth strength testing machine:

for estimation of the tensile strength and elongation of polymers and textiles (measuring range 1,000 N)

Tricodim test:

for determination of the dimensional change of woven and knitted fabrics

Flexometer:

for the measurement of the flexibility and flexural rigidity of clothes

Florometer:

for estimation of the pulling force of yarn loops and carpet tufts

Wapertest:

for the determination of water permeability of treated fabrics

Scouro tester:

for testing washing fastness and wet colour fastness features of textile

Dyeing tester:

to carry out laboratory dyeing experiments

Spektomom:

for the measurement of the absorption and transmission of coloured liquids and solutions in the visible spectral range

Momcolor (Digital tristimulus colorimeter):

for colour measurements.

On the basis of the international expert's suggestion this project was expanded as it was mentioned before, and the 2nd phase of the project included not less than 34 equipment, supplied by 14 suppliers from 7 different countries, including Austria, France, Federal Republic of Germary, Hungary, Switzerland, United Kingdom and U.S.A. The original draft of plan included further on a microcomputer with the necessary hard and softwear for data processing but because of the budget limit this was later cancelled.

The instruments in question can be grouped into one of the following categories:

instrument for testing fibres and slivers

instrument for testing yarns

instrument for testing fabrics

instrument for general textile testing

equipment to control the laboratory or testing the environment.

3.31 Instrument for testing fibres and slivers.

3.311 Conditioning Cabinet equipped with Digital Balance.

The equipment can be used for determining the moisture content or dry weight of any kind of textile materials. The knowledge of the dry weight of textile materials is necessary for the determination of commercial lot weights, moisture content in the course of processing, as well as for some quality parameters

(raw material composition, linear density). The relative moisture content has to be determined as well because it has a decisive influence on the storability and processability of textile materials.

3.312 Shearing apparatus for cutting to length pre-loaded fibre bundles.

The apparatus is suitable to cut fibre sections of equal length from bundles, containing paralelled fibres, stressed under the prescribed pre-tension. The unit is important to determine the average linear density of a given fibre. From the cutting length, as well as from the number of fibres and from their conjugate mass in the bundle average linear density can be calculated.

3.313 Compact Micronaire.

With the equipment, which operates on the air-flow principle, it is possible to determine the average linear density of cotton, wool and synthetic fibres without measuring the length of the fibres or cutting them.

3.314 Projection Microscope.

The apparatus called Visopan is very versatile in use. It can either be used as a normal microscope and additionally, because of its large screen, as a lanameter. This latter means, that the diameter of certain fibres can be measured very prescisely and so their linear density can be calculated.

3.315 Bundle Shrinkage Tester.

The instrument indicates the length alteration of synthetic fibres by the influence of determined dry or wet heat treatment. This can be usefull to select the proper finishing process taken into consideration the end-use or to achieve certain pattern effect.

3.316 Labormixer.

The apparatus is able to carry out non-destructive opening, blending and one-way arrangement of fibres, taken from the packing units (bales) of cotton and other fibrous materials to be processed, enabling the user to make further test to determine its quality. The average specimen (blend) turned out at the end of the blending procedure is ready to be subjected to various tests, such as

determination of linear density (fineness), fibre length, bundle tensile strength, elongation at rupture, etc. The apparatus is analogous to the technology applied in the mill and it also supplies similar product (fleece) obtained without damage to the fibres. The apparatus is of great aid in the course of classifying test made at taking delivery, further on for correct establishment of the technology to be applied, and/or blending ration. Moreover, it can be utilized for homogenization (blending) of materials dyed in loose condition, previously to measuring the dye content or the preparation of a blend called melange.

3.317 Wave Analyser, YET.

The Institute already possess a Yarn Eveness Tester to measure the cross sectional mass fluctuation along sliver or yarn length. According to studies concerned with the process of drafting on a perfect drawing frame a sliver of perfect regularity the fibres are not accelerated by drafting in singles, as theoretically assumed, but in tufts of fibres. After a fibre tuft having been accelerated it leaves a fibre lack in the slow-fibre-stream and this part, when drafted, results a thinner product as expected. This defect of periodic character may occur after each drafting roller and its consequences will be enlarged successively by the drafting rollers working in succession. As a consequence of these summarized periodic defects, the periodic mass irregularities of spun products are always larger than ideal.

Another main cause of the periodical cross-sectional longtern irregularities can be found in the constructional elements of the spinning machinery. It is supposed that the machine elements in contacting the fibre flow are rotating at a perfectly constant peripherial speed. Meshing defects of the gears, excentricity of drawing elements will enlarge these periodicities greater than ideal.

All these defects of the product can be seen on the diagrams produced by the Eveness Tester but it is difficult if not impossible to evaluate them. The Wave Analyser displays periodic mass irregularities as for their wave length and amplitude. The unit prepares a "Wavelength-Amplitude-Spectrum" diagram of the periodic mass irregularities. The wave length is to be understood along the product length, the amplitude demonstrates the extent of thickening or thinning of the product.

3.32 Instrument for testing warps.

3.321 Automatic Length Programmed Measuring Reel.

The determination of the linear density of yarns requires to have a certain length of yarn which can b weighed. Generally test banks are made of the reels intended for being tested. The automatic measuring reel is used for making test banks which consist yarn of the programmed length for weighing, and for the calculation of the linear density.

3.322 Board Type Yarn Eveness Tester.

An effective way to evaluate the unevennes of yarns is to wind them up on a black board and assess their appearance. In the practice, some time far more reliable result can be achieved by this test than by using the far more complicated Electronic Testers. Another advantage of this method is the quick execution.

3.323 Skein Meter.

It is actually a skein circumference measuring instrument to determine, under pre-loading, the real circumference of yarn, skein and their changes in length.

3.33 Instrument for testing fabrics

3.3301 Cloth Thickness Tester.

To determine the thickness of different fabric compressing them with the required specific weight.

3.3302 Bursting Strength Tester

Tensile strength tests may be unsuitable for cer tain fabrics, such as knitted materials or lace, and for these textiles the measurement of bursting strength provides analternative criterion of strength. The test may also be suitable for woven fabrics that will be subjected to bursting pressures in use, for example pump diaphragms, filter fabric, etc. In this test the specimen breaks across the direction having the least breaking extension, but the bursting strength of the cloth cannot readily be calculated from its tensile strength in this direction, since it is influenced by other aspects of the response of the fabric to biaxial stressing.

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3.3303 Schiefer Type Abrasion Tester.

Although plane abrasion of fabric surface does not necessarily cover all aspects of strains which are important in determining service life, there are occasions when such a test gives useful information. The Schiefer type abrasion test is one of the most accepted methods in Europe and America. The method ensures that each surface point of the specimen which is in contact with the abrasion material has an equal relative speed.

Because the abrasive action is applied uniformily in all directions in the plane of the surface of the specimen about every point in it, the method is also called uniform abrasion method.

3.3304 Accelerotor Abrasion Tester

The resistance of abrasion of textile materials is affected by many factors in a very complex and as yet little-understood manner. For that very reason the specimen is subjected to complex stressing: to flexing, rubbing, shock, compression, stretching, and other mechanical forces during test in the apparatus. Thus abrasion is produced throughout the body of the specimen by rubbing of yarn against yarn and fibre against fibre, as well as by rubbing of surface against surface and surface against abradant. Evaluation is made either on the basis of weight loss of the specimen, or grab strength loss of the specimen broken at the abraded edge, or on the basis of change in other characteristics such as air-permeability, light transmission, visual appearance, hand, etc. depending on the type of fabric and its intended end use.

3.3305 Random Tumble Pilling Tester

Generally the level of pilling which develops is determined by the rates of the following parallel processes:

(a) fibre entanglement leading to pill formation

(b) development of more surface fibre

(c) fibre and pill wear-off

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These rates depend, in a complex way, on the fibre, yarn and fabric properties. The ideal laboratory test would accelerate the wear processes (a), (b) and (c) by exactly the same factor, and would be universally applicable to all fibre, yarn and fabric types. No such test has been developed, nor is it likely to be. However, different test procedures can be established, and this method is one of those, where fabrics can be ranked in the same order of pilling propensity as would be found in end-use wear.

Fabrics are caused to form typical pills by a random rubbing motion produced by tumbling specimens in a cylindrical test chamber lined with a mildly abrasive material. The degree of fabric pilling is evaluated by comparison of the tested specimens with visual standards that may be actual fabric, or photographs of fabrics, showing a range of pilling resistance. The observed resistance to pilling is reported on an arbitrary scale ranging from No. 5 (no pilling) to No.1 (very severe pilling).

3.3306 I.C.I. Pilling Box.

Another accepted, world-wide-used method to determine the pilling carachteristic of fabrics. Specimens are mounted on polyurethane tubes and tumbled randomly, under defined conditions, in a cork lined box.

3.3307 Shirley Type Crease Recovery Tester; and Loading Device.

One of the most simple method for determining the angle of recovery of fabrics from creasing in either the standard atmospehere for testing textiles or one of higher humidity and temperature. The advantage of this method beside the simple way of execution is that the effect of the force of gravity is eliminated.

3.3308 Snag Tester.

The apparatus is used for determining the snag propensity of fabrics. The tester has a wide range of severity, allowing fabrics to be judged under mild or severe conditions of sangging. By using a reference fabric to set the tester, the contribution to snagging of various finishes and various types of construction or stich density can be shown to add or detract the resistance to snagging.

..../15

3.3309 I.C.I. Stitch Damage Tester.

The apparatus is intended to use to determine the capability of a knitted fabric to be stitched satisfactorily under normal sewing conditions. Knitted fabrics are susceptible to needle damage on sewing, and this damage is not always immediately apparent. The equipment applies stresses to the seam to simulate the conditions which would be met during use.

3.3310 Air Permeability Tester.

The apparatus is capable to determine the air permeability of textile fabrics with small pressure differences. The knowledge of this property is of vital importance at apparel fabrics because it has a great effect on the comfort feeling, further on at technical fabrics, like air filters, sail cloth, parachutes, raincoat materials and downproof pillow cases, etc.

3.3311 Flamability Tester

The apparatus was designed to indicate textiles which ignite easily and once ignited, burn with sufficient intensity and rapidity to be hazardous either when worn or when used up somewhere in the environment. The importance of this test has increased a lot because of the fire hazards, further on because certain countries allow only such textiles to be used up by the building industry which are able to withstand fire up to a given duration of time. The apparatus assist in the safe conduct of the flamability test of textiles.

3.3312 Carpet Thickness Gauge

The measurement of thickness of textile floor covering is necessary for the assesment of performance characteristics; the compacting of the fibres and the ability to recover from crompression, for instance, are determined on the basis of thickness.

3.3313 Mechanical Treader for Carpets

When textile floor covering is exposed to appreciable walking traffic there is generally a comparatively large decrease in thickness in the initial period that is due to compacting rather than loss of fibres. The dynamic loading tester was developed to give a

..../16

3.3314 Carpet Compressibility Tester

The equipment can be used for the determination of thickness loss of textile floor coverings after prolonged, heavy static loading. The loading device can apply a force up to 7 kgf/cm^2 over the surface of the carpet.

comparative test for this initial compacting. A high correlation has been obtained over a wide range of textile floor coverings between thickness losses obtained by this method and thickness losses measured directly on products exposed to walking traffic in a corridor.

3.3315 Bundesmann Water Repellency Tester

The equipment was designed for the determination of water-repellency of fabrics. It is primarily applicable to water-repellent fabrics that are permeable to air.

3.34 Instrument for general textile testing.

3.341 Tensile Strength Tester.

Although in normal use yarns and fabrics may not be stressed to the point of rupture, the breaking load and the extension at break provide useful information when coupled with experience of the conditions under which the fabric is to be used.

The machine is the most modern type available, its strain gauges, i.e. sensor elements act on the analog force test set-up. A mechanical deformation element is stressed by the tension acting on the load cell. The deformation of this element, which is proportional to the force, is converted by a resistance strain gauge into electrical signal which is fed to the preamplifier. This signals are processed by the machine. The error-limit of these cells are very small and actually this cope with state-of-technic.

The recorder of the machine is capable to draw large, well-evaluatable diagrams. There are a lot of different jaws enabling to carry out tensile strength or fatigue tests on fibres, sliver, yarns, all kind of fabrics, ribbons, ropes and beside that, on all other allied materials.

3.342 Staining Tester

The apparatus is to determine the degree of colour which may be transferred from the surface of coloured textile materials to other surface by rubbing. It is applicable to textiles made from all fibres in the form of yarn or fabric whether dyed, printed or

otherwise coloured. As washing, dry-cleaning, shrinkage, ironing, finishing, etc., may affect the degree of colour transfer from a material, the test may be made before or after, or before and after, any such treatment.

The apparatus operates semi-automatically.

3.343 Perspiration Tester

The unit is intended for use in determining the fastness of coloured textiles to the effects of perspiration. It is applicable to dyed, printed or otherwise coloured textiles, i.e. fibres, yarns and fabrics of all kinds and to the testing of dyestuffs as applied to textiles.

3.344 Scorch Tester

The apparatus is intended for determining the resistance of the colour of textiles of all kinds and in all forms to colour change, and colour transfer when subjected to dry heat (excluding pressing) further on to hot pressing. The unit can be used to carry out the three different types of the latter method, hot pressing, when the fabric is dry, damp and wet. The textile end use usually determines which tests should be made.

3.345 Rapid Oil Extraction Apparatus.

Wool textiles may contain solvent-extractable substances. These come mainly from the wool grease occuring naturally in raw wool, or oils added to assist textile processing, further on from detergents taken up during scouring and from other special finishing agents. The total amount of these substances present depends on the stage of manufacture and its estimation is important for determining the clean wool content of a sample. The apparatus is intended to assist in the determination of the oil, fat and wax content of textile materials.

3.346 Statometer.

The apparatus is used for measuring the electric field intensity which occurs as a result of electrostatic charging of insulated surfaces, such as textiles. The capability of textiles materials to be charged may present a great problem during the processing, and during the use of the end-product, respectively. There are

certain treatments and finishing procedures to decrease the charging effect and to increase the conducting capacity of textiles. This test which can be carried out by the equipment gives useful information about the effectiveness of the adopted treatment.

3.35 Equipment to control the laboratory or the testing environment.

3.351 Climatic Test Cabinet

In the cabinet an environment of all kind of temperature and relative humidity can be created. The cabinet can be set to fulfill the criteria of the preconditioning, which is generally required by most of the testing standards. The chamber can be set at temperature range of -30 upto ±180°C, with an accuracy of ± 0.5°C, further on, a humidity range of 10 upto 98%.

3.352 Air Conditioner

The Air Conditioner is supposed to serve the whole area of the laboratory with the standard atmosphere for testing, either creating 20°C or 27°C and a relative humidity of 65%.

3.353 Aspiration Psychrometer

The apparatus is used for the determination and controlling of the temperature and relative humidity.

With the equipment FIIRO has possessed earlier, further on with those included in these 2 projects the Institute is able to fulfill the present requirements on the area of textile testing and quality control. It has to be mentioned, however, that because of the budget available certain equipment were cancelled by both the expert and UNIDO Headquarters, respectively. Especially equipment necessary for the pilot plant were omitted. Therefore it is recommended to expand this project, completing the textile laboratory and the textile pilot plant of the Institute, respectively.

3.4 Fellowship training.

The fellowship training should include 4 staff members of the FIIRO. Each of them has his own programme and they are going to visit and to carry out studies for a total of 3 countries; Hungary, United Kingdom and the United States. They will visit there 7 up to 8 institutions, including the Shirley Institute, Hatra and the University of Leeds in the UK., the Textile Research Institute, the Philadelphia College of Textiles and Science, and the Southeastern Massachusetts University in the States, further on the Textile Research Institute and the Institute for Quality Control in the Textile Industry in Hungary. These institutions are the most authentic ones in the field. The duration of each fellowship training is between 1 - 3 months.

4. Summary

The basic objective of human endeavour is considered to be the improvement of the social well being of the population at large. This involves not only the level of the cultural life, human health and happiness, minimum level of social confilts but also the material standard of living. The achievement of the last objective depends on the application and level of quality control systems, to attain the desired state of dynamic equilibrium in all spheres of human activity. The devices and tools of the quality control, which were granted to Nigeria by the United Nations Industrial Development Organization assist to achieve these goals.

References

African Textiles May and June/July 1982

American Association of Textile Chemists and Colorists: 1981/82 Technical Manual Volume 57

American Society for Testing and Materials: 1981 Annual Book of ASTM Standards. Part 32

British Standard Institution: BS Handbook 11: 1974. Methods of test for Textiles

Federal Office of Statistics Lagos: Digest of Statistics, Vol 27, 1979

Annex No.8/a

UNITED NATIONS
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603733

TELEX No. 21372
CABLES: UNDEVPRO-LAGOS
STREET ADDRESS:
11, QUEEN'S DRIVE-IKOYI

Ref: NIR/78/001

Date 11 October 1982

James H.Heal & Co. Ltd.
Richmond Works
Halifax
West Yorkshire HX3 6JR
England

To the attention of Mr. D.H. Norton, Domestic Director.

Dear Sir,

Thank you for your letter of 20 September 1982, in which you were kind enough to give suggestions how to overcome the failures occured with the Bursting Strength Tester. The Electronic Engineer for the project should arrive in the near future and we shall try to solve the problems on the basis of your suggestions. If, however, we fail to repair the machine because of the lack of spare parts I should inform you immediately.

Besides, I should like to remind you to my letter of 26 March, 1982, in which I informed your firm that some operation instruction manuals and handbooks were missing for those equipment which were supplied by you.

The Federal Institute for Industrial Research, which houses the whole project, has not received until now the handbooks for the
Rapid Oil Extraction Tester (Wira type Model 771), and
Cloth Thickness Tester (Thorn type).
The latter is not important because the equipment is rather simply.

I should highly appreciate if you were kind enough to mail to my address given below 2 copies of the English version of the Operation Manual for the Rapid Oil Extraction Tester.

I hope to hear about you in the near future,

Yours sincerely,

Dr.G.B.Aschner

Postal address: Dr.G.B.Aschner/UNDP Lagos, Nigeria
c/o Nations Unies (UN)
Room E 160
CH-1211 Geneva 10
Switzerland

Annex No.9/b

AEONAIR

JAMES H. HEAL & CO. LTD.

ESTABLISHED 1872

REGISTERED OFFICE
RICHMOND WORKS
HALIFAX
WEST YORKSHIRE
ENGLAND
HX3 6EP

TELEPHONE:
0422-66355
TELEX 51450
CABLES/TELEX 51450
GRAMS/HEAL HALIFAX

YOUR REF NIR/78/301
OUR REF. DMR/TZ

25th October, 1982

United Nations
Development Programme,
Lagos, Nigeria,
c/o Nations Unies (UN),
Room E 160,
CH-1211 Geneva 10,
SWITZERLAND.

For the attention of Dr. G.S. Aschner

Dear Sir,

We acknowledge receipt of your letter dated 11th October.

We enclose herewith two copies of the English language operating instruction manual for the Wira Rapid Oil Extraction Apparatus Model 771.

Yours faithfully,
for and on behalf of
JAMES H. HEAL & CO. LTD.

D.M. REPPER,
Managing Director.

Enc.

Annex No.9/a

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TELEX No. 21372
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11, QUEEN'S DRIVE-IKOYI

Ref: NIR/78/001

Date 6 September 1982

Brabender Realtest GmbH
P.C.Box 1209
D-4130 Moers-Hochstrasz
German Federal Republic

Subject: Request for English Operation Manual.

To the attention of Mr. Kiehlmann,

Dear Sir,

This letter is to acknowledge receipt of Brabender Climatic Testing Cabinet Model KSE 240/30 H, Serial No. 2370, ordered by UNIDO (P.O.No. 15-I-B0865). Enclosed please find the filled in certificate.

I should like to call up your attention, however, that the enclosed Operation Manuals are of German language. Will you please make the necessary arrangements to forward

2 pc. Operation Manual written in English

as soon as possible. In the Institute where the equipment is to be utilised there is nobody who speaks German, therefore the German Manual is of no use to them.

You may forward the English Manuals through the UN pouch, the address of which is as follows

Dr.G.S.Aschner / UNDP Lagos-Nigeria
c/o Nations Unies
Room E 160
CH-1211 Geneva 10
Schweiz

or to the address on the heading to my attention.

I thank you in advance for your referring quick measures,

Yours sincerely

Dr. G.S.Aschner
Project Manager

Enclosure

Brabender
Realtest-Umweltsimulatoren

Brabender Realtest GmbH, Postf. 1209, D 4130 Moers

Annex No. 9/5

Dr. S. Aschner/UNDP Lagos Nigeria
c/o Nations Unies
Room E 160

CH - 1211 Geneva 10
Schweiz

G-91123/196/JK/EE 22.09.1982

Ihr Schreiben vom 6.09.1982
Ihre Zeichen NIR/78/001

Sehr geehrte Damen und Herren,

zu dem Klimaprüfschrank, Typ KSE 240/30 H, Fabr.-Nr. -2370, erhalten Sie in Anlage:

1 Brabender Heft Betriebsanleitung in englischer Sprache

Mit freundlichen Grüßen
BRABENDER REALTEST GMBH

Kiehlmann

i.A. Kiehlmann

Tel. 02841 - 54061, Telex 8121160
Verwaltung und Betrieb: Moers, Franz-Haniel-Str. 16

Deutsche Bank Moers 041 3161, BLZ 350 700 30, SWIFT DEUT DE DN
Commerzbank Duisburg 5 621 800, BLZ 350 400 38

Annex No.10/2

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TELEX No. 21372
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STREET ADDRESS:
11, QUEEN'S DRIVE-IKOYI

Ref:

Date 26 August 1982

Custom Scientific Instruments, Inc.
13 Wing Drive
Whippany
New Jersey 07981
USA

Subject: Claim under the warranty condition

Dear Sirs,

Referring to the order of United Nations Industrial Development Organization of 10.9.81, No. 15-1-B0854 on a Snag Tester Model CS 179A and to your shipping No. S 81-684 it was specified that the instrument should be equipped with a motor which operates on 220 Volts, 50 Hz. This fact was indicated in your invoice No. B I-82--h-32 as well.

Please learn that the instrument No. of which CS-179A-013 has been equipped with a motor of the following specification:

Type:	NSI-12R
No.:	328 GK 3122
Volts:	115
Amp.:	.6

To my greatest regret the motor with the specification above does meet neither the order nor the local requirements (220 Volts).

Will you please have the necessary arrangements made as soon as possible.

Yours sincerely

Dr.G.S.Aschner
Project Manager

c.c to UNDP Lagos
UNIDO Vienna

Annex No.10/2

201 – 538-8500

CUSTOM SCIENTIFIC INSTRUMENTS, INC.

September 28, 1982

United Nations
P.O. Box 2075
Lagos, Nigeria

Attn: Dr. G.S. Aschner

Dear Dr. Aschner

Please accept our apologies for the mistake on the Model CS-179A (P.O. No. 15-1-80854). We will air freight one 220 Volts, 50 cycle, single phase AC motor. Upon receipt, please return the other motor.

Very truly yours,

H.J. Bultman, Jr.
HJB:BA

Post Office Box A • 13 Wing Drive • Whippany, N. J. 07981 • U.S.A.

Annex No.11/2

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11, QUEEN'S DRIVE-IKOYI

Ref. Project NIR/78/C01

Date 3 September, 1982.

James H. Heal Et. Co. Ltd.
Richmond Works
Halifax
West-Yorkshire HX3 6EP
England

To the attention of the Service Manager.

Subject: Claim under warranty condition.

Dear Sir,

Referring to a Bursting Strength Tester No. 111B-208, sold among other equipment to UNIDO under P.O.No. B0857 for Project NIR/78/001, delivered to UNDP Nigeria in 1982, please learn that certain problems have occured.

When installing the machine, trying to get the system free of air, the followings were observed.

(i) Procedure A Point j. The RESET button did not operate at all.
(ii) " " The START button operates the machine, but running about 30 seconds the apparatus stops automatically, the relay is tripping and it is impossible to start the machine again. After waiting for about 2-3 minutes, when depressing the START button again the equipment starts to operate but soon the same procedure follows. When starting the machine for the next time it stops immediately. Therefore it was impossible to reach the maximum pressure.
It was noticed further on, that when depressing the START button sparkling has developed on the electronic board.

Referring to the RESET button it was realised that either the bottom-limit micro-switch was faulty or the limiter was wrongly set. It was impossible to start the motor again, therefore it has to be checked later.

At the end of September an electronic engineer will arrive to assist me in the installation. You are requested to mail either to the address on the heading or through the UN pouch the address of which you may find below to my attention all the necessary parts to have the machine repaired.

../2

After the installation is completed either the good or the faulty parts will be forwarded back to you.

If, for certain reasons, you are not in the position to supply me with the necessary parts for the repair I have to inform UNIDO Headquarters, an official claim procedure will be initiated and either your specialist has to come to the spot or the machine has to be transported back to you for repair.

Please learn that the electronic engineer's assignment will expire in mid-October, therefore your urgent measures are required.

I thank you in advance for your arrangements,

Yours sincerely

Dr. G.S.Aschner
Project Manager

Address through the UN pouch:

Dr.G.S.Aschner/UNDP, Lagos, Nigeria
c/o Nations Unies
Room E 160
CH-1211 Geneva 10
Switzerland

ASONAIR

JAMES H. HEAL & CO. LTD.

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HALIFAX
WEST YORKSHIRE
ENGLAND
HX3 6EP

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TELEX 51450
CABLES/TELEX 51450
GRAMS / : HEAL HALIFAX

YOUR REF. NIR/78/001
OUR REF. DMR/JEP

United Nations Development Programme,
Office of the Resident Representative
in Nigeria,
P.O. Box 2075,
Lagos,
NIGERIA.

20th September, 1982.

For the attention of Dr. G.S. Aschner
Project Manager

Dear Sir,

We thank you for your letter dated September 3rd regarding Bursting Strength Tester Serial No. 111B-208.

We are sorry to hear of your difficulties. We enclose comprehensive instructions for sorting out the problem reported.

Please advise if you require any further information or assistance.

Yours faithfully,
for and on behalf of
JAMES H. HEAL & CO. LTD.

D.M. REPPER - Managing Director.

Encs.

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TELEX No. 21372
CABLES: UNDEVPRO-LAGOS
STREET ADDRESS:
11, QUEEN'S DRIVE-IKOYI

Ref: NIR 78/001

Date 6 October, 1982

Atlas Electric Devices Company
4114 N.Ravenswood Ave.,
Chicago, III. 60613
USA.

To the attention of the Service Manager.

Dear Sir,

Referring to a Scorch Tester (Type SC-15, No. ST-1246) ordered by UNIDO, Vienna (P.O.No. 15-I-B0879) together with other equipment which you have shipped to Lagos, Nigeria, please learn that the

heating indicating light

is faulty. The bulb unit (1051 A4, 250V) does not function at all, so we do not know whether the thermostats are calling for heat or they are capable to control the temperature.

Please learn, that the equipment was packed out recently under my supervision.

Will you please have the bulb unit mailed on the address given below

Dr.G.S.Aschner / UNDP Lagos, Nigeria
c/o Nations Unies (UN)
Room E 160
CH-1211 Geneva 10
Switzerland

Will you please learn, that I shall have an electrical engineer available till 6 November 1982 and I should highly appreciate if you were able to have the bulb unit shipped before his departure.

I thank you in advance for your referring measures. Looking forward to receiving the requested item, I am

Yours sincerely

Dr.G.S.Aschner D.Sc.Eng.
U.N. Adviser on Quality Control
Project Manager

Annex No. 12/5

ATLAS
ELECTRIC
DEVICES
COMPANY
4114 North Ravenswood Avenue
Chicago, Illinois 60613 U.S.A.
Phone: 312/327-4520 • Telex: 25-4328

October 20, 1982

United Nations Development Programme
Office of the Resident Representative
in Nigeria
P. O. Box 2075
Lagos, Nigeria

Attn: Dr. G. S. Aschner

Atlas Ref: 82-2016RJL

Ref: NIR 78/001

Dear Dr. Aschner:

Thank you for your referenced letter.

We have mailed to your Switzerland address a new heating indication light for Model SO-15, S/N ST-1246 as you requested. It was mailed to you at no charge.

It was mailed via air small packet and we hope that it does arrive by November 6th in time for use by your electrical engineer.

If we can be of further assistance to you, please do not hesitate to contact us.

Yours very truly,

ATLAS ELECTRIC DEVICES COMPANY

R. J. Leber /s

R. J. Leber
Manager
Technical Services

RJL:mjs

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STREET ADDRESS:
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Ref: NIR/78/001

Date 7 October 1982

United Nations Industrial Development Organization
Mr. A.G.Evstafiev, Head
Division of Industrial Operations
Vienna International Centre
P.O.Box 300
A-1400 Vienna, Austria.

To the attention of Ms. E.Taitt, Institutional Infrastructure Branch, Division of Industrial Operations.

Dear Ms. Taitt,

Thank you for your telex of 24 September, 1982.

Referring to AAA and BBB, non of the mentioned parcels has arrived until now.

Referring to CCC, Carpet Thickness Gauge (CTG) by Messrs. Schroder, the requirements are detailed in the BS 4051, as it was given on page 13 of my Terminal Report of 15 May, 1982. According to this standard a specific pressure has to be applied, which is actually
$20 \pm 0,3$ gf/cm^2
further on in the practice
100, 1000 and 2200 gf/cm^2
specific weight can be applied.

It is impossible to meet these requirements with the Schroder CTG, and the reasons are given in Table 1.

To solve this problem a pressure foot is required the area of which is less than 6 cm^2 and the selfweight of the pressure foot divided by the area of it should result a specific pressure (SP) of 20 gf/cm^2.
(f.i. if the area is 5 cm^2, the weight of it has to be 100 gramms)

The weight of the pressure foot together with some other, additionally applied weight (that is needed) should result a SP of 100 gf/cm^2.
(f.i. if the area is 5 cm^2, the weight of the pressure foot 100 g, the weight of the additional load should be 400 gramms).

The weight of the pressure foot together with the weight of the axle and plus additional weight should result a SP of 1000 gf/cm^2.
(f.i. if the area is 5 cm^2, the weight of the pressure foot is 100 g, the weight of the axle and the additional weight should total of 4,9 kg - that is 2 kg for the axle and 2,9 kg for the load).

/contd...

The weight of the pressure foot together with the weight of the axle plus additional weights should result a SP of 2200 gf/cm^2. (f.i. taken the above example two additional weights are needed, 3 kg each).

Please have these requirements forwarded to the producer of the equipment with the request to supply us with the needed items as soon as possible.

With best wishes,

Yours sincerely

Dr.G.J.Aschner

c.c. UNDP Lagos

Table 1.

Required specific pressure gf/cm^2	Weight of pressure foot g	Weight of weight axle g	Weight of first load g	Weight of second load g	Weight of third load g	Achieved specific pressure gf/cm^2 *	Deviation from the prescription %
20	146,6	-	-	-	-	24,43	22
100	146,6	-	-	-	-	24,43	76
	146,6	1898	-	-	-	340,8	241
1000	146,6	1898	4295	-	-	1056,6	5,7
2200	146,6	1898	4295	4295	2375	2168	1,5

* Applying a pressure foot the area of which is 6 cm^2

All weighing were carried out at the University of Lagos

KADUNA POLYTECHNIC

RECTOR: M. A. TUKUR: B.Sc. (Hons), M.Eng., C.Eng., M.I.E.E., M.N.S.E.

DIRECTOR: Y. ABOKI B.Sc., Dip. Sc. Ed.

Your Reference:

Our Reference:

COLLEGE OF SCIENCE AND TECHNOLOGY,
POLYTECHNIC ROAD,
TUDUN WADA,
P. M. B. 2021,
KADUNA, NIGERIA.

Telephones: 211551 - 582, 673, 744, 835.
Telegrams: TECHPOLY KADUNA.

30th August, 1982.

Dr. O.A. Koleoso,
Research Director,
Federal Institute of Industrial Research,
Oshodi, Lagos,
P.M.B. - 21023,
IKEJA,
Lagos State.

Dear Sir,

DR.G. ASCHNER
INVITATION TO LECTURE

I have the pleasure of writing to invite Dr. G. Aschner, the UNIDO expert currently on assignment in your Institute to visit our department and to lecture us on "UNIDO Projects at FIIRO". I am of the opinion that this lecture will be of immense benfit to us on latest developments in instrumentation for quality control in the textile industries.

The lecture is scheduled to take place on Thursday 27th Oct. 1982 at 10.30.a.m. We shall be fully responsible for Dr. Aschner's accomodation and feeding during his stay with us.

I will be grateful for your kind assistance for approval and arrangements for his air-transportation to Kaduna on Wednesday, 26th Oct. 1982.

With sincere thanks for your usual co-operation.

Yours Sincerely,

Dr. P.O. Adegbile,
Ag. Head of Department of Textiles Technology.

Dr. Aschner -
Dr. Akeredolu RE note the invitation above. I have no objections on it. Dr. Akeredolu is assisting in making arrangement.
13-9-82

Annex No.14/5

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STREET ADDRESS:
11, QUEEN'S DRIVE-IKOYI

Ref: NIR/78/001/ADM

Date 20 September, 1982

Dear Dr. Aschner,

re: NIR/78/001 - Textile Testing and Quality Control

Reference is made to your letter with attachment of 15 September 1982. I am pleased to inform you that we do not object to you giving a lecture on UNIDO projects at the Kaduna Polytechnic.

Your air-fare will be reimbursed to you by this office. You are requested to complete the attached claim-forms and submit them, together with the ticket stubs, after your return from Kaduna.

We would appreciate receiving a copy of your manuscript for our records. Wishing you a successful trip to Kaduna, I remain,

Yours sincerely,

Mathias Lubega
Officer-in-charge

Dr. Gabor Aschner
UNIDO Expert
c/o Federal Institute of Industrial Research, OSHODI,
Lagos.

Amendment
on cooperation with NSO

On 22 November 1982, after the compilation of the Terminal Report Mr. Onubuya, representative of NSO visited FIIR and had a discussion with the project manager on standardization and certification. Most of this discussion has taken place in the presence of Dr.I.Aladeselu, head of the Textile Dept. of FIIR.

The main topics were as follows

- acceptance of internationally well known standards
- research activity to find the local substitutes of aiding materials
- the necessity to standardize different textile materials (like Crockmeter cloth) which are indispensable for tests
- how to select the proper test methods when for one test more than one method is given
- qualification procedure, the establishing values for qualification taken into consideration the local circumstances.

In the area of certification it could be established that certain legislation activity is necessary. The law should enforce the producer to certify the quality of his products, give the power to NSO or any other governmental institution to enter into mills and sample the products, to control the performance of the products, further on to compare the certification with the actual test results. If necessary NSO or the appointed institution has to initiate governmental or court procedure against those producers who do not comply with the regulations.

In addition, it is advisable that the Government should award those producers with contracts who possess the NSO mark.