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Kenya.

LEATHER DEVELOPMENT CENTRE .

US/KEN/84/163

KENYA

Technical report: Evaluation of project US/KEN/78/204 and preparatory
work for project US/KEN/84/163*

Prepared for the Government of Kenya
by the United Nations Industrial Development Organization

Based on the work of Otto F. Kloetzer,
Consultant

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Explanatory Notes

- 1US\$ = 17 Kshs.
- KIRDI = Kenya Industrial Research and Development
Institute
- CTA = Chief Technical Advisor
- GDP = Gross Domestic Product
- LDC = Leather Development Centre
- NPC = National Project Co-ordinator
- PC = Personal computer

Abstract

This report deals with the evaluation of project US/KEN/78/204 "Establishment of a Leather Quality Control Laboratory" and with the evaluation of the project design of US/KEN/84/163 "Leather Development Centre".

The implementation of the leather quality control laboratory including a pilot plant for wet-blue tanning had been completed when the evaluation started on 15th August, 1985. The project had met its immediate objectives and had contributed to the higher development objective. Despite rather low efficiency in 1984, the first year the project was fully operational and far away from being self supporting the project gives hope to be very successful. On 15 July, 1985, when the CTA was fielded US/KEN/84/163 Leather Development Centre started with the objective to enlarge the laboratory and pilot plant for wet-blue leather to a fully equipped Leather Development Centre including a pilot plant for finished leather. The project together with the existing facilities from project US/KEN/78/204 is planned to be a regional leather and leather products research and development centre for East Africa. The evaluation showed shortcomings in the financing of the project which is sponsored by the Federal Republic of Germany.

Recommendations were given how to overcome these problems and how to increase the efficiency and earnings of the project.

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INTRODUCTION

Kenya's industrial research policy which deriving from its industrial development policies aims for a speedy development of those sectors of industry for which raw material is available in the country. The leather and leather product industry is one of the industries in question. The longterm objective is to achieve the maximum added value which potentially exists in the raw hides and skins by complete processing of the raw materials into leather, footwear and other leather goods and by exporting a part of those goods to increase Kenya's foreign currency earnings.

In order to meet these objectives it proved necessary to establish a leather quality control laboratory with a small pilot plant for wet blue leather in Kenya to assist the manufacturers of leather. The Federal Republic of Germany and the Government of Uruguay sponsored the project which started in April, 1980 when a consultant was fielded. Following his recommendations the Government decided to locate the project at the Kenya Industrial Research and Development Institute (KIRDI). Mr. M. Berci was appointed Chief Technical Adviser (CTA) and started his work in January, 1981. With interruptions Mr. Berci worked on the project US/KEN/79/204 until its completion in October, 1984. It is due to the competence of DR. R.O. ARUNGA, Director of KIRDI and Mr. M. Berci, CTA, that the targets of the project could be reached in time.

Before project US/KEN/78/204 was established the Kenya leather and leather products industries underlined their opinion that the project could only be the first step of a complete leather technology centre with a pilot plant also for finished leather. At that time the UNIDO substantive section and the leather consultants involved in the project design were firmly of the opinion that the technical assistance should be provided in stages. It is therefore that Mr. O.F. KLOETZER, TECHNICAL EVALUATOR, was asked to check and evaluate the project achievements of US/KEN/78/204 before the next phase (US/KEN/84/163) is implemented.

He was further asked to check and evaluate the project design of US/KEN/84/163 and suggest modifications if required and to assist the CTA and NPC to prepare a realistic work plan for the optimum utilisation of the funds allocated.

PART I

Evaluation of project achievements of US/KEN/78/204

1 FORMULATION OF THE PROJECT

(The following is taken from a project proposal submitted 22nd March, 1979 by Mr. M. Nestvold, a signed project document was not available).

A. Objectives of the project

- 1) Development objectives are to increase foreign exchange earnings from exports by means of an adequate utilization of the natural resources of Kenya that permits the maximum added value possible.
- 2) Immediate objectives are to establish in Kenya a national institution capable of:-
 - assisting the leather and leather products manufacturers to obtain in their production quality standards that are acceptable in the international market.
 - assisting the Ministry of Commerce and Industry in implementing its long term development strategy for the leather sector.
 - to carry out tests with regard to the quality of leather and leather products, and to the characteristics of the products used in their production.
 - to conduct a systematic programme of applied research in the leather sector.

The primary function of the project is institution building. The project is completed.

In addition to what is specified in the original project proposal the following project outputs were added by project revision D.

- five well-trained counterparts capable of operating independently upon completion of the project;
- an up-to-date study on the actual situation of the leather industry in Kenya including recommendations on measures required to ensure a sound further development of this industrial sector;
- recommendations for the establishment of standards valid for different types of leather and leather products;
- concrete proposals and recommendations for the establishment and operation of the foreseen pilot plant for leather finishings.

B. Socio-economic and institutional setting of the project

Kenya has made considerable progress in different fields including industry over the last decades. However its dependence on external inputs and the underutilization of local resources are weaknesses which to overcome is the Government's first objective. The characterization of local resources and their optimal economic exploitation have first priority. Industrial research plays an important role in the implementation of this development strategy. The project is part of industrial research in the sub-sector agro-industries. This sub-sector accounts for more than 60 per cent of the entire manufacturing sector's contribution to GDP. The agro-industries sub-sector has first priority. Major problems in this sub-sector relate to the improvement of quantities and quality of raw materials and the improvement of process and product technologies. The above issues have not changed since the project was designed.

By increasing export duties on raw hides and skins to 40%, the Government has indicated its determination to implement its policy in the leather sector quickly. For 1985 one expects that 90% of the raw material will be tanned to wet-blue instead of being exported raw. One should have expected that the sudden availability of large quantities of raw material for the leather sector which used to be exported before would have lead to problems as sharp decrease in raw material prices and therefore negative results in hides and skins collection. As could be seen from statistics and could be verified by discussions with tanners such difficulties did not occur. There was sufficient idle capacity to handle the quantities. One should reckon however with growing pollution problems and the project in the framework of KIRDI can play an important role in solving these problems. Envisaging the next step which should finally lead to ready made leather, the industry will even more depend on the project's assistance.

A research and development institute needs time to mature. Sometimes 10 years and more are needed until it reaches its full strength.

Being a part of KIRDI which was established in 1979 and who's predecessor the East African Industrial Research Organization (EAIRO) was already in 1977 incorporated as a department in the Ministry of Commerce and Industry, the project can enjoy an administrative and scientific infrastructure which can shorten the development period of the project considerably.

C. Project Design

The objectives and outputs were stated explicitly and with clarity and precision. The function (institution - building) is clear and objectives and outputs are in accordance with this function. (See ANNEX III) Clearly observable targets for the objectives and outputs were given.

Main assumptions in designing the project were as described in "Background and Justification" - that the project could help to have hides and skins (which were at that time exported

raw) tanned to semi-finished leather of an acceptable quality for export and thus increasing the added value of the product. This should further on lead to an increase in foreign currency earnings. These assumptions proved to be realistic.

II PROJECT IMPLEMENTATION

A. Delivery of inputs

UNIDO Inputs

Original Budget	Final Budget
US \$ 300,447	US \$ 420,059

The only major relevant difference between the two budgets was in budget line 11-01. The contract of the CTA was extended from 18 to 30 months.

The CTA had to continue the training of counterparts. This was on request from the Government of Kenya, telexed on 23rd June, 1982 by Mr. B. Zagoria, the UNDP Resident Representative in Nairobi.

Inputs of the Government of Kenya

The Government of Kenya has fulfilled its obligations in regard to national staff, trainees, building and equipment in every respect.

Inputs of the Government of Uruguay

The Government of Uruguay has provided 16m/m of training for Kenyan fellows at the Technological Laboratory of Uruguay (LATA). Foreseen were 24m/m.

B. Implementation of activities

The international and national staff cooperated very good and without problems.

III PROJECT RESULTS AND ACHIEVEMENT OF OBJECTIVES

A. Outputs

Outputs as foreseen in
project proposal 22 March 1979
and Revision D.

Actual Outputs

- A laboratory for leather fully equipped and serviced by personnel capable of conducting tests, within international standards for leather, leather products and for products used in their manufacturing; The laboratory is operating as planned.

- A technical data and statistical service bank in the leather sector to serve the industrialists and to assist the Government in the implementation of its development strategy for the sector. The bank will have an adequate library on the leather sector; AN IBM PC has arrived and is presently prepared for this output.

- A national cadre of leather chemists/technologists able to offer extension services to industry to effect the necessary improvements in the quality of its production; Eight employees qualified for this task are working.

- Improved quality of leather and leather products, both for export and for local consumption; Laboratory and pilot plant are working on orders from the industry and/or buyers to improve and control quality.

- an increasing volume of production of leather and leather products with higher added value i.e. finished leather and leather products rather than the current exportation of raw material and wet-blue leather;

The export of raw hides and skins has dropped considerably. In 1983 54.5% of the raw material was exported. This percentage dropped to 16.8% in 1984. For 1985, one expects that only 10% of hides and skins available will be exported raw.

This is of course not due to the existence of a leather quality control laboratory but the laboratory certainly helps to smoothen the drastic change by advising the industry how to improve the wet-blue quality. Export duties on raw hides and skins have been risen from 20% in 1981 to 40% in 1983 which lead to the reduction in export of raw material. The additional income in foreign currency is estimated K.Shs. 21.3 millions (after deduction of costs for additional chemicals imported). In order to help increasing the production of finished leather and leather products, project US/KEN/84/163 Leather Development Centre (LDC) has started.

- five well-trained counterparts capable of operating independently upon completion of this project, the leather quality control laboratory and the pilot plant for processing wet-blue leather;

available are:
2 research offices BSc.
4 technicians
2 assistants

They have proved for a period of 2 years (while the CTA was absent) to be able to perform independently.

- an up-to date study of the actual situation of the leather industry in Kenya including recommendations on measures required to ensure a sound further development of this industry sector; included in Terminal reports of the CTA
24.8.82
11.9.84
14.9.84

- recommendations for the establishment of standards valid for different types of leather and leather products; The following standards have been drafted for the Kenyan Bureau of Standards (KBS).
 - Standard specifications for wet-blue from Bovin Hides.
KS01-550

 - Standard Specifications for wet-blue from goat and sheep skins. KS01 - 549

These specifications have been accepted and are binding for the Kenyan leather industry.

 - Standard specification for chromed crust leather.

 - This specification is presently considered within the committee in charge at the KBS.

- concrete proposals and recommendations for the establishment and operation of the foreseen pilot plant for leather finishing; A comprehensive feasibility study for the establishment of a complete pilot plant was done by the CTA and attached to his terminal report.

B. Achievement of the immediate objective

The immediate objective of the project was to establish in Kenya a national institution capable of:

- assisting the leather and leather products manufacturers to obtain in their production quality standards that are acceptable in the international market.

As could be proved by visits to tanneries, talking to clients coming to the laboratory and viewing orders which were placed with the laboratory over the last two years, the project has established close relations with its clients who show great confidence in the capabilities of the organization. Even buyers of wet-blue leather from Europe. (Italy and Yugoslavia) employ the laboratory with quality control work.

The laboratory is part of the Kenya Industrial Research and Development Institute (KIRDI), a parastatal organization under the Ministry of Commerce and Industry. Its well equipped laboratories and competent professional staff assists and helps the leather laboratory in a most unbureaucratic manner. Under these circumstances the leather laboratory can do much more for its clients than could be expected from an isolated laboratory of its kind. The decision to integrate the project into KIRDI was the key to the success.

It is through KIRDI that the project has good working relations with the University of Nairobi, the Kenya Bureau of Statistics, the Kenya Bureau of Standards and the Animal Health and Industry Training Institute (AHITI)

- assisting the Ministry of Commerce and Industry in implementing its long-term development strategy for the leather sector.

The chosen strategy to maximize added value on leather and leather products for export is not feasible without a quality reaching international standards. The laboratory is the key to achieve this. However, it can be considered only as a first step to a complete Leather Development Centre.

- to carry out tests with regard to the quality of leather and leather products, and to the characteristics of the products used in their production.

Up to now the following tests have been done:

- wet-blue and crust
- sole and insole leather
- lining leather
- garments and upholstery leather
- shoe upper leather

- to conduct a systematic programme of applied research in the leather sector.

Model experiments on production and costs have been made for skins from six provinces and hides from the Rift Valley Province.

C. Contribution to the achievement of the development objective

The Government's development priorities did not change since the approval of the project. The project has produced results which are very much in line with the development priorities on the Kenyan Government. The project however is only a first step. Further steps must follow or the impact of the project will be limited to semi-finished leather.

D. Efficiency of the project

The success of a project in operation can best be measured by the degree industry and others make use of its services. Up to now this project receives approximately one order every second day. This number will certainly increase as soon as the industry starts to produce and export ready made leather to a greater extend.

The project has been cautious to advertise its services until full competence was acquired.

A second indicator is the extend to which the fees paid cover the costs. In 1984, the total income of the project was K.Shs. 64,000 while running costs (without international staff) amounted to K.Shs. 560,000 (See annex IV).

To measure the staff efficiency in terms of percentage of total time available was not possible as respective records were not kept.

IV CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

Based on assumptions, which proved to be realistic, the project reached the objectives stated clearly and precisely in the project proposal. Corrections or revisions because of change in Government's strategy for the sector did not occur. Priorities have not changed since the project proposal was drafted. Due to the fact that by imposing a heavy export tax on raw material for the sector - most material is now exported wet-blue - the project got more importance than could be foreseen when it was designed.

Revision D - extending the services of the CTA from 18 to 30m/m was justified but could have probably been foreseen. Research and Development Institutes and the transfer of technology are extremely time consuming.

The implementation of the project faced no major problems thanks to the competence and cooperation of the national partner.

The location of the project at KIRDI was important for a speedy implementation of the workplan.

The existing pilot plant is limited to wet-blue tanning and has no finishing equipment. The demands for advice from the industry however are going to be in the field of tanning wet-blue into finished leather.

Except for efficiency of the research personnel, which is not controlled up to now and the degree of self-support which is unsatisfactory, the project can be ranked as very good.

B. Recommendations

- FOR CONSIDERATION
KIRDI
1. In order to increase the efficiency of the research personnel which is the most valuable asset at KIRDI, it is recommended to introduce a work monitoring system giving the time spent on different activities by each staff member and showing also the amount of time he or she has been ill, on vacation, idle or otherwise non-productive. The weekly reports should be condensed to a monthly report for the Director of KIRDI for action.

Mr. Schmel, UNIDO computer expert on this project, is making the necessary preparations to produce the monthly report on the computer while he is in Nairobi.
 2. KIRDI is a parastatal non-profit organization. However, the project should earn at least 60% of its running cost by services rendered to private clients or research work done for other Government institutions.
- KIRDI

- KIRDI
- 2.1 It is therefore recommended to invite companies and institutions interested to send participants to training courses to the Leather Section of KIRDI. A training syllabus should be worked out quickly putting emphasis on tanning from wet-blue to finished leather.
- KIRDI
- 2.2 Buyers of wet-blue leather for export should be identified and offered the services of the leather section as to quality control and sampling. As KIRDI may not issue quality certificates (this is done by KBS) a kind of KIRDI trade mark should indicate the standard of quality. Short articles in newspapers and magazines of the leather branch describing the services offered should be published in Europe and North America.
- KIRDI
- 2.3 Consulting on effluent treatment and waste management which is needed in the country could be another important source of income. Respective standards should be drafted.
- 2.4 It should be studied if waste from the fleshing process could be used as raw material for the production of collagen for cosmetics.
- MINISTRY
OF FINANCE
3. In order to be competitive on the international markets for finished leather import duties on chemicals and spare parts should be refunded for that part of the production of finished leather, footwear and other leather products, which is exported.

MINISTRY
OF FINANCE

4. Exporting companies should receive import licences for chemicals and spare parts without any delay up to 50% of their import earnings.

MINISTRY OF
COMMERCE AND
INDUSTRY

5. In order to keep statistics of the leather sector up to date, a monthly production report should be compulsory for the companies of this sector and should be sent via the districts to KIRDI. Otherwise it is no use to keep these statistics on the computer.

KIRDI

6. The leather quality control laboratory is intergrated in and makes use of other laboratories in KIRDI. The leather laboratory should therefore be transferred to the new premises only together with the rest of the laboratories which is in the second phase of project US/KEN/84/163 at the end of 1986.

KIRDI

7. A University degree in chemistry does not make a perfect tanner. The staff of the laboratory should have opportunity to practice tanning in tannaries which produce finished leather of good quality to strengthen their self-confidence. Three to six months fellowships should be acquired.

KIRDI

8. Contacts should be established with existing research and quality control laboratories in Europe to participate in their experience. A patronage relationship with such an institute would be of great advantage in terms of time and money spent.

PART II

Evaluation of project design of US/KEN/84/163

Introduction

Project US/KEN/84/163 follows and is based on the accomplishments of project US/KEN/78/204. At the end of that project the export of raw hides and skins has dropped and 83 percent of the exports are now in the wet-blue stage.

The new project should help the industry to put more added value to the material by converting the wet-blue leather into finished leather and even in leather products.

The national objectives for the industry sector concerned are still valid and unchanged. More added value should lead to more foreign currency earnings and producing leather products should lead to more employment.

Reason for the evaluation is to assess whether the design of the project is in line with these objectives.

1 FORMULATION OF THE PROJECT

A. Objectives of the project

The development objectives are to contribute to the manpower development in East Africa and to create appropriate know-how applicable in this sub-region and, in consequence, to increase the foreign exchange earnings from the leather based industries and obtain the maximum value added possible from the hides and skins, an important renewable natural resource in Kenya and in the neighbouring developing countries.

The immediate objectives are to further strengthen the leather industry section of KIRDI and create a well-functioning Leather Development Centre (LDC) which will be composed of the following units:

- Leather quality control laboratory (already established under (US/KEN/78/204)).
- A pilot plant for the production of finished leather (pilot plant for semi-finished leather already established under US/KEN/78/204);
- Leather research and development unit with extension services and training facilities available also for training of specialists for the sub-region;
- Leather products design unit;
- Information and standards preparation unit.

B. Socio-economic and institutional setting of the project

The main points under this heading have been elaborated on page 7 and 8 of this report. New for US/KEN/84/163 is its regional character. Tanzania has its own Leather Research and Development Institute in MWANZA and may intend to use his own centre first. Other neighbouring countries may not be aware of the regional character of the LDC in Nairobi. It seems to be necessary to explain the economic advantages the LDC could have for the sub-region and to invite the leather and leather products industry of the sub-region giving full details of the functions of LDC including fees for services rendered. UNIDO should support the Government and KIRDI in executing this promotion campaign.

C. Project design

Objectives and outputs are stated explicitly and with clarity and precision. The function of the project - institution-building-is clear. Objectives and outputs are in accordance with this function. Clearly observable targets for objectives and outputs are given.

The relations between inputs-activities-outputs-objectives are not adequate.

The project has been designed in accordance with a feasibility study made by the CTA of US/KEN/78/204 and attached to his terminal report of 14 November, 1984. The list of equipment to be supplied by UNIDO on page 84 and 85 of the before mentioned terminal report adds up to an amount of US\$ 560,300 while the project document shows a total equipment component of only US\$ 327,832. There is a difference of US\$ 232,468 which means a reduction of the equipment component by 40%.

The project budget foresees the payment of the equipment component as follows:

1985	US\$ 30.000
1986	-
1987	US\$123,881
1988	US\$173,951

The building including all utilities as hot water, steam, water storage tanks, electrical equipment and compressed air will be ready by the end of 1985. The building itself is now completed 98 percent.

The total money for the equipment component is needed early 1986 otherwise the premises will be idle.

II CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

There are three options to solve the problem of under-financing

1. to search for additional funding
2. to omit certain immediate objectives
3. a combination of 1. and 2.

A way must be found for an interim-financing.

B. Recommendations

For Consideration 1. to omit the rotary spraying machine with automatic spray head, 4 guns, MOENUS TURNER, UNIDO TTH, 1800 mm, 3 dryer cells, price US\$ 55,000 and replace it by spraying machine with two guns and drying tunnel, price US\$ 20.000, which is likely to be more used in small and medium tannaries in Kenya.

Savings US\$ 35.000
Plus 9% for spare US\$ 3.159
parts

UNIDO 2. to omit the leather products design unit which is anyhow premature as long as there is not enough capacity to produce finished leather.

Savings:

Budget-line 11-03 leather products designer	US\$ 30,000
Budget-line 31-00 Training of counterparts in Italy	US\$ 24,000
Budget-line 49-00 Design equipment	US\$ 50,000
Total savings 1 and 2	US\$142,159

By these measures the financial gap can be reduced to US\$ 90.309 without reducing the development effect of the project.

UNIDO 3. to look for reconditioned machinery that can serve the purpose adequately and cost less.

UNIDO 4. to search for additional funds; to close the remaining financial gap

UNIDO

5. to discuss interim-financing with the Kenyan Government and others.

KIRDI/UNIDO

6. to plan and execute a promotion campaign in neighbouring countries in order to make LDC known and to offer its cooperation.

ANNEX I

TERMS OF REFERENCE

US/KEN/84/163/11-52/31.7.D

Purpose of project To evaluate the achievements of the foregoing project US/KEN/78/204 Leather Quality Control Laboratory and to assist the CTA of project US/KEN/84/163 to prepare a realistic work plan in order to optimize the utilization of the funds for the benefit of the Kenya leather and leather products sector.

Duties The expert will be attached to the Ministry of Commerce and Industry and will work at Kenya Industrial Research and Development Institute (KIRDI)

The expert will specifically be expected to:

1. Check and evaluate the project achievements of US/KEN/78/204
2. Check and evaluate the project design of US/KEN/84/163 and suggest modifications, if required
3. assist the CTA and NPD to prepare a realistic work plan for the optimum utilization of the funds allocated to US/KEN/84/164 assuring maximum orientation to industry

The expert is also expected to prepare a final technical evaluation report setting out the findings of the mission and recommendations to the Government and the executing agency for actions which might be taken.

Background Informa- The strategy of the Government of Kenya aims at
tion achieving the maximum added value which potentially exists in the raw hides and skins by complete processing of the materials into leather, footwear and other leather products. As one of first steps in this direction a Leather Quality Control Laboratory was established with UNIDO assistance. The project US/KEN/78/204. Establishment of Leather Quality Control Laboratory, with a UNIDO contribution of \$ 420,059 was funded through a special purpose contribution from the Government of the Federal Republic of Germany and became operational in May 1981.

The Chief Technical Adviser completed his first mission in October 1983 and in his report he submitted "A feasibility study for the establishment of a complete pilot plant for leather processing at KIKDI".

The laboratory and the pilot plant for wet-blue leathers are fully operational and with the relatively modest inputs the project has been able to establish a well-functioning industry-oriented laboratory which is very much appreciated and utilized by the Kenyan leather and shoe industry. A short follow-up mission of the Chief Technical Adviser took place in the third quarter 1984 by utilizing the uncommitted balance of the funds from project US/KEN/78/204.

Before project US/KEN/78/204 was established, strong opinions were voiced that the Kenyan leather and leather products industry not only needs a quality control laboratory but rather a complete leather technology centre with pilot plants. At that time the UNIDO substantive section and the leather consultants involved in the project design were firmly of the opinion that the technical assistance should be provided in stages. The first step should be the establishment of the quality control laboratory and during the implementation

of this project the needs of a complete leather technology centre should be examined.

The main justification for the leather technology centre and the role of the pilot plant were clearly defined by the Chief Technical Adviser in his report on the first mission and in the feasibility study, and can be summarized as follows:

The Kenyan leather and leather products industry is in a very active phase of development. The enterprises which are now in the process of establishing leather finishing departments and footwear and leather products factories lack, however, the necessary know-how and would be very much assisted through a complete pilot plant and demonstration centre which would provide the enterprises with services in applied research, quality control, feasibility studies, factory planning and in training of technologists through seminars and demonstrations of new improved production methods. At the same time, no advanced quality control laboratory and national standards are in operation in the neighbouring countries, therefore, the Leather Development Centre may be utilized as a pilot plant for establishing similar units and services in the subregi.

ANNEX II

Visits to: BABAR - Tannery, Nairobi
NAKURU Tannery, Nakuru
CHROME Tannery, NAKURU
NEW LEATHER MARKET (Tannery), Nairobi
Azis Din NABIBUK (Tannery), Nairobi
LEATHER MASTERS (Leather goods), Nairobi
TIGER SHOE FACTORY, Nairobi
AGA KHAN Tannery, Thika
SAGANA Tannery, Sagana
BATA Tannery and Shoe Factory, Limuru

Important People met: MR. D. NAMU
PERMANENT SECRETARY
MINISTRY OF COMMERCE AND INDUSTRY

DR. R. O. ARUNGA
DIRECTOR, KIRDI
P. O. BOX 30650
NAIROBI

ANNEX III
FUNCTIONS OF THE LEATHER AND LEATHER PRODUCTS
TESTING AND RESEARCH LABORATORY

The laboratory can carry out the following operations:

Leather testing

(a) Chemical analysis on leathers, hides and skins:

Volatile matter (moisture)
Soluble substances (in dischoromethane, petroleum ether etc.)
Total ashes, sulphated ashes and water insoluble ashes
Water soluble matters
Hide substance
Chromium oxide
pH value and difference figure
Sodium chloride

(b) Physical and mechanical testing of leathers:

Measurement of thickness
Tensile strength, elongation at break and at a specified load,
tear strength and stitch-tear strength
Permanent and elastic elongation
Resistance to grain cracking
Set in lasting
Flexing endurance of leathers and their finishes
Shrinkage temperature and area shrinkage
Water absorption properties under dynamic conditions
Water vapour absorption and penetration

(c) Finishes testing:

Flexing resistance of finishes (dry and wet)
Colour fastness of leather to rubbing (dry and wet)
Adhesion of finish to leather (dry and wet)
Fastness to rubbing when wetted from the back with water
or organic solvents or perspiration
Resistance to marring caused by sharp-edged objects
Resistance capacity to colour changes when buffing
Hot pressing fastness
Fastness of finish to spirit and alkali marring;

(d) Visual testing and grading of hides and skins, semi-finished and finished, leather

(e) Effluent analysis.

Leather products testing

(a) Chemical analysis of all components such as dyestuffs, adhesives, finish resins and the like

(b) Physical and mechanical testing:

Shoe testing; adhesion of leather, rubber or plastic soles and heels to the shoe (testing of the cementing); testing of the lacing; testing of lacing threads and cords; testing of other components of the shoes as rubber soles and uppers, testing of plastic uppers; complete textile analysis (upper or linings); complete rubber analysis (tensile strength, tear strength, remanent and elastic elongation, hysteresis, cycling, hardness abrasion, solvent resistance, efficiency of the vulcanization; flexion etc.); wear testing; resistance to water penetration; visual evaluation of products

Other leather products; as under leather testing and shoe testing above.

3. Consulting services

- (a) Improvement of leather-processing procedures in all stages (wet-blue, crust, finished leather) through:

Technological advice
Advice on quality-control systems
Help with layout or other installation problems

- (b) Improvement of the quality of leather products through provision of the services listed under (a)

4. Research services

These are connected with all the above services under 1, 2 and 3, but mainly are concerned with experiments for new technologies which are done in the laboratory and in small experimental drums.

ANNEX IV

COSTS AND INCOME 1984

A. <u>Running Costs 1984 (Except international staff)</u>	K.SHS.
1. <u>Personnel</u>	
a) Counterpart staff	378,209
b) Support staff	105,325
Total Personnel input	<u>483,534</u>
2. <u>Fuel & maintenance</u>	41,318
3. <u>Other Expenditures</u>	
Chemicals, stationery etc	34,375
Total 1 - 3	<u>559,227</u>
B. <u>Total Income</u>	<u>64,000</u>
11,4% of running costs	