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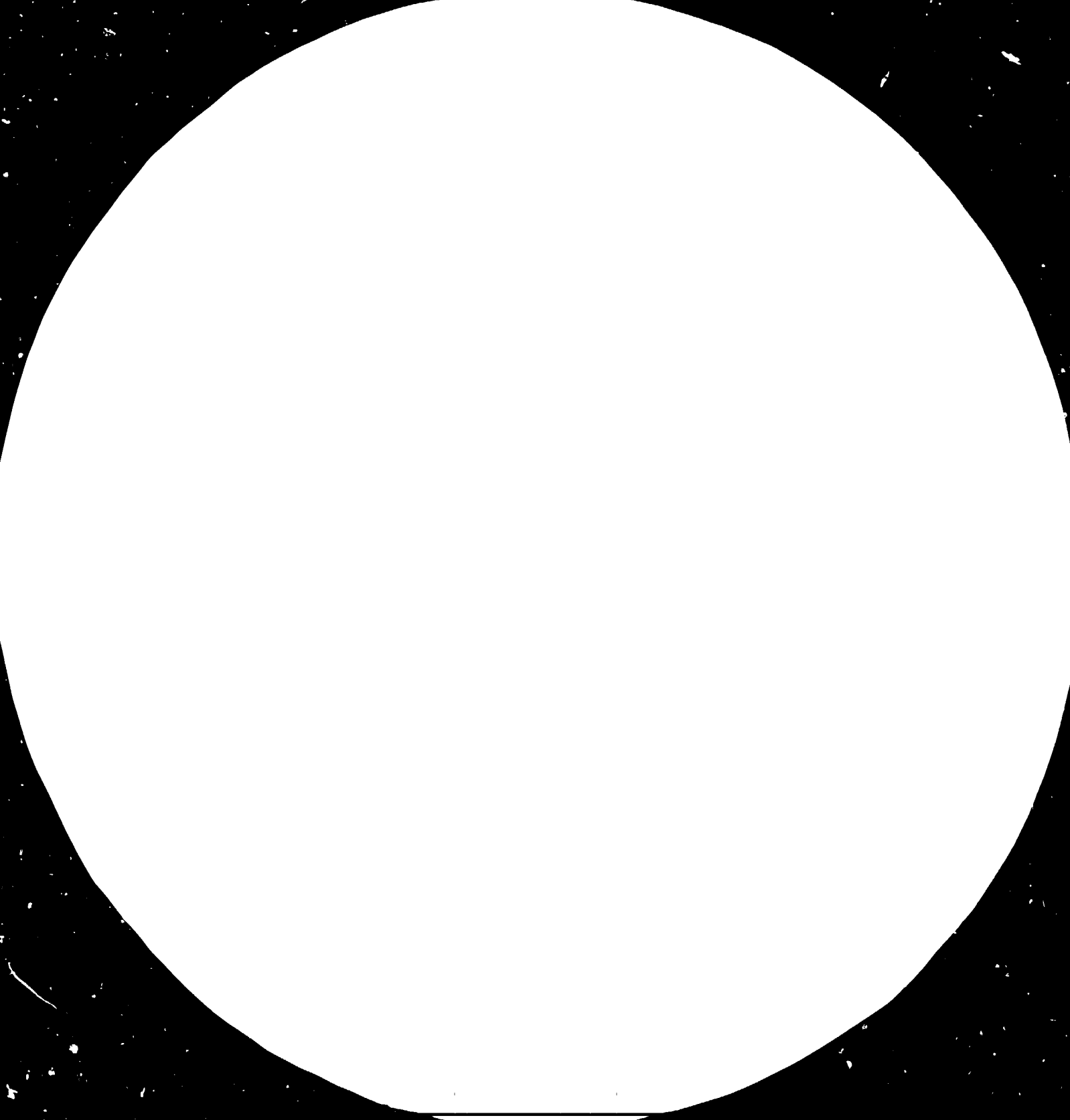
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LEATHER AND LEATHER PRODUCTS INDUSTRIES  
DEVELOPMENT ]

DP/URT/78/010

UNITED REPUBLIC OF TANZANIA

Terminal report \*

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

Based on the work of Mr. B. Svensson,  
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EXPLANATORY NOTES

- EEC - European Economic Community
- FAO - Food and Agriculture Organization of the United Nations
- IDA - International Development Association (World Bank)
- TBS - Tanzania Bureau of Standards
- THS - Tanzania Hides and Skins
- TILT - Tanzania Institute of Leather Technology
- TLAI - Tanzania Leather Associated Industries
- TSC - Tanzania Shoe Company Limited (Bora)
- TTL - Tanzania Tanners Limited
- UNDP - United Nations Development Programme
- UNIDO - United Nations Industrial Development Organization

Reference to dollars (\$) is to United States dollars. The monetary unit in the United Republic of Tanzania is shilling (TSh). In January 1983 the rate of exchange was \$ 1 = TSh 12.45.

ABSTRACT

The United Republic of Tanzania has a large livestock population. However, the off-take rate of hides and skins is below the average of the African countries and the recovery of hides and skins for industrial processing is constrained by various factors. The Government has realized the potential importance of the leather, footwear and leather products industry for the national economy and started a large-scale development programme. In order to assist in the implementation of this programme, the Government requested assistance from the United Nations Development Programme (UNDP) and the project DP/URT/78/010 was approved in 1979. The United Nations Industrial Development Organization (UNIDO) was appointed as executing agency. A group of international experts and consultants assisted the Tanzania Leather Associated Industries (TLAI), a parastatal corporation responsible for the three mechanized public sector tanneries and two large shoe companies, as well as a leather goods factory.

The project was also associated with other parallel projects, such as US/URT/79/240 - Assistance to the Leather and Leather Products Industry Pilot Plant, SI/URT/82/802 - Survey of the Footwear Production and Management Methods in Tanzania, IW/URT/82/001 - Establishment of a Leather Goods Unit, Isanga, Mbeya, RP/URT/82/005 - Strengthening of Training Capacity of TILT, SI/URT/77/806 - Manufacture of Leather Board, DP/URT/78/001 - Industrial Training and Consultancies, TCP/URT/005 - Hides and Skins Improvement (FAO), and was instrumental in designing two new projects, namely, BR/URT/84/001 - Rehabilitation of Leather, Footwear and Leather Products Industry, and UF/URT/84/062 - Assistance to Tanzania Institute of Leather Technology (TILT).

The most important achievements of the project were obtained in the manpower training and development and in the improvement of productivity and quality.



CHAPTER I

INTRODUCTION

The United Republic of Tanzania is one of the East African countries possessing a large livestock population. The estimates by Tanzania Hides and Skins (THS) indicate that the present livestock population consists of 13 million heads of cattle, 4.5 million heads of goat, and 3 million heads of sheep. Although the off-take rate, owing to various reasons, is comparatively low and the recovery for industrial processing is severely constrained by infrastructural problems, poorly organized collection network, unrecorded trade to neighbouring countries and similar problems the Government of Tanzania has realized the potential importance of this renewable raw material resource and has made considerable efforts to develop this industrial sector: three mechanized tanneries were erected during the last fifteen years, a large footwear factory and a medium-sized leather goods factory were installed, and a leather board factory is under construction in Morogoro. Other plans for further expansion and consolidation of the leather and leather products industry are being actively pursued, such as the establishment of the Tanzania Institute of Leather Technology (TILT), the rehabilitation of the Morogoro Shoe Factory, and the modernization of Tanzania Shoe Company in Dar-es-Salaam.

This massive development programme has been hampered by the lack of qualified personnel at all levels, lack of foreign exchange for imported inputs, over-ambitious and over-sophisticated production units (Morogoro Shoe Factory). The capacity utilization of the tanneries and shoe factories has, therefore, remained far below expected standard. As the Tanzania Leather Associated Industries (TLAI), the parastatal organization responsible for the leather and leather products sector development in the public sector, needed assistance to combat the problems, the Government of Tanzania requested assistance from the United Nations Development Programme (UNDP). The project "Leather and Leather Products Industries Development" DP/URT/78/010 was approved in May 1979 and the United Nations Industrial Development Organization (UNIDO) was designated as executing agency.

The project data and progress can be summarized as follows:

The project became operational by fielding the Chief Technical Adviser (CTA), Mr. B. Svensson, on 25 November 1979. During the life of the project, six international experts were engaged in addition to the CTA to provide specialized services in the following main areas: leather manufacturing, shoe technology, shoe designing, tannery machinery maintenance, leather and leather products marketing, and footwear machinery maintenance; two short-term consultants were engaged to provide training courses in the following areas: closing room operations and boiler maintenance. Two further consultants were engaged to prepare training curricula for TILT in leather technology and footwear and leather products technology. The recommendations from these activities are summarized in Annex 9 of this report.

The project DP/URT/78/010 also partly supervised the execution of related projects, such as SI/URT/82/802 - Survey of the Footwear Production and Management Methods in Tanzania, US/URT/79/240 - Assistance to the Leather and Leather Products Industry Pilot Plant, IW/URT/82/001 - Establishment of a Leather Goods Unit, Isanga, Mbeya, RP/URT/82/005 - Strengthening of Training Capacity of TILT, SI/URT/77/806 - Manufacture of Leather Board, DP/URT/78/001 - Industrial Training and Consultancies. The project was also closely associated and has co-operated with the FAO-executed project TCP/URT/005 in the hides and skins improvement. Furthermore, the project was instrumental in the design of two additional projects, namely, BR/URT/84/001 - Rehabilitation of Leather, Footwear and Leather Products Industry, which is funded through a credit by the International Development Association (IDA), and UF/URT/84/062 - Assistance to TILT, which was approved by the UNIDO Project Review Committee and is to be started with a preliminary phase in order to evaluate the foregoing projects, to study the project design and to suggest possible improvements to it. After this preliminary phase the project will be put forward for negotiations with potential donors. All the above additional activities are summarized in this report under Chapter III, item 11.

The project was monitored through frequent tripartite review meetings and such reviews were held on 21 January 1984, 18 November 1982 and 28 June 1983. The project was also subject to UNIDO's self-evaluation system and relevant reports from 15 October 1982 are on file.

The active life of this large-scale project, with total UNDP inputs of \$ 1,445,844 (DP/URT/78/010 Rev. K - \$ 1,236,320, and SM/URT/78/010 Rev. E - \$ 209,524), based on the duration of field services, is 43 months; starting with the fielding of the CTA in November 1979 and ending with the transfer of the CTA to project RP/URT/82/005 in June 1983, and after his reassignment from 1 August - 19 September 1983.

## CHAPTER II

### LOGIC AND OBJECTIVES OF PROJECT

#### 1. Logic of the Project:

The third five-year development plan of the Government of Tanzania emphasized the need to increase the industrial production in order to satisfy the basic needs of the population, such as food, shelter and clothing. Industries such as leather and leather products were given priority to utilize available indigenous natural resources, hides and skins, thereby achieving the objective of increasing the self-reliance of Tanzania.

The ultimate aim of this project was to assist in the overall development of the leather and leather products industries sector by improving operational methods and skills, increasing capacity utilization and productivity and rendering the industry capable of processing all locally available hides and skins into semi-processed or finished leather or leather products (footwear, leather goods, leather garments, etc.) to such quality level, that reasonable local and international demands will be satisfied, with added-value gain with highest possible foreign exchange earnings.

The project entitled "Leather and Leather Products Industries Development" was included in UNDP's second country programme for Tanzania during the period 1977 to 1981. This project was initially started in November 1979 and further extended its activities up to June 1983 based on the outcome of the tripartite review recommendation of 23 January 1981.

## 2. Objectives of the Project

The project was designed to enhance the capabilities of the holding corporation TLAI to discharge the responsibilities entrusted to it in developing and strengthening the leather and leather products sector, in particular:

- (a) to increase the supply of quality raw hides and skins through the establishment of a systematized collection network, the introduction of better flaying and the development of financial and marketing policies aimed at maximizing the raw material utilization. The Food and Agricultural Organization of the United Nations (FAO) is entrusted to provide assistance under their project TCP/URT/005 to the Tanzania Hides and Skins (THS), previously subsidiary of TLAI and now transferred to the Ministry of Livestock Development.
- (b) To increase capacity utilization and especially to improve the quality of leather and leather products through:
  - (i) adoption of processing techniques suited to local conditions;
  - (ii) introduction and maintenance of quality level of semi-processed, finished leather and leather products;
  - (iii) establishment of machinery maintenance, with replacement schedules, including the possible establishment of a centralized maintenance services centre at Morogoro Industrial Complex;
  - (iv) strengthening of TLAI's manpower development schemes under which the management and technical staff will be trained abroad in fellowship programmes between 1980 and 1985;

- (v) development of marketing strategies and distribution networks both domestically and abroad for raw hides and skins, semi-processed and finished leather, as well as leather products;
- (vi) assessment of the potential of the entire leather sector and as required, and assistance in the development of new processing capacities, especially in by-products industries such as leather board and various types of leather products industries.

### CHAPTER III

#### ACTIVITIES CARRIED OUT AND OUTPUTS PRODUCED

An itemized updated evaluation related to the outputs produced is presented in UNIDO's Internal Evaluation System - Project Evaluation Report as submitted by the project to UNIDO in October 1982. This report was discussed during the tripartite review held on 18 November 1982.

1. Better procedures for production planning and control for three tanneries, at Moshi, Mwanza and Morogoro, with a suitable manual preparation:

The above manual which was submitted to individual tanneries and TLAI during February 1983, contained very useful recommendations for improving production planning and control systems. This document, endorsed by TLAI, is now waiting to receive comments from the tannery plants on the implementation of the procedures contained therein. Revised project activities will include the introduction of these procedure systems and possibly assistance will be provided in designing a suitable finance and administrative system which will be commonly used by the tanneries.

2. Improved productivity and increased capacity utilization in the tanneries and leather products factories

The output related to productivity improvement and increased capacity utilization is constrained due to inadequate supply of hides

and skins and imported raw material as elaborated in the findings of this report. It is encouraging to note that cost savings based on the raw material utilization per unit has remained constant where this project has provided necessary inputs. However, administrative and direct labour costs have increased in general by 30 to 40 per cent. Improved communication initiated by the project contributed to the collective utilization of a very limited foreign exchange made available to the sector to import raw materials and spare parts.

3. Presentation of manuals for effective preventive maintenance for the three tanneries at Moshi, Mwanza and Morogoro

The above documents, which were prepared for individual tanneries, were resubmitted to TLAI and the plants for their follow-up and action during February 1983. Project input was concentrated on training of maintenance staff at each tannery plant in addition to providing badly needed expertise in putting a number of machinery and equipment into operation. These activities resulted in improved performance of the plants and also contributed towards upgrading of maintenance skills.

4. Concrete detailed proposal for the possible establishment and operation of a centralized maintenance service centre at the Morogoro Industrial Complex

Actual implementation of the centralized workshop at Morogoro is difficult to achieve at this stage because several of the pipeline projects belonging to the Morogoro Industrial Complex are not completed. Furthermore, it was beyond the resources and capabilities of the tannery engineer to formulate a final plan for a centralized workshop including maintenance responsibilities of other industrial subsections, such as canvas mill, leather goods and leather board plant, etc. Therefore, recommendations which are submitted to TLAI are in the form of an initial scheme which may be put into effect at the time of establishing a centralized maintenance workshop at Morogoro.

5. Technical assessment of the present capacities and future potential of the leather sector

Substantial work was carried out by the project for the tanneries as well as for the shoe plants. With the exception of Morogoro and Moshi tanneries, recommendations were submitted to the individual plants and

TLAI. These recommendations have already resulted in the implementation of rehabilitation programmes for plants such as Bora Shoe and Mwanza Tanneries. Reports on Morogoro and Moshi are included in the leather manufacturing expert's terminal report.

6. Survey of international marketing possibilities for leather and leather products, including the identification of specific markets along with concrete proposals for pricing policies and quality level needed to meet the requirement of international markets

The above output is related to the problems existing in the productivity and increased capacity utilization as analysed in output 2. However, a marketing department initiated by the project was established at TLAJ and is staffed with adequately trained personnel. As sufficient funds were not available in the project to conduct an international survey, the Government requested from the International Trade Centre (ITC) the services of a consultant to undertake such a survey. Concerning pricing policies, the marketing expert has analysed this in his terminal report outlining comparative costs and prices obtained with higher value realization by exporting processed hides and skins and leather products.

The project made a substantial contribution in initiating quality level requirements for the various types of leathers produced in Tanzania including the establishment of standards at the national level through the Tanzania Bureau of Standards (TBS) presently in the final stages of implementation.

7. Proposals for possible new production units, including by-products industries, along with long-term proposals for shifting towards more developed finished leather and leather products industries

A short profile on the entire leather and leather products industries in Tanzania was prepared for TLAJ which includes identification of areas where new manufacturing units for leather and allied products will be viable with a view to diversifying the product range by more flexible and marketable products. Sufficient groundwork was made as a collective outcome of the project activities which will be effectively realized as a long-term development plan for the leather and leather products industries development in Tanzania.

8. Comprehensive manpower development programme, conducting seminars
9. and courses and fellowship implementation
- 10.

As all the three summarized outputs in the project document deal with manpower development, these outputs are discussed together. It is very encouraging to report that the outputs related to manpower development and training were outstanding. A short summary shows that in the field of training of inspector-level staff for tanneries, shoe factories, marketing and maintenance, the training targets as set forth in project revision F were exceeded by 155 per cent. In the fellowship training the project achieved a training output over 50 per cent higher than targeted. In the implementation of the TLAI manpower development plan the project achieved 70 per cent of the target during the first three years of the five-year programme.

An important part of the training activities of the project were the various short-term training courses conducted by the project experts or consultants on many diversified subjects. Fifteen courses were organized during the project's life in which some 277 people participated. The details of these courses are specified in Annex 7.

In addition, close co-operation with other on-going international assistance was maintained by the project as the funds allocated for the project were not sufficient to achieve the desired results. It is also to be noted that the Government contribution in providing suitable candidates for counterpart training has also been excellent.

11. Additional activities carried out by the project

- (a) Proposal for the Tanzania Institute of Leather Technology at Mwanza and outline for its further development

The project has made a substantial contribution not only to the initial project design for TILT but also by doing excellent groundwork in preparing the subjects of courses, curricula and syllabi and R+D programming, as well as an overall structuring of the institute.

- (i) Implementation of TILT through the assistance of UNIDO/UNIDF project US/URT/79/240

The project was active in the following areas:

- participation in planning of civil works, including preparation of machinery and equipment layout. Shortage



of funds for building construction as well as of building material has delayed the completion to mid-1984;

- revision and purchase of equipment in consultation with UNIDO and TLAI and monitoring the handling of the same in Tanzania and its delivery to TILT;
- acquisition of additional machinery from the excess equipment from Morogoro Shoe Factory as well as two tannery machines donated by Bayer Chemical Co., FRG. These two machines have now arrived in Tanzania;
- negotiations for obtaining possible assistance for a solar energy unit at TILT which resulted in a feasibility study which is now under active consideration by the EEC office in Brussels concerning further involvement with respect to the installation costs of such a unit;
- installation of machinery and equipment undertaken during May-June 1983 based on the plan submitted to UNIDO and TLAI;
- preparation of detailed training programmes and syllabi, as well as a research development programme for the institute which was submitted by the project during February 1982.

(ii) Establishment of TILT

- presentation of the project for assistance in the establishment of TILT and its development into a full-scale comprehensive leather centre was submitted to the Government through UNDP and is now planned to be implemented under project UF/URT/84/062.

(b) Consultancy services under project SI/URT/82/802 - Survey of the Footwear Production and Management Methods in Tanzania

This proposal was initiated by the project in May 1981. This project was implemented in the last quarter of 1982 and the report submitted to the Government in December 1982.

(c) Establishment of Leather Goods Unit, Isanga, Mbeya under project IW/URT/82/001

A close follow-up is made through the other supporting agencies on the above project, i.e. SIDA/SIDO and UNDP, as considerable work related to the building, counterparts and expert availability is incomplete. Machinery is already purchased and has arrived.

(d) Manufacture of Leather Board, follow-up of project SI/URT/77/806

Substantial progress is noted in the implementation of this project which includes arrival of machinery and equipment in Tanzania during 1982. Construction of civil work is underway and training of technical and management personnel was completed in the Federal Republic of Germany.

(e) Industrial Training Adviser, project RP/URT/82/005

TLAI requested to include extended activities of project DP/URT/78/010 in the work programme of the above consultancy services, as per letter of 12 April 1983. A two-month training programme for fifteen trainees from three tanneries was carried out, covering theory and practice of processing hides and skins. The training was designed to upgrade the knowledge of inspectors and foremen and was closely supervised by DP/URT/78/010.

(f) Boiler maintenance course

The above course was conducted by the project in co-operation with the Ministry of Industry. An expert in steam boilers carried out a seven-week training programme and sixteen participants from thirteen different industries, such as textiles, chemicals, tanneries, shoe industry, etc., were given training in boiler operation, maintenance and repair, as well as control of water and water treatment.

CHAPTER IV

ACHIEVEMENT OF IMMEDIATE OBJECTIVES

The immediate objectives as included in the project document were designed to attain fuller utilization of raw hides and skins so as to secure the supply of shoes and leather goods to the domestic market as well as for exports to the industrialized countries. The following will provide an adequate analysis of these objectives in terms of achievements.

1. Raw Hides and Skins Improvement

At the time when UNIDO assistance to the leather and leather products industries began, assistance to the hides and skins improvement was planned and was later implemented by FAO through their project TCP/URT/005 in mid-1980. Initial project objectives and outputs designed were inadequate for the actual needs of the overall development of the hides and skins, leather and leather products industries sector in Tanzania. It is necessary to elaborate the background for follow-up proposals made by this project to be able to understand the importance attached to the improvement of the hides and skins sector, a base on which development of the leather and leather products industries sector is largely dependent. Further to the recommendations made at the Second Consultation on Leather and Leather Products Industry, sponsored by UNIDO at Cologne in June 1980, in which Tanzania participated, this project presented to the Government and UNDP for their consideration a long term assistance programme for hides and skins improvement based on the following objectives:

STAGE 1

- (a) Evaluate raw stock quantity and quality to estimate the total added value that could be obtained through increased recovery of wasted raw stock and provide improvement in quality based on the international price levels.
- (b) Identify and propose the measures needed in order to obtain economic gains.

The results of the above, including the recommendation and the measures identified, were aimed at raising the availability and quality

of raw materials for the further development of the sector. The above studies were expected to be carried out as part of the above TCP project sponsored by FAO, assisting the Tanzania Hides and Skins Co. (THS). Based on the outcome of the first stage, a revision was suggested to incorporate the implementation of stage 2 operations with the following objectives and outputs:

STAGE 2

- (a) Improvement of the existing methods of collection, handling, preservation, processing and storage of hides and skins, the trade and commerce relating to these and an estimate of their potential market value at prevailing international prices.
- (b) Improved utilization of the actual and potential raw material resources (hides and skins and related by-products) and an estimate of current losses incurred due to little or no utilization of hides and skins.
- (c) Attainment of possible reduction in production costs by the recovery and optimum utilization of the by-product of hides and skins.
- (d) Achievement of optimum economic returns by recovery and improvement of hides and skins as a base for the development of leather and leather products industries in Tanzania.
- (e) Development of other areas of the subsector, i.e. investments in infrastructure, manpower development and training, control of major infections, epizootic and tick-borne diseases by a sustained programme of vaccination and dipping, to set up immune belts and disease-free zones and to initiate effective sanitary regulations governing animal slaughter.

It was further recommended that a pilot centre based in an approved abattoir be considered, which is capable of handling and storing meat and its by-products, including hides and skins. It was also suggested that Dar-es-Salaam and Shinyanga abattoirs should be made pilot plants linked with extension work in respect of economic recovery and rational utilization of the hides and skins. The second stage of the FAO project is presently included in the IPF programme and extended for a period of three years under the FAO-assisted project URT/81/005.

Considerable importance is attached to the hides and skins sector in Tanzania in terms of quality and collection improvement. Although considerable improvement is noticed through the introduction of salting of cattle hides in urban abattoirs, quality improvement from the rural areas is inadequate where the bulk of hides and skins, estimated at 70 per cent, comes from. Skins collection has declined considerably in the past years and only averages 30.92 and 35.75 for goat and sheepskins respectively between 1978 and 1982. The difference between the prices for hides and skins paid to the farmers and delivered to the tanneries remains extremely high as may be seen from the pricing structure shown in Annex 3, Table IV.

It is disappointing to note that the pre-investment role of THS has diminished and little progress is noted towards establishing a firm linkage with the outstation collecting centres, despite the extremely high overhead cost contribution the tanneries have to pay when they purchase hides and skins through the THS system. Unauthorized collection and non-recorded trade still remains one of the major causes for the decline in the collection of hides and skins. The table below shows hides and skins collection for the period covering 1978-80:

Year	<u>Raw Hides and Skins Collection</u>					
	<u>Cattle Hides</u>		<u>Goat Skins</u>		<u>Sheepskins</u>	
	(off-take 1.0 mill)		(off-take 1.5 mill)		(off-take 0.7 mill)	
	Pcs.	%	Pcs.	%	Pcs.	%
1978	550,000	55.00	360,000	24.00	160,000	21.56
1979	635,000	63.00	530,000	35.33	244,000	34.86
1980	607,530	60.75	603,900	40.26	290,445	41.49
1981	537,486	53.74	475,458	31.70	306,541	43.79
1982	471,000	47.10	350,000	23.33	250,000	35.71

Source: THS

In achieving the collective objectives of improved collection of hides and skins, a paper was presented by the project in June 1982 with detailed terms of reference. This paper is enclosed as Annex 8, and in the experts' views these proposals remain valid even today for consideration by the Government to set up a working group and to implement a long-term strategy for the overall improvement of the raw hides and skins supply for an integrated development of leather and leather products industries in Tanzania.

2. Increase in Capacity Utilization and Quality Improvement of the Leather and Leather Products Sector

(a) Adoptation of processing techniques and quality levels

Leather Sector:

With the exception of Moshi Tannery, the Mwanza and Morogoro plants are newly built. The shortage of management skills and technical expertise has been a main constraint to the success of the recently established units. Initially problems were solved by transferring some of the experienced trained manpower from Moshi to these plants. This decision helped in solving part of the management problems as well as in areas of transfer of technology. Further work initiated by the project was to implement a diversified product-mix based on the available raw material. Appropriate technical formulae were recommended such as wet-blue chrome leather, utilization of splits, suede leather production, improved finishing methods for hides and skins into both full-grain and corrected-grain leathers, etc. Considerable cost savings were shown in material usage and increased yield and viable product-mixes were established in the tanneries.

Shoe and Leather Products Sector:

Assistance was mainly provided to Bora Shoe Company where the project made a substantial contribution in the areas of production, designing and pattern cutting, as well as machinery maintenance. Production techniques were improved and new lines with appropriate designs of leather, rubber and canvas shoes were introduced. Substantial savings were achieved at Bora by recycling PU material waste from the soling of shoes. Modifications to moulds were designed and implemented which resulted in a net savings of 45 per cent of imported raw material.

The project assisted in the rehabilitation of the Bora Shoe Company also through a project expert's mission abroad to assist the management in identifying and selecting the machinery and equipment for this purpose. Active participation of the project is needed in the implementation of the rehabilitation programme which is very much connected with the rehabilitation of Morogoro Shoe Company (SI/URT/82/802).

Implementation of project SI/URT/82/802, Survey of the Footwear Production and Management Methods in Tanzania, originally initiated by the project proved to be valuable particularly in identifying the areas in which Morogoro Shoe Factory needs immediate attention. This techno-economic survey made a detailed study related to the existing capacities and elaborated recommendations on actions that may be considered by the Government to be able to effectively utilize the existing capacities in the shoe sector. Final recommendations were provided, setting out the positive and negative aspects involved, as well as possible options and a plan of action with regard to training programmes for management, supervisors and workers, the product range and suggested export marketing.

(b) Training and manpower development

In-plant and overseas training was conducted for the shoe and leather products industries in the field of production, design and pattern cutting, engineering, material handling and management, finance, administration and general management. The programme provided a long-term and broad base for strengthening the overall performance of the leather and leather products industries sector. The courses conducted in shoe designing and pattern cutting at Bora were also attended by participants from Morogoro and Zanzibar Shoe plants. Collectively, these training programmes proved very valuable in enhancing the overall capabilities, and participants at their varying standards of attainment were provided with an adequate background to handle problems by adopting the most practical approach possible on the production line.

3. Introduction and Maintenance of Quality Levels of Semi-Processed and Finished Leather and Leather Products

The project carried out important process modifications related to semi-processed and finished leather. It also initiated the establishment of leather standards and test methods at the national level through direct involvement of the leather and leather products sector and the Tanzania Bureau of Standards. The leather manufacturing expert served as Chairman of the Technical Committee of TBS. Quality standards in the tanneries have improved which has also resulted in better quality

returns. The project's assistance to Bora Shoe Company in raising the overall quality level and the technical and management capabilities of the plant was strengthened through providing direct technical assistance in addition to extensive training support.

4. Establishment of Machinery Maintenance, with Replacement Schedule, Possible Establishment of a Centralized Maintenance Services Centre at the Morogoro Industrial Complex

The leather and the shoe sector, consisting of three tanneries and Bora Shoe Company, were provided technical assistance and the experts carried out a detailed work programme aimed at improving machinery maintenance and prepared a long-term plan for a phased replacement programme of machinery and equipment. Based on the above the project also participated in preparing rehabilitation programmes for Tanzania Tanneries, Morogoro Tanneries and Mwanza Tanneries, as well as Bora Shoe Company. In addition, implementation of project SI/URT/82/802, Survey of the Footwear Production and Management Methods in Tanzania, has provided a detailed evaluation related to the machinery and equipment availability at the Morogoro Shoe plant. This survey also prepared a detailed analysis related to the existing production costs, manpower and management development needs based on the factual indicators derived from this survey. The outcome of the survey indicates the technical and production capabilities of the plant and suggests modified machinery utilization to suit the proposed production plan and organization for the shoe sector. Based on the survey, it may be recognized that with a realistic approach capacity utilization can be achieved with the machinery and equipment available, as well as taking into account the limitations of raw material and manpower availability in the shoe sector.

Proposals for the establishment of a centralized workshop possibly at the Morogoro Industrial Complex is still in its initial stage as an exact design of the project cannot be established until pipeline factories are established. It is agreed that the report as already submitted by the project to TLAI will be incorporated in the final recommendations for the workshop.



5. Strengthening of TLAI's Manpower Development Plan for 1980-85

A plan to strengthen TLAI's manpower development scheme covering the period 1980-85 was prepared - see Annex 4. Based on the actual needs of the sector an estimated total of 892 man-months were needed to support fellowships in higher technical and management fields. However, it was recognized that implementation of all the training activities was beyond the resources of the on-going UNIDO assistance programme. The project, in close co-operation with TLAI, made all the necessary efforts and follow-up in implementing the manpower development programme through UNIDO assistance as well as through the support received from bilateral resources and other on-going international assistance projects. Manpower availability in the leather and leather products sector is immensely improved compared to the time of project commencement.

6. Development of Marketing Strategies and Distribution Network

Concerning the development of marketing and distribution strategies a limited success was achieved. Other than participation in the International Fair in Paris and limited assistance provided by the project to visit selected countries in Europe, no specific market surveys were possible owing to shortage of funds for such missions. It was, however, possible to conduct desk research through the establishment of a marketing and commercial department at TLAI level. TLAI's export drive is severely hampered by shortage of raw stock, imported chemicals and packing material inputs, thereby rendering TLAI unable to meet the demand for semi-processed leather from buyers overseas. The project carried out necessary artwork in the preparation of the promotional brochure for TLAI and its group companies, including photo exhibits taken in Tanzania which will be printed through the assistance of EEC.

7. Assessment of the Potential of the Entire Leather Sector, Including Identification of New Processing Capacities, Especially By-Products Industries

At the start of the project operations, a detailed survey was made to determine the installed capacity based on the effective performance of the leather sector. It was realized that the leather sector was

planned to be equipped to process an estimated 38 million sq.ft. of leather, equivalent to an estimated availability of raw hides and skins in the country. Of this only 40 per cent could be processed up to the finished stage and the remainder up to the semi-processed stage. It was, therefore, recognized that the tanneries needed considerable inputs in terms of replacements of machinery and equipment, bottle-neck removal, as well as capital investments to be able to achieve the desired quality and quantity levels and to fulfil the long-term needs of the leather products sector. Therefore, considerable work was undertaken in auditing the capacities and recommend rehabilitation and expansion programmes for the leather sector. Implementation of these proposals will enhance the capabilities of the leather and leather products industries, including diversification of their products in order to earn the value added.

The project has given considerable importance to and succeeded in convincing the authorities of the development of by-products industries based on waste from abattoirs, tanneries, and shoe and leather products industries. Projects identified include animal feed and fertilizer, sausage casing, glue and gelatine, and other animal by-products industries as well as production of woven leather and sports goods industries. Furthermore, the project provided necessary assistance in the implementation of a leather board project and it is encouraging to note that machinery has already arrived at the site in Morogoro for production to begin early 1984. The leather board plant is an outcome of earlier UNIDO assistance under the project SI/URT/77/806 and when established beginning of 1984, it will provide a major raw material input for the shoe industry which is presently imported.

CHAPTER V

UTILIZATION OF PROJECT RESULTS

The objectives and logic of the project, and activities carried out based on the expected outputs, as well as achievements of the immediate objectives, are described in detail earlier. Indicators related to the extent to which the results of the project activities were applied in terms of effective utilization by the sector are briefly discussed below.

1. Leather Sector

(a) Production and technology

A number of recommendations made and work carried out at the tanneries have been utilized by the plants in respect of production and technology transfer. These include production of wet-blue chrome leather, crust and various product mixes and range from cattle hides to goat and sheepskins. Introduction of full-grain, corrected-grain, hunting and softy leather has created a very valuable market in the domestic shoe industry. Leather from splits in particular for insole and toepuff material has reflected in substituting imports. Production of finished goat and sheepskins, however, remains to be at a very limited scale due to inadequate machinery and equipment in the plants. The proposed implementation of rehabilitation plans will enable the leather sector to produce a desired quality of finished skins needed for the Morogoro Shoe plant, and the tanneries will be able to effectively utilize some of the technical work already introduced and undertaken. Establishment of quality standards for leather will promote an integrated development towards upgrading standardization of the quality of leather and leather products in Tanzania.

(b) Marketing

Viable preparatory groundwork was done for the establishment of a centralized marketing until at TLAI to enable the co-ordination of the entire leather sector in maximizing the available resources and to obtain a realistic added value based on the international market situation.

(c) Manpower development

Project inputs towards manpower development are well elaborated in this report. As most tanneries had no trained personnel, the concern of the project involved the introduction of training programmes that produced quick results because the tanneries had to continue operating despite the shortage of trained workers. Various in-plant training programmes conducted produced effective results which were utilized by the tanneries. This resulted in improved technical and production control as the operatives had a better understanding of processing technology, thereby upgrading overall technical performance of the leather sector.

The fellowships implemented are beginning to show a substantial improvement as the higher technically qualified personnel become available to take up various positions in the plants.

The overall training achievements as planned for 1980-85 in addition to the establishment of TILT will create an excellent base for enhancing the capabilities of the leather sector.

2. Shoe Sector

Project assistance was mainly provided to Bora Shoe Company. Training programmes conducted in shoe designing and pattern cutting are put into practice by technicians from Morogoro and Zanzibar Shoe Factories.

(a) Production and technology

Technical assistance provided by the project has produced practical results in increasing capabilities, skills and the operational/technical performance of the plant. Input results utilized by the plant include: introduction of cost saving methods, recycling of PU waste, application of new techniques and specifications, a new design range for canvas footwear production, revision of patterns to suit new moulds, as well as modifications to existing and old mould designs in order to save imported raw material, the impact of new styles resulted in achieving maximum economies, improved workflow and productivity. These are some of the major technical areas where the Bora plant has benefitted from the project's assistance. A system of maintenance schedule was introduced at the

plant which resulted in an improved workflow sequence, with the aim of keeping to a minimum in production loss. The low level of production manpower utilization remains a major problem and as the situation improves, the plant should effectively utilize the systems planned and introduced by the project so as to achieve efficient running of the plant.

(b) Marketing and distribution

The introduction of new designs and models created a new scope for expanding a range of styles. In addition, with modifications to obtain material savings, prices of shoes sold in the domestic market were reduced in some cases by nearly 50 per cent. Items produced during the designing course programmes were included in the range of samples for the export market. Prices offered by Tanzania remain to be a major setback in obtaining substantial export business owing to the fact that unit production costs are high. The situation should change when an adequate material supply becomes available and trained manpower is effectively utilized to increase the level of outputs.

(c) Manpower development

Similar to the assistance provided in manpower development in the leather sector, the shoe industry benefitted from the in-plant training, resulting in a workforce fully trained in the use of machines in various operating units, as well as trained maintenance and repair personnel. This produced a versatility of operatives to create desired styles, including jogging shoes and other types of leather and canvas shoes of acceptable standard. Designing, pattern cutting as well as closing room practical on-the-job training was carried out which resulted in incorporating more than 80 improved styles into the production range. This will give some idea of the achievement accomplished through the training assistance of the project.

CHAPTER VI

FINDINGS

1. Hides and Skins Sector

There are no reliable statistics related to livestock population including figures other than the annual off-take of hides and skins. Annex 3, Table I, gives an estimated population of cattle, goat and sheep and their annual slaughter. Collection and raw export figures are based on the actual statistics available from the THS while the industrial processing is calculated by the difference between actually collected and exported raw hides and skins for the period between 1978-82.

The present estimated livestock availability is 13 million heads of cattle, 4.5 million heads of goat, and 3 million heads of sheep. The off-take rate for cattle is about 7.7 per cent, 3.1 per cent lower than the African average, or about 1 million pieces per annum. The off-take rate for goats is about 33 per cent or 1.5 million pieces per annum, and the relevant figures for sheep are 23 per cent or 0.7 million pieces per annum.

The actual collection and recovery for industrial processing of hides and skins is severely constrained by the infrastructural problems, poorly organized collection network, unrecorded trade to neighbouring countries and other similar problems.

In terms of raw material availability, actual collection of hides and skins over a five-year period has declined considerably. The share of goat and sheepskins is extremely alarming. Although quality and collection of hides has improved with the introduction of salting through the urban slaughterhouses only, no improvements are noted in the case of goat and sheepskins. This may be explained by the fact that goat and sheep are slaughtered by individuals in the countryside and skins remain uncollected through the official THS channels in the rural areas.

A similar situation exists in the case of cattle hides originating from rural areas where both quality and collection aspects need considerable attention.

## 2. The Tanning Industry

The first tannery in the country went into production in 1969. This was followed by the establishment of two tanneries at Morogoro and Mwanza which became operational in 1978 and 1977 respectively. As pointed out earlier, three tanneries put together should be able to process the available raw material in the country. Processing, however, is restricted to 40 per cent at the finished and 60 per cent at the semi-processed stage. Existing machinery and equipment conditions may further limit the production if no further capital investments are made to improve the performance of the tanneries.

In terms of percentage utilization of existing capacities, Annex 3, Table II, shows the percentage figures between 1978-1982. A further decline was noted in the production output for 1982, constrained by the shortage of hides and skins, imported chemicals and spare parts, as well as by electric power supply restrictions in the case of Mwanza Tanneries.

Substantial improvements have been made in the technical and technological standing of the leather sector and, in addition, suitable process technologies have been introduced. The improvements in the productivity and quality are evaluated in detail in Annex 1 within the context of available resources, excluding factors outside the project's scope of activities.

The main achievement in the leather sector is in terms of substantial improvement in added value of the products. The average price obtained for leather produced in the tanneries increased from TSh 4.56 in 1978 to TSh 10.9 in 1982 per sq. ft. sold. In comparison, the international raw hide price which directs the price development in the international leather market was as follows: Chicago hide price, heavy native steers, 582 lbs and over, 1978, US\$ 0.38/lbs, 1982, US\$ 0.40/lbs. A raw material price increase in the international market during 1979 by over 100 per cent (Chicago heavy native steers reached over US\$ 0.90/lbs in February 1979) seems not to have affected the Tanzania market.

## 3. Leather Products and Shoe Industry

The following table provides a background of TLAI subsidiary companies covering the production of leather products, shoe and auxiliary industries.

TLAI Subsidiary Companies

Leather Products, Shoes and Auxiliary Industries

<u>Name of Plant and Location</u>	<u>Type and Production Capacity Per Year</u>
1. Tanzania Shoe Company Bora Dar-es-Salaam	4 million pairs of leather, canvas and other types of shoes  3 million pairs of beach sandals, and bicycle tires and tubes
2. Morogoro Shoe Company Morogoro	4 million pairs of leather and canvas shoes
3. Morogoro Leather Goods Factory Morogoro	
4. Morogoro Canvas Mill Morogoro	9.5 million sq. metre per annum as installed capacity
5. Morogoro Leather Board Factory Morogoro Pipeline project	1.8 million tons of leather board as installed capacity

Bora Shoe Company is the oldest established shoe plant supplying major requirement of shoes, bicycle tires/tubes for the domestic market. Morogoro Shoe Company began in 1981 with an installed capacity of 4 million pairs annually, with 80 per cent of the production targeted for the export market. Pipeline projects include Morogoro Leather Goods Factory which started operating in the premises of Morogoro Shoe Company to produce a trial run and carry out the training programmes. The turnover for 1982 shows a figure of 3 million shillings. Morogoro Canvas Mill and Morogoro Leather Board Factory are still pipeline projects as auxiliary units for the leather products industry sector. The production performance of Bora Shoe Company for the period 1978 - 1982 is shown in Annex 3, Table III. The production analysis shows a 50 per cent decline for 1982 as compared to the output level of 1978. Basically the reduction is due to the shortage of imported inputs. The proportional level of leather shoe production remained adequate because of locally available finished leather supplied by the tanneries.



The production of rubber sandals and bicycle tires and tubes had maintained a production level in the region of 420,120 pairs and 672,210 pieces respectively for 1982, a significant reduction of 66 per cent compared to the production level of 1978. With regards to Morogoro Shoe Company, production figures are far below the planned target for the period between 1980 and 1982 as shown below.

Morogoro Shoe Company  
Production Data 1980 - 1982 (Shoes)

<u>Year</u>	<u>Planned Output World Bank Study (Pairs)</u>	<u>Actual Production (Pairs)</u>
1980	1,200,000	20,000
1981	2,400,000	57,362
1982	3,200,000	132,591 (till Sept.)

According to the management of Morogoro Shoe Company, among the main reasons for the above low production is the shortage of foreign exchange to import material in addition to insufficient supply of leather from the tanneries.

A detailed analysis is reported in the findings of the mission completed under the UNIDO project SI/URT/82/802 concerning the overall status of Morogoro Shoe Company and the proposals made for reactivating its performance. One interesting aspect of the findings does indicate that with the existing setup of the plant, ex-factory price at Morogoro per pair of shoe is US\$ 21 as compared to similar shoes offered in Europe by a number of other developing countries at US\$ 7. This clearly shows the difficult task which lies ahead in building up the export business of shoes from Morogoro.

According to the studies carried out by the project as well as based on recent production statistics and estimation of retail data, actual consumption of shoes in Tanzania computes to about 0.3 pairs per capita as compared to 4 to 5.5 pairs for industrialized countries and 1.0 for developing countries. Based on the possibility of selling 5 million pairs of leather shoes in Tanzania (3 million from Bora and Morogoro and 2 million pairs from the private sector annually) plus canvas, rubber and plastic footwear, the overall consumption in the country will not achieve a level of 0.5 pair per capita.

As the shoe industry will still depend on a foreign exchange component for its raw material inputs, there is need to design carefully a suitable production programme as elaborated in the report submitted by the project SI/URT/82/802. These recommendations provide a basis on which the plant may operate on a profitable scale over a planned production phase of four to five years.

#### 4. Manpower Development

Skilled manpower availability in the leather and leather products sector has immensely improved compared to the time when the project started. As pointed out at the time when the project started its activities, counterpart availability for various experts was impossible to apply in its conventional terms. The situation has now changed and it is encouraging to note that staff of various categories are trained and available in the industry.

A substantial part of the project activities and efforts were concentrated on carrying out a comprehensive manpower development programme, conducting seminars and courses and fellowship training. It was agreed by the tripartite review meeting held on 28 June 1983 that the project has achieved outstanding results in the area of manpower development and it was requested that the terminal report should give further details on this subject.

The complete manpower development plan for the overseas fellowship training 1980-85 is presented in Annex 4. The fellowship programme implementation, divided into UN-sponsored and bilateral-sponsored fellows, is presented in Annex 5. Annex 6 presents the training results compared with the targets set out in the project document and in the TLAI Manpower Development Plan 1980-85. Details of the training courses held are specified in Annex 7.

The achievements of the training programmes will come fully into effect when the overseas training programmes are completed and when the overall manpower development plan for the sector is completed by 1985. Difficulties in the full understanding of this sector become more obvious at the higher level, where economists or similar category officials are faced with reviews of investment budgets, operating

data and performance evaluation. The project tried to reduce the difficulties by conducting training programmes, consultations and by providing technical advice. Such activities should be continued by TLAI with regular training and seminar programmes. As additional manpower is made available for the industries, a fully technical cadre should be established at TLAI level which will substantiate and improve the performance of the sector as a whole.

## CHAPTER VII

### RECOMMENDATIONS AND CONCLUSIONS

The project DP/URT/78/010 achieved various improvements in upgrading the technical and processing standards of the leather and leather products industries in Tanzania. Considerable progress was made during the life of the project towards the acquisition of know-how in the production of leather and leather products of acceptable quality. The improvements in productivity and quality are specified in detail in Annex 1 as recommended by the tripartite review meeting of 28 June 1983.

Further strengthening of industrial and technological capabilities and capacities largely depends upon continued efforts by TLAI and its subsidiary companies, as well as the raw material supply needed to operate this important industry. In this respect, the following recommendations are put forward:

1. As a basic resource for the development of leather and leather products industries, efforts should be made to maximize the collection and quality improvement of raw hides and skins. Possible implementation of a study to be undertaken as proposed in Annex 8.
2. It is important to develop the know-how in the production of finished leather from hides and skins and in the implementation of expansion programmes suggested to equip the plants for a production up to fully finished leather.
3. Tanneries, as a short-term plan, should concentrate on the production and export of semi-processed leather until the situation

with regard to the import allocation has improved sufficiently for obtaining chemicals and spare parts, and the implementation of the rehabilitation programme has taken place.

4. Strengthening of activities related to marketing and commercial aspects at TLAI level. Furthermore, for leather products the Government should consider a form of subsidy to enable these industries to compete in the world market. There should be an incentive to encourage the maximization of the export potential.

5. Implementation of a "revolving fund" whereby exports of leather and leather products should be directly related to the allocation of funds for imported materials or vice versa. This would act as a support to import chemicals and spare parts, as well as act as an additional incentive for the sector to export.

6. Careful consideration may be given to implementing the findings and recommendations of the survey report submitted through the project SI/URT/82/802, in particular to the operation of Morogoro and Bora Shoe plants.

7. The continued development of manpower, especially high-level technical personnel, should be high on the agenda of training programmes. This will enable the Tanzania leather and leather products industries to achieve results on the international leather markets.

8. Implementation of pipeline by-products industries as well as proposed projects such as woven leather and sports goods should be considered by the Government (TLAI) for early implementation.

9. Implementation of TILT will require UNIDO assistance in its initial starting phase. The project proposal under UF/URT/84/062, Assistance to TILT, should be considered by the authorities as a priority project.

10. To co-ordinate the initial phase of starting TILT, there is a need to bridge the ongoing UNIDO project DP/URT/78/010 with the proposed assistance UF/URT/84/062 in the form of extensions of the relevant experts.

11. In order that the activities started by the project prove useful in terms of achieving the long-term objectives, follow-up by the relevant authorities and the counterpart agency on a regular basis is required even after the termination of UN-assisted projects.

The above recommendations are commented on by the Government counterpart agency TLAI in the report entitled "General Manager's Report, UNIDO Assistance Project URT/78/010, Leather and Leather Products Industries Development" dated June 1983, enclosed as Annex 2 to this report, as recommended by the tripartite review meeting of 28 June 1983.

ANNEX 1

SUMMARY OF IMPROVEMENTS IN PRODUCTIVITY

As requested by the tripartite review meeting of 28 June 1983, the improvements in productivity and quality are evaluated in this annex within the context of available resources, excluding factors outside the project's scope of activities.

1. Leather Sector

Assistance provided by the project had a substantial impact on the improved technical standing of the three tanneries. Capacity utilization remained a major setback owing to the overall shortage of raw hides and skins and other essential inputs such as chemicals, spare parts, etc. The assistance provided by the experts introduced revised and better tanning formulae, maintenance and repair of machinery and equipment, as well as training of technical and other personnel. Further value-added processing contributed to a 20 per cent gain in the actual quality of upper leather compared to previously semi-processed and lining leather. A reduction in machinery and equipment breakdowns contributed towards decreasing downtime by an estimated 25 per cent. Productivity increased accordingly and savings in overtime and additional manhours were made in the tanneries.

The results achieved in terms of value added are substantial and it may be clearly seen from the table below that the average price obtained for leather produced in the tanneries increased from TSh 4.56 in 1978 to TSh 10.9 in 1982 per sq.ft. sold.

	<u>Production/Sales Output Leather Sector</u>				
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
Sales Value in '000 TSh	35,998	80,333	110,521	106,710	117,804
Production in '000 sq.ft.	7,888	15,352	10,538	10,959	10,741
Average price in TSh/sq.ft.	4.56	5.2	10.4	10.6	10.9

It may be further stated that the judgement of quality standards in the leather production is based on subjective and visual tests. Therefore, it may be difficult to quantify the actual gain in terms of value added based on these important factors. However, it is recognized that the leather produced in the last two-year period has achieved an acceptable level which is seen from the fact that substantial export orders are received both for the semi-processed leather and leather products from Tanzania. Output of finished leather has increased from 30 per cent in 1979 to 60 per cent in 1982. Furthermore, there is an actual gain in the production of high-grade lining leather. This development has further strengthened the supply position of quality finished leather needed by the Morogoro Shoe Company to meet its export orders.

## 2. Leather Products Industries Sector

The assistance was mainly provided to Bora Shoe Company. Technicians from Morogoro and Zanzibar participated in the in-plant and fellowship training carried out by the project. Project inputs were related to the assistance needed on technology, designing and pattern cutting, closing room practices as well as machinery maintenance. Substantial improvements are seen as a result of UNIDO inputs in the overall performance of the plant in the last three-year period. Production of canvas, PV and rubber shoes was reduced by 40 per cent owing to shortage of imported material. However, production of only high-fashion leather shoes increased from 16,900 pairs in 1979 to 75,800 pairs in 1982. This is considered to be a good sign as the supply of finished leather from the three tanneries helped to improve productivity in the high fashion department of Bora Shoe Company. Cutting value of leather improved with an average gain of 17 per cent (previously 2.9 sq.ft. to the present 2.4 sq.ft. per pair) due to intensive training activities carried out in shoe designing/pattern cutting as well as closing techniques. In actual value this will represent a net savings of TSh 743,598 based on the production figure for high fashion shoes in 1982. Furthermore, splits were introduced as import substitution to leather board with a gain estimated at TSh 1.5 million during 1981-1982.

Substantial work was carried out by the project experts in the modifications of formulae and moulds in the production of PU soles. High-heel soles initially produced by the plant were redesigned. This assisted in creating a wider variety of shoe lines for the markets, resulting in a net saving of PU material of 45 per cent. Recycling of PVC material was introduced on a regular basis, giving the plant a further gain of 20 per cent material.

Overall quality improvement in terms of actual presentation of shoes has improved considerably in the past three-year period, which may be difficult to quantify in terms of figures. It may be pointed out that reject output of 8 per cent in 1979 has now dropped to 3 per cent on an average production for various types of shoes produced at the plant.



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ANNEX 2

TANZANIA LEATHER ASSOCIATED INDUSTRIES

GENERAL MANAGER'S REPORT

UNIDO ASSISTANCE PROJECT, URT/78/010

LEATHER AND LEATHER PRODUCTS INDUSTRIES DEVELOPMENT

June 1983

Dar es Salaam

Reference is made to the terminal report submitted by Mr. B. Svensson, UNIDO Chief Technical Adviser, during April 1983 highlighting the overall status of the assistance programme undertaken by the UNIDO project since December 1979. This also includes various technical reports submitted by the individual experts who have served under this project from beginning of 1980. A meeting was held on 3rd June 1983 at Moshi between TLAI, its subsidiary companies and UNIDO experts presently serving in Tanzania where detailed evaluation of the activities carried out by the UNIDO project and a survey of recommendations submitted was discussed and a plan of action was agreed. This report includes a brief about our meeting at Moshi as follows:

(a) TECHNICAL ASSISTANCE

1. Hides and Skins Sector

On-going FAO project is presently providing assistance to the Tanzania Hides and Skins, the project initially started in 1981. With the recent changes in setup of THS, Ministry of Livestock Development has taken over the administrative responsibility of THS and as such in an overall development of raw hides and skins sector. THS basically remains a main supplier of raw material to the tanneries. Although TLAI was involved in initiating FAO assistance to THS, no specific feedback is received from the project on issues such as actual results of the hides and skins improvement, development of by-products industries which have been identified as main features of the FAO inputs. As pointed out in the UNIDO terminal report findings, raw material supply remains one of the major setbacks in the overall development and efforts are made to keep a close co-ordination. FAO inputs related to the introduction of salting has improved the supply and the quality of hides from the organized slaughter. However, much needs to be done to improve the supply from rural areas.

2. Leather Sector

Assistance provided by the UNIDO project made a substantial impact towards improving technical standing of the three tannery plants. Capacity utilization remained a major setback due to the overall shortage of raw hides and skins and other essential inputs such as chemicals, spare parts, etc. Valuable assistance is provided by the experts towards introduction of certain processing formulae, maintenance and repairs of machinery and equipment as well as training of technical and other personnel. During this period, results achieved reflected towards increased productivity, quality improvement as follows:

- Output in wet blue export quality has improved with an average gain in export prices by 30 per cent.
- Output and quality of material has increased by 20 per cent for upper leather as compared to previously low priced lining leather.
- Increase in average downtime on machinery breakdown and productivity by 25 per cent.

The above has reflected in creating a sound manufacturing base to complement the diversified product-mix and overall improvement in the marketing strength for the leather sector. OPAS assistance as proposed during January 1981 tripartite review meeting should have been very valuable to further encourage the performance of the leather sector.

3. Shoe Sector

Major assistance was provided to the Bora Shoe Company. The expert services in the field of production, designing/pattern cutting, closing room practices, maintenance engineering has made a substantial contribution in areas such as product design, quality control and improved production techniques. Similar to the leather sector, capacity utilization remained low due to the external factors. Positive results are noted in areas such as:

- Improved work plan and operator flexibility.
- Improved manufacturing control in the plant.
- Added effective maintenance system introduced at the plant.
- Recycling of material in case of PU plant where a net savings of imported PU material is recorded to the tune of 20 per cent.
- Technical inputs provided by the UNIDO project in the rehabilitation programme for Bora will assist in the overall progress of the plant on a long-term basis.

Bora would like to obtain added assistance in the implementation of the proposed rehabilitation programme.

#### 4. Training

UNIDO assistance to this sector in training activities has been immense, both related to the in-plant and overseas training programmes undertaken in the various fields. As briefed in the UNIDO terminal report, all these activities have made a substantial impact on the overall development of our sector. Training component has in fact made a positive contribution in improving the overall productivity of the leather and leather products industries sector. It is difficult to quantify the actual gains in terms of figures. Furthermore, this period is too short to feel a significant impact as a number of fellows are still undergoing training programmes abroad. This does not include the time needed for these technicians to acquire practical field experience. We wish to request a continued support from UNIDO in fulfilling our training needs planned earlier to cover the period up to 1985.

#### 5. Other Projects

- Proposed implementation of TILT project is nearing completion with regard to civil works. Installation of machinery and equipment will soon begin. No firm decision is made concerning assistance through UNIDO in actually starting TILT.
- Outcome of consultancy services under the project SI/URT/82/802 provided a sound technical recommendation regarding Morogoro

Shoe factory. We are in agreement with these proposals and we have initiated action in contacting some of the countries for a possible technical and marketing collaboration as proposed in the report.

- Training programme for the proposed Morogoro Leather Board plant was partly financed through the project SI/URT/77/806. As this project is likely to go into production by the end of 1984, technicians will be sent for further training through other bilateral donors, i.e. CID/EEC.
- Consultancy services through the project RP/URT/82/005 have proved valuable in fulfilling the requirements for the establishment of TILT. Outcome for 12 man-month consultancy services is still awaited. We consider that this assistance is necessary as elaborated in the terms of reference prepared for the two experts.

(b) TLAI'S COMMENTS AND ACTION ON THE RECOMMENDATIONS MADE BY THE UNIDO PROJECT

As pointed out earlier, a meeting was held between TLAI and its subsidiary companies to discuss in detail the implementation of various recommendations by the UNIDO project reports. As the terminal report presented by Mr. Svensson includes a summary and recommendations for the overall activities of the UNIDO project, we will give our comments as follows:

1. Every effort is made to keep close co-ordination with THS, we are not in a position to influence possible implementation of study proposals without the involvement of the Ministry of Livestock Development. We believe that the Ministry of Industry may like to initiate this with their counterpart Ministry of Livestock Development.
2. It may be difficult to realize the implementation of expansion programme which will require import support for such a capital investment. We are in full agreement with the proposals prepared by UNIDO to equip the plants to go up to fully finished leather.

3. Every effort is made to increase the export of semi-processed leather. Purchase of the generator for the Mwanza Tannery will further enhance the output of wet-blue hides for the export market.

4. A marketing and commercial department is already established at the TLAI level. We consider that implementation of centralized marketing will require some more time and experience. Proposals for subsidy and export incentive schemes have been discussed at various stages including necessary contacts made through the Ministry of Industry. We believe that implementation of such a plan will assist a great deal in our export programming. Necessary follow-up is made to obtain these facilities.

5. Idea of "revolving fund" is excellent to obtain import support for the essential inputs. Several contacts made earlier did not receive positive results. Necessary follow-up is being made to obtain these facilities.

6. We are in agreement with the technical report submitted by the project SI/URT/82/802 and contacts are made for a possible technical and marketing collaboration through the countries recommended in this report.

7. TLAI will continue its efforts in training. This remains as a priority issue as a part of our efforts for the overall development of this sector. Implementation of TILT will soon materialize which will further strengthen the possibilities of training technicians within Tanzania. While we have achieved nearly 70 per cent of planned fellowships for 1980-85, we require continued support from UNIDO in achieving our targets of almost 900 man-months by end of 1985.

8. Leather board plant will go into production by mid-1984. Projects such as woven leather and sports goods are still in the pipeline for discussion with a possible financing from EEC and other donor countries and remain high on our priority list.

9. We are in full agreement with UNIDO project recommendation that TILT will require assistance from UNIDO in starting of the

institute. Therefore, implementation of project proposals as recommended under the project UF/URT/84/062 is extremely important.

10. Proposals submitted by TLAI for 12 man-month consultancy is forwarded and final outcome is still awaited from UNIDO.

11. Every efforts will be made by TLAI to follow the work carried out by UNIDO project and implement its recommendations. Possibility of short-term technical missions from UNIDO will be of great value to us in monitoring the activities and provide a periodic technical assistance and consultations after the expiry of this large-scale UNIDO project in Tanzania.

As an additional comment to the above, we request UNIDO's assistance in the implementation of a study tour to the selected training and research institutes connected to the leather and leather products industries for two of our technical staff assigned to TILT. We suggest that such a mission could be undertaken during the latter part of 1983. Such a study tour will help us to establish contacts with similar institutions as well as to establish contacts for future collaboration. Earlier proposals submitted to UNDP/UNIDO were approved in 1982 through the project DP/URT/78/010 but were not implemented.

Similarly, Tanzania wish to participate in future in global consultation programmes initiated by UNIDO for the overall development of leather and leather products industries sector world-wide.

Finally, we wish to express our sincere thanks and appreciation to UNDP, UNIDO and experts who served under the project for their assistance and look forward to our future collaboration.

ANNEX 3

STATISTICAL BACKGROUND MATERIAL

TABLE I

Estimated Livestock Population and Annual Hides and Skins  
Output from Cattle, Goat and Sheepskins and Leather  
in Tanzania

	<u>Cattle</u>	<u>Goat</u>	<u>Sheep</u>
	<u>Million Pieces</u>		
Population	13.00	4.50	3.00
Slaughter of annual output of hides and skins	1.00	1.50	0.70
Industrial processing based on available raw stock	1.00	1.50	0.70
	<u>Per cent (hides and skins)</u>		
Availability	100.00	100.00	100.00
Actual collection (average 1978-82)	56.03	30.72	35.74
Uncollected or uncommitted for (average 1978-1982)	43.97	69.28	64.26
Export in raw (average 1978-82)	6.80	1.00	0.06
Industrial processing (average 1978-82)	49.22	29.92	35.05



TABLE II

Production and Capacity Utilization Tanneries, 1978 - 82

Name of Plant	Capacity Utilization	Production Performance and Capacity Utilization									
		1978		1979		1980		1981		1982	
		sq.ft.	%	sq.ft.	%	sq.ft.	%	sq.ft.	%	sq.ft.	%
Tanzania Tanneries Moshi	10,745,000	6,377,000	59.3	8,964,000	83.4	8,406,000	78.2	7,103,000	66.1	5,137,000	47.8
Morogoro Tanneries Morogoro	8,285,000	746,000	9.2	3,082,000	37.2	3,701,000	44.7	4,289,000	51.8	4,145,000	50.0
Mwanza Tanneries Mwanza	7,500,000	747,000	10.0	3,306,000	44.0	2,132,000	28.4	2,381,000	31.7	1,459,000	19.4
Per cent Capacity Utilization			26.1		54.8		50.4		49.8		39.1

TABLE III

Tanzania Shoe Company (Bora)  
Production Data 1978 - 1982 Shoes

<u>Category</u>	<u>Actual Production - Pairs</u>				
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
Leather (gents)	173,397	143,548	112,972	149,700	107,588
Leather (youths)	135,504	94,605	94,457	130,202	84,325
Vs Safari	218,325	164,030	157,726	177,214	79,512
Sandal (MC)	256,566	299,229	112,342	135,995	122,240
Mod. (gents)	86,404	80,786	191,879	96,536	68,320
Mod. (ladies)	163,377	179,656	182,859	121,137	111,623
Mod. (children)	158,980	181,974	203,016	184,172	146,188
Sub-total	1,292,553	1,143,828	1,054,251	944,956	719,796
Canvas (gents)	553,826	568,382	480,879	618,818	370,238
PU 60-61	585,507	487,857	422,846	324,094	292,494
PU 58	557,115	360,971	336,507	254,747	131,285
Sub-total (canvas)	1,696,448	1,417,210	1,260,232	1,197,659	794,017
Sub-total (plastic)	111,534	88,325	6,645	40,299	35,277
Main Shoe Factory	3,100,535	2,649,363	2,321,128	2,182,914	1,549,000
High Fashion Leather Gents	8	16,916	53,991	84,267	52,071
Ladies	-	-	-	-	23,756
Total (leather)	1,292,561	1,160,744	1,108,242	1,029,223	795,623
	41.3 %	43.8 %	47.7 %	47.1 %	51.4 %

TABLE IV

Raw Hides and Skins Pricing Structure

		<u>Farmer TSh</u>	<u>Agency Commission TSh</u>	<u>Purchase Price TSh</u>	<u>THS O/H and Make-up TSh</u>	<u>THS to Tanneries TSh</u>	<u>% THS O/H Cost Contribution</u>
Hides	I	8.15	1.55	9.70	4.80	14.50	33.10
	II	6.15	1.55	7.70	5.55	13.25	41.88
	III	3.15	1.55	4.70	6.80	11.50	59.13
	IV	1.15	1.55	2.70	4.30	7.00	61.42
Goat 120 lb/ 000	I	14.00	1.80	15.80	6.20	22.00	28.18
	II	12.00	1.80	13.80	5.70	19.50	29.23
	III	8.50	1.80	10.30	6.20	16.50	37.57
	IV	3.00	1.80	4.80	3.20	8.00	40.00
Sheep	I	8.25	1.80	10.05	4.95	15.00	33.60
	II	6.25	1.80	8.05	4.95	13.00	38.07
	III	3.25	1.80	5.05	4.95	9.50	46.84
	IV	1.55	1.80	3.35	2.65	6.00	44.16

Source: THS (1982)

Manpower Development Plan  
Fellowship Training Requirements  
(Overseas)  
1980 - 1985

<u>Training Category</u>	<u>1980</u>
1. Leather Technology (3 years Diploma)	4/48
2. Laboratory Technician Leather Manufacturing (1 year Certificate)	1/12
3. Shoe Technology (3 years Diploma)	2/24
4. Shoe Technology Specialized Training (1 year Certificate)	1/12
5. Shoe and Leather Goods Designing (2 years Diploma Certificate)	2/24
6. Leather Board Manufacturing In-plant Training (6 months)	2/12
7. Tannery Machinery Maintenance (4 months)	1/4
8. Shoe Machinery Maintenance (4 months)	1/4
9. Industrial Training and General Management Seminars, In-plant or Institutional Training (4 months)	3/12
10. Accountants and Financial Controllers, In-plant or Institutional Training (4 months)	1/4
11. Project and Sectoral Studies, Planning and Appraisal (1 year)	1/12

<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>Total</u>
3/36	3/36	6/72	6/72	3/36	25/260
1/22	1/12	1/12			4/48
2/24	2/24	4/48	4/48	2/24	16/168
3/36	3/36	3/36			10/120
2/24	2/24	4/48	2/24		12/144
1/6	1/6				4/24
2/8	2/8				5/20
2/8	2/8				5/20
3/12	2/8				8/32
2/8	2/8				5/20
1/12	1/12				<u>3/36</u>
		<b>Total (man/months)</b>			<u>97/892</u>

ANNEX 4

ANNEX 5

Fellowship Programme Implementation  
Leather and Leather Products Industries Sector  
1980 - 1983 (mid)

(Assisted through UNIDO project DP/URT/78/010 and other International and Bilateral Assistance Projects)

<u>No.</u>	<u>Area of Training Programme</u>	<u>No. of Participants (Total)</u>	<u>UN Sponsored</u>	<u>Bilateral Sponsored</u>
1.	Leather Technology (Multi-annual Training Course)	11	4	7
2.	Leather Technology (Short-term Study Courses)	15	-	15
3.	Shoe Technology (Multi-annual Training Courses)	4	2	2
4.	Shoe Technology and Designing (Short-term Study Tours)	14	5	9
5.	Leather Goods Designing and Technology (Short-term Study Tours)	3	3	-
6.	Rubber, Textile (Canvas) and Plastic Technology (Multi-annual Courses)	5	3	2
7.	Tannery Machinery Engineering (Short-term Study Courses)	6	3	3
8.	Tool Designing (Shoes) (Short-term Courses)	1	1	-
9.	Shoe Maintenance Engineering (Short-term Study Tours)	1	-	1
10.	Industrial Training and General Management Courses (Short-term)	7	7	-
11.	Marketing Study Tours including Participation in the International Leather Fair in Paris	10	7	3
12.	Participation in UNIDO Consultation Cologne, 1980	3	3	-
13.	Leather Board Technology (Short-term In-plant Training)	8	2	6
14.	Material Handling and Stock Control	1	1	-
		<u>89</u>	<u>40</u>	<u>49</u>

Note: Above actual 1980-83 year implementation of overseas fellowship programmes computes to a total of 627 man-months contribution compared to the 1980-85 planned figure (see Annex 4) of 892 man-months representing 70 per cent achievement of the five-year target in a three-year period.

ANNEX 6

TRAINING

(In-plant, Seminars, Courses)

<u>Field of Training</u>	<u>No. of Trainees As per Pro.Rev. F</u>	<u>Trained</u>
1. Leather processing and technology, inspector level, tanneries	25	70
2. Shoe production and design, inspector level, Tanzania Shoe Co.	25	75
3. Leather marketing and selectors, middle management and inspector level, tanneries	15	18
4. Maintenance category staff from tanneries	10	28
Total	75	191

155 per cent over target

FELLOWSHIPS

		<u>Number of Trainees (in brackets - implemented)</u>		
		<u>By Project</u>	<u>Other</u>	<u>Total</u>
Leather Technology	2-3 yrs.	3 (4)	4 (7)	7 (11)
Shoe Technology	1-2 yrs.	2 (2)	- (2)	2 (4)
Shoe Design	2 yrs.	-	1 (-)	1 (-)
Shoe Mould Making Techn.	6 months	1 (1)	-	1 (1)
Tannery Machine Maint.	2 months	3 (2)	- (3)	3 (5)
Leather Technology Inspect.	3 months	-	8 (8)	8 (8)
Marketing of Leather and Leather Products	3 months	- (1)	2 (-)	2 (1)
Leather Goods Technology	6 months	- (1)	-	- (1)
Management	2-5 mths.	- (3)	-	- (3)
Procurement and Supplies	8 months	- (1)	-	- (1)
Rubber Technology	10 months	- (1)	-	- (1)
Total		9 (16)	15 (20)	24 (36)

50 per cent over target

In addition to the above the following additional training programmes were undertaken for TLAI as per their Manpower Development needs (in brackets - financed by project DP/URT/78/010).

	<u>TLAI Plan (1980-85)</u>	<u>Implemented up to 1983</u>
Management	5	(1) 5
Leather Goods Technology	3	(1) 3
Finance/Costing	5	(1) 2
Textile Technology	4	2
Laboratory Technology	3	2
Industrial Plant Production System	3	(2) 3
Industrial Training Management	3	(1) 2
Procurement	1	(1) 1
Rubber Technology	1	(1) 1
Leather Board Technology	16	8
Shoe Designing/Technology	<u>12</u>	<u>8</u>
Total	56	(8) 37

Note: Actual implementation of overseas fellowship programmes computes to a total of 627 man-month contribution compared to TLAI planned figures for 1980-85 of 892 man-months.



ANNEX 7

TRAINING COURSES/SEMINARS CONDUCTED IN TANZANIA  
(Leather and Leather Products Industries Sector)

<u>No.</u>	<u>Training Activity</u>	<u>Duration</u>	<u>No. of Participants</u>
1.	Goat and sheep crust leather production	25.5.80-30.5.80	15
2.	Hides crust leather production and dyeing of suede hunting	27.10.80-1.11.80	21
3.	Leather technology (financed through DP/URT/78/010)	2.2.81-7.2.81	18
4.	Standardization of leather	2.2.81-7.2.81	18
5.	Hides and skins retanning finishing	26.4.81-10.4.81	16
6.	Management course for shoe plant supervisors	27.4.81-29.5.81	12
7.	Leather upper and bottom clicking	7.8.81-10.9.81	13
8.	Rubber technology production course	9.10.81-20.11.81	25
9.	Shoe designing and pattern cutting	I 6.6.80-24.8.80 II 1.2.82-30.4.82 III 10.9.82-9.12.82	8 10 13
10.	Upper stitching and closing	I 24.2.82-27.3.82 II 29.3.82-5.5.82	10 10
11.	Hides and skins processing	6.4.81-11.4.81	18
12.	Tannery machinery maintenance In-plant training	10.8.81-12.9.81	20
13.	Shoe machinery maintenance	6.6.82-23.6.82	12
14.	Leather finishing (hides and skins)	2.3.83-4.3.83	22
15.	Boiler maintenance course conducted by the project for various industrial sectors in collaboration with the Ministry of Industry	8.11.82-14.12.82	16

ANNEX 8

A SCHEME FOR UNDERTAKING A STUDY ON COLLECTION AND  
UTILIZATION OF RAW HIDES AND SKINS IN TANZANIA

(Prepared for consideration of THS/TLAI and other Government agencies with a view to maximizing the collection and utilization of raw materials within the country and to obtain added value through increased export of processed hides and skins and leather products from Tanzania.)

June 1982

1. Importance and Background

Tanzania's livestock population and the production of raw hides and skins is the second largest in Africa and a very important foreign exchange earner to the country. Potentially this sector has the scope to contribute more to increasing value-added earnings if the present large proportion of uncollected raw hides and skins was properly utilized. No reliable information on the actual extent of wastage at different levels is available.

In view of the aforementioned, it is essential to have thorough knowledge of the resources of hides and skins in Tanzania. As a by-product of livestock industry, supply mostly depends on the rate of slaughter of animals and therefore does not seem to respond to the changes in demand for leather and leather products. In other words, these resources are unrealistic in nature and as such their management at different levels is of importance for the long-term development of leather and leather-based industries in Tanzania.

Keeping in mind the economic importance of livestock and its impact on hides and skins availability, a study on resources of the leather industry throughout the country will help in planning a balanced nation-wide growth of leather and leather-based industries in Tanzania. There have been attempts to prepare such studies in the past but a comprehensive techno-economic survey should be carried out in order to achieve a balanced development of the tanning, footwear and leather goods industries. This should be based on vital factors such as supply of hides and skins, their present collection, export earnings, demand for leather-based articles including processed hides and skins and the very important factor of the availability of skills.

2. Uneconomic Movement of Hides and Skins

Hides and skins are mostly processed by the state tanneries for exports of semi-processed leather or local consumption mainly for the shoe industry with the remainder exported in the raw state, or unaccounted for. Exports of both raw and processed hides and skins are subjected to international competition from various countries

including various developing countries which have expanded their industries to the extent of gradually switching over to the export of leather products. Some of these countries have also become importers of raw hides and skins from different sources.

In Tanzania, due to unsatisfactory communication and poor infrastructure, hides and skins from certain areas do not reach the commercial or processing centres and considerable deterioration in the quality occurs. During the wet season the situation becomes even worse when places become inaccessible due to the large network of roads which can only be used in dry weather.

### 3. Benefits of the Study and Possible Drawbacks

As indicated above, any future steps that will be taken to maximize the productivity of the leather and leather products sector depends entirely upon the effective collection and delivery of hides and skins to the processing sector which is able to consume all hides and skins produced in Tanzania. There is a need to develop an effective network of collection and the overall monitoring and co-ordination of this network must be regularized.

Timely implementation of the objectives are very important. This trade is export orientated and the development efforts will be weighed against other developing countries having similar material to offer to the world market.

Based on the above briefing, TLAI, in consultation with various authorities, may set up a working group to prepare a detailed study relating to the present hides and skins availability, collection and distribution systems in the country, with a view to establishing long-term strategies for the overall development of the leather and leather products industries sector in Tanzania.

### 4. Terms of Reference

The following terms of reference are suggested for the working group:

(a) To make projections for, say, a ten-year period to determine the following:

- (i) total availability of hides and skins
- (ii) total production of hides and skins
- (iii) consumption of hides and skins by existing leather sector
- (iv) balance available, if any, or shortfall for leather sector based on the installed capacity.

(b) Effect of above findings on the actual performance of the leather and leather products industries sector in Tanzania.

(c) Evaluate quality aspects of hides and skins production in Tanzania on a regional basis, to determine how the quality limitations equate to the need of the end-use.

(d) Carry out a detailed analysis of the existing collection network, within THS and the co-ordination system with its out-stations. Based on the above findings, identify shortcomings, if any, in the present collection of hides and skins.

(e) Evaluate overall monitoring by THS on collection of hides and skins on a country-wide basis including suggestions to improve the system which will effectively increase the efficiency in the present collection within the THS network.

(f) Study the areas of responsibilities and functions of other Government and private organizations in the hides and skins sector, including their effect on the actual availability and collection.

(g) Based on item (a) (ii) and (f) above, recommend necessary steps to be taken to avoid duplication of efforts and overlapping responsibilities that may exist in the hides and skins sector.

(h) Evaluate present pricing and incentive systems and grading aspects for the hides and skins, both at organized slaughterhouses and individual suppliers. Suggest appropriate measures needed to

introduce a system whereby hides and skins prices are linked to the international market without adversely affecting the earnings of the farmers who are primary producers of hides and skins in Tanzania.

(i) Study the present collection system and with the existing limitations of infrastructure in the country, suggest short-term and long-term measures needed to improve the collection of hides and skins.

(j) Evaluate the actual exports of raw hides and skins from Tanzania in the past five-year period, including recommendations based on the economic benefits of such export as against processed hides and skins or finished leather goods.

ANNEX 9

SUMMARY OF RECOMMENDATIONS OF THE INTERNATIONAL EXPERTS  
ENGAGED IN THE PROJECT

The international experts who were engaged in the project have all prepared individual technical reports which have already been submitted to the Government. Many of these recommendations have already been implemented or are in the process of being implemented. The recommendations are, however, reproduced in this annex for easy reference. In order to study the recommendations in their full context the reader may refer to the text of each individual report.

Post 11-02 - Leather Manufacturing Expert, Mr. P.B. Buit  
Terminal report April 1983

A. Development of the Industry

Various improvements have been made to upgrade the technical and processing standards of the leather industry, including manpower development programmes undertaken during the project activities. Improvements introduced to date can be utilized only if such efforts are continued on a regular basis. Now that most tanneries are technically able to operate, emphasis should be placed on the acquisition of know-how in the production of leather of acceptable quality. In this respect, the following recommendations are put forward.

1. Quality and collection of raw hides and skins should be improved. The tanneries should concentrate on the production and export of semi-processed i.e. wet-blue and crust leather. It is important to develop know-how in processing of goat and sheepskins with minimum wastage particularly during its initial wet processing, i.e. soaking and liming.
2. The leather sector will require considerable inputs in terms of machinery and equipment to be able to produce a standard quality finished leather. Implementation of a long-term rehabilitation programme prepared by the expert is therefore essential. The development of the leather industry in terms of creating additional

capacity towards finishing of hides and skins needs to be taken seriously. In this respect it is necessary to think in terms of expanding the existing plants rather than building new production units.

3. The development of by-products industries such as gelatine, production of tallow and other animal-based oil, woven leather, sports goods, should be considered as priority projects.

4. The development of manpower, especially high-level technical personnel should be high on the agenda of training programmes. Establishment of TILT will provide a sound basis for training junior-level and operative staff for the leather sector at its initial stage of operation.

5. In the case of Mwanza Tannery, in absence of a definite plan of action suggested by the task force, the plant should confine itself to the production of sole leather with a minimum of overheads possible. Additional capacity may be used to produce wet-blue chrome hides for the export market.

6. Tanneries should critically look at overhead and prime costs. Improved utilization of raw material and most effective manufacturing methods will help tanneries in reducing present inflated cost of production.

7. Marketing of leather and leather products should be encouraged with the countries which are willing to provide competent technical and back-up assistance rather than intermediaries. Statistics related to world output in footwear is provided in Annex I (of the expert's report).

B. Future United Nations Assistance

Tanzania is one of the countries in the world which receives extensive UNDP/UNIDO/FAO assistance in the leather and leather products industries. The comprehensive nature of assistance needed makes it essential to ensure a co-ordination programme with inter-agency support. In relation to future UNIDO assistance, therefore, the expert points out:



1. Inter-agency co-ordination of activities should be clearly worked out, preferably to implement an integrated development project with the involvement of various specialized agencies.
2. Successful implementation of country programme projects largely depends on follow-up carried out on a regular basis by the relevant authorities. A possible inter-African co-operation programme in the development of leather and leather products industry sector may be initiated through UNIDO. Monitoring of development activities, even after the close of UNIDO-assisted projects, should be made where the Government may require technical and other operational assistance from UNIDO on an ad hoc basis.
3. Assistance is badly needed by the leather and leather products industries sector in Africa. Institutions such as the planned establishment of TILT should, therefore, concentrate on the preparation of training, research and development activities which will have practical use in the progress of this sector. Assistance from UNIDO will be essential in starting the operation of TILT with the aim that this institute may be created as a regional training, research and development centre for east and SADEC African countries.

Post 11-03 - Footwear Technologist, Mr. J. Bek  
Technical report July 1982

Designing Department (Chief Designer)

1. A master sample room, covering footwear, rubber components and basic materials should be established. This will be of great value in:

- (a) production planning
- (b) material planning and advance ordering
- (c) quality control
- (d) financial planning

Manufacturing (Production Managers)

2. Raw material control, especially that of leather, should be improved.

3. The quality of products should be monitored on hourly basis according to production samples.

4. The capacity of the conveyors should be increased to 1,000 pairs in eight hours.

Overall Economy (Cost Accountant)

5. Waste control, especially on PVC and leather should be carried through.

6. The purchase of a crumbing plant for the re-utilization of waste from rubber products, tires and tubes should be followed up.

7. The shoe cost should be monitored every six months and the variance be checked monthly.

8. A "war on waste" campaign should be organized.

Manpower Planning (Director of Administration)

9. The planned in-plant training courses should be carried out and followed up regularly.

10. In addition to the supervisors pointed out by the expert, promotable staff should be identified and given the opportunity for further training.

11. Seminars on technical subjects should be organized for the top management.

Engineering (Chief Engineer)

12. The modernization programme, as prepared by the expert, should be pursued and the suggested new layout followed.

13. Arrangements should be made to improve the general lighting system throughout the factory.

14. New moulds should be used, especially for canvas footwear.

Expertise (Chief Technical Adviser, TLAI)

15. Assistance should be sought and the following experts requested:

- (a) rubber/canvas technical designer

- (b) maintenance mechanic for injection-moulding machines and moulds
- (c) rubber compounder (chemist) for tires and tubes
- (d) technical manager who should work on development and the introduction of new equipment, gadgets and materials.

Post 11-04 - Expert in Footwear Design, Mr. D. Russell  
Technical report 21 March 1983

1. The time is now ripe for major decisions to be made regarding the structure and staffing of design and development units at both Tanzania Shoe Company and the Morogoro Shoe Factory. This should be done with an eye on current problems in the short term, followed by a longer range expansionist policy. There are adequate design and development personnel on board or in training at both factories.
2. The graduates from the courses have experience in certain functions only and should be gradually trained in selected specialized areas. It should be remembered that they will still require supervision and assistance when preparing patterns for bulk production.
3. It is still essential to allocate about \$ 1,000 to procure or replace essential tools and cutting boards.
4. Critical analyses should be made of the impact of new styles with a view to achieving maximum economies and improving work flow and productivity.
5. The specification charts need additional testing. Necessary adjustments incorporated in a new draft.
6. There is still room for further economies, especially in the cutting of raw materials. Tight costing procedures and cutting performance control would point out the faults so that steps could be taken to rectify problems.
7. When the heat-embossing machine is installed, a good deal of thought should be given to making full use of its potential in order to relieve the overworked sewing operations.

8. More efforts are required to update the canvas shoe range periodically. Now that two new moulds have been commissioned, the basic ground work is laid for a gradual development over the next year or so.

Post 11-05 - Machinery Maintenance Engineer (Leather),  
Mr. M.H. Imam, Technical Report 1 October 1981

A vital and substantial in-plant training programme in inducement and enforcement of preventive maintenance procedure, planned procurement of spares, not only would reduce the internal maintenance costs and improve the efficiency of plants, but would also have an immense and deep-rooted effect on saving foreign exchange by minimizing the demand of imported spares.

The present mission put the plants into a normal and acceptable operating state and in order to remain further effective, a similar type of continuous assistance of longer duration is needed.

Suggested TLAI Actions

1. The smooth production flow and high efficiency of the plants under TLAI require a repetitive in-plant training programme in the country and abroad for polishing up and improvement of the skills of maintenance staff.

(a) TLAI or the tannery should plan to arrange further training for the following maintenance personnel whom the expert found suitable:

- |                        |  |
|------------------------|--|
| - Mr. T.J. Mushasha    | - Factory Engineer<br>Morogoro Tannery   |
| - Mr. L.E. Saileni     | - Maintenance Engineer<br>Moshi Tannery  |
| - Mr. Pantaleo Laurent | - Electrical Foreman<br>Mwanza Tannery   |
| - Mr. B. Baran         | - Electrical Foreman<br>Morogoro Tannery |
| - Mr. Evarest Nassy    | - Electrical Foreman<br>Moshi Tannery    |

Recommended Courses and Institutions in Plant Maintenance

- Systematic Plant Maintenance conducted by  
National Institute of Training in Industrial Engineering  
NITIE, Vihar Lake, Bombay - 400 087, India
- Planned Maintenance conducted by  
Crown Agent Training Services  
4 Millbank, London SW1, United Kingdom
- Short training programmes on Preventive Maintenance  
offered by various institutions in the country or abroad.
- Tannery Engineer Course conducted by tannery machinery  
manufacturers.

Recommended Courses and Institutions in Training in  
Electronics

- Electronics, Advance Training Institute for Electronics  
and Processing Instrumentation  
Ramantapur, Hydraban, India
- Electronics Technology  
Pak Swiss Training Centre, Campus  
PCSIR Laboratory, Karachi 39, Pakistan

(b) The following technicians are found most suitable and of high aptitude in their jobs, but through lack of technical educational background they cannot attain the standard. Thus they should be sent to technical trade schools for one year to three years (within the country) for technical education:

- |                       |   |                             |
|-----------------------|---|-----------------------------|
| - Mr. Julius Mushamba | ) | - Junior Mechanics - Mwanza |
| - Mr. Issa Kilango    | ) |                             |
| - Mr. Sanford Shirima | ) | - Senior Mechanics -        |
| - Mr. Linus Luvinga   | ) | Morogoro Tannery            |
| - Mr. Jackson Kimambo | ) | - Senior Mechanics -        |
| - Mr. Marki Mejani    | ) | Moshi Tannery               |

2. It would be of immense help if training courses of short duration for maintenance would be arranged together with other industries under project DP/URT/78/010 or other UN projects supporting the Tanzanian industries in the following fields.

- (a) Function of pneumatic and hydraulic circuits and maintenance of their equipment.
  - (b) Emphasis on electronic and electric circuit design, their maintenance and fault-finding and trouble-shooting.
  - (c) Inventory control of spares.
3. In a country like Tanzania where spares are a great problem, TLAI and the plant should give more stress on the training of:
- (a) Maintenance team in preventive maintenance, forecasting and decision making in spares selection and planning for procurement.
  - (b) Purchase personnel in procurement and inventory control, i.e. materials management.
  - (c) Production personnel in operation, upkeep and better utilization of their machines by in-plant training within the country and abroad.
4. It is suggested to install power improvement equipment in the Tanzania Shoe Company, Dar-es-Salaam, and Tanzania Tanneries, Moshi, sector to cut down the maximum demand of power.
5. Due to the sudden and frequent power failure observed continually at the existing tanneries, it is advisable to install a Diesel power generating set at half of the maximum demand to cope with the production flow as well as to maintain the quality.
6. It is advisable for TLAI or the plant to do a brief market survey and prepare a list of general maintenance items required and which are readily available on the Tanzania market. This list will serve as a reference for quick availability and procurement of standard pool items used in respective plants.
7. To implement a centralized workshop based at Morogoro Complex.
8. A centralized spares store in connexion with centralized procurement should also be established at Morogoro Complex within the proposed centralized workshop. The reasons are stated below:

(a) To cut down the duplication in procurement of engineering materials and spares

For the purpose of establishing a pool of items, general maintenance and consumable items, an optimum level should be maintained at the centralized store and a stock of a limited quantity should be maintained at the respective plants. This will reduce at least one third of the stock of common materials and spares in the plants.

(b) To improve the plants' efficiency by maintaining the balance of stock at plants

A plant with idling machines caused by shortage of spares is often not assisted by other plants although they have sufficient stock of spares. Thus all the excess and non-moving items lying in long storage in the respective industries should be transferred to the centralized store to maintain a balance of stock at the plants.

(c) Saving by buying spares in bulk

The centralized purchase of spares in bulk either locally or through import will save money.

(d) To establish a link between procurement departments of the plants to improve the communication and co-ordination with regard to the supply of materials and equipment from one plant to another when in need.

(e) For the establishment of a better system of procurement according to the cumulative demands of the plants.

(f) Savings by maintaining a lower stock level at the centralized store than keeping the same level at each of the plants.

Post 11-06 - Marketing Expert, Mr. R.S. Chambers  
Report December 1982

1. In this expert's opinion the Government of Tanzania should seriously consider banning the exportation of all raw hides and skins as soon as is possible. This will ensure that the leather sector will receive increased supplies and go a long way to helping this sector satisfy the proven export market demand for wet-blue and crust materials. Thus TLAI will be in a position to earn the value added foreign exchange the country so badly needs, and make its corporate contribution to the National Economic Survival Fund (NESP). To emphasize this very important recommendation the expert would point out that the three tanneries had a shortfall during January-June 1982 of 254,715 pieces of raw hides and skins which prevented them from fulfilling firm export contracts valued at TSh 9,367,923.
2. Every effort should be made to encourage and finance marketing trips and study tours not just to visit established leather sector customers, but to determine what are the sales possibilities for the footwear and leather goods sectors. The visits should be used to verify what quality and price areas should be targeted for the level of merchandize the sector in Tanzania is capable of producing.
3. The production of a colour promotional brochure should be expedited in conjunction with the EEC. Artwork and copy have been prepared by the project DP/URT/78/010 and TLAI marketing personnel should liaise with the EEC office in Dar-es-Salaam to organize the printing.
4. TLAI Headquarters management should ensure that the subsidiary companies comply with the main board of directors' decision that marketing activities are centralized and complete their individual reports on time and in the correct manner.
5. It is recommended that the Government of Tanzania should seriously consider a form of subsidy for export products from the leather and leather products sector. The production units of TLAI are currently seriously disadvantaged when competing in the world market because of



expensive imported components and chemicals. It is the expert's opinion that there should be an incentive to encourage the maximization of the sector export potential.

6. The expert is of the opinion that the Banking Institutions should implement the previously discussed "revolving fund" whereby the exports of the leather and leather products sector should be directly related to the allocation of funds for imported materials, which would act as an additional incentive for the sector to export.

7. The expert would suggest that a complete range of samples of all potential export products from the leather and leather products sector be collected and displayed at TLAI headquarters together with the compilation of price lists for all non-price variable products.

8. It is felt that it would be desirable that marketing personnel from the footwear and leather goods sectors should be transferred to work with the Marketing Manager of TLAI at the earliest opportunity.

9. The expert would advise that the proposed three-month ITC assistance in export marketing should be concentrated on help to the footwear sector.

10. It should be observed that a circular letter advising export customers of the centralization of marketing for the leather sector at TLAI has been distributed but in the expert's opinion the exercise should be repeated. Special emphasis should be made that all export inquiries should be addressed to TLAI and not to the individual production units.

11. It is desirable that marketing personnel make as many visits to the production units as is economically possible. It is suggested that each plant is visited at least once a month so that the centralized marketing department can successfully monitor the production activities.

12. The production units should speedily advise the TLAI marketing department of any extraneous problems which although not related to production difficulties could affect export performance.

Post 11-07 - Shoe Machinery Maintenance Engineer, Mr. F. Malata

Technical Report: Shoe Machinery Maintenance at  
TILT, 30 August 1983

Technical Report: Assistance in the Establishment  
of a Centralized Maintenance  
System at the Tanzania Shoe Co.  
8 September 1983

To Tanzania Shoe Company (Bora)

1. A central maintenance and repair system according to the expert's detailed recommendations, should be established.
2. A technical development section, the functions of which are described in the report, should be established.
3. The selection of new shoe designs for production should be based on a technical, technological and economical evaluation.
4. The production line of the high-fashion factory should, as a part of main shoe production, be managed by a shoe production manager; this measure should contribute to increase production capacity.
5. In order to overcome the maintenance and repair problems mentioned in the report, the following training is recommended for the technical personnel:

(a) Overseas

One technician (R. Mwakalukwa) - six months

Subject: technical-technological preparation and production of upper and bottom cutting knives including textile cutting knives;

One engineer (J. Nkondo) - nine months

Subject: new production techniques, shoe machinery and production equipment (for new technical development section);

Two engineers (one mechanical - C. Madaya) - six months

(one electrical - W. Rwiza) - six months

Subject: industrial training in shoe machinery maintenance and repair;

One engineer (A. Makalle) - two years

Subject: higher studies in shoe engineering; technological questions in shoe production and maintenance and repair (for higher management post in technical development of shoe industry).

(b) Locally

On-the-job training by experts from shoe machinery suppliers and producers for mechanics and operators;

Sewing section - one month

Subject: adjusting, servicing and maintenance of sewing machines

Direct vulcanizing section - three weeks

Subject: training in vulcanizing process, adjusting of vulcanizing parameters, machines and moulds and their maintenance and repair;

Injection moulding section - three weeks

Subject: adjusting of injection parameters, machines and moulds and their maintenance and repair.

6. Some of the problems in maintenance, supply of spare parts and raw materials, production rate etc. are due to an inefficient management. The General Manager should take measures to ensure that he can rely on an effectively operating management team.

7. Costs could be considerably lowered by reducing the amount of leather waste. To this end it is recommended to make better use of leather by proper designing, cutting and producing shoes of a simple type, and by initiating the manufacture of different types of leather products out of waste.

8. After realization of the rehabilitation programme production for the export market of one or two types of shoes - for example safari boots, canvas sports shoes etc. - should be envisaged.

To TLAI

9. It is recommended to establish a centralized technical department for the development of the leather and leather products industry which would be responsible for technical and technological development and the co-ordination of a strategy for industrial growth. For example, the department should co-ordinate type and quantity of production, including products for the export market, between TSC (Bora) and Morogoro Shoe Company, and the relations between tanneries and shoe producers.

10. Furthermore, TLAI should organize and co-ordinate training seminars (production, maintenance) by transferring skills available in TSC (Bora) to Morogoro Shoe Company through foreign experts and Bora experts.

To UNIDO

11. It is recommended to increase generally the quality and length of the technical assistance to the shoe industry, because the level of technical know-how of local experts in this field is still low.

12. Specifically, the assistance of UNIDO should be sought in order to implement the training recommended under No. 5.

B. To TILT

1. Even though TILT is sufficiently equipped to provide training in shoe and leather products technology at the initial stage, additional machinery and equipment may be considered for the future to complete the technological process as outlined in the expert's memorandum of June 1982.

2. Additional space and facilities should be considered important for storage of spare parts, hand tools, grease etc. and laid out in accordance with the work of maintenance personnel as indicated in the report.

3. Provision for a full-time maintenance person should be considered to look after the complete complex area of mechanical, electrical, civil

and plumbing works. Such a person should be recruited now to participate in the installation work together with the suppliers' mechanics and experts. This will help this person to familiarize himself with the technicalities and to provide adjustment and maintenance of the machinery and equipment.

4. As part of the UNIDO technical assistance to TILT as proposed in the project UF/URT/84/062, short-term (one month) consultancy services of a technical adviser may be considered to cover the areas of monitoring the machinery, future solar plant installation, etc.

5. Continued co-operation and communication should be maintained by TILT with the suppliers of machinery and equipment with regard to upkeep and future expansion of the institute, as well as with other leather technology institutes in the world.

Post 11-52 - Consultant in Leather Industry Training  
Mr. T.S. Krishnan, Terminal Report 16 February 1983

A. Suggested Actions by Government

1. For efficient functioning of TILT at Mwanza, from the point of carrying out training programmes and applied research to suit the specific needs of leather and leather products industry, the Government should:

(a) take immediate steps to appoint a competent person to be in charge of TILT who can ultimately be considered for the post of Director;

(b) take steps to recruit persons of right calibre for the technical key posts as suggested in the organizational structure so that the activities can commence as soon as the building construction is completed;

(c) consider the suggested administrative setup, the governing body constitution and organizational structure for TILT and implement them;

(d) make the institute autonomous without strictly following the civil procedures and regulations;

(e) allot and sanction a separate budget for TILT to carry out its various activities.

(f) see that the institute carries out its activities of research and training smoothly without any hindrance like delay or want of various essential inputs required;

(g) consider whether a tax on the sales of the leather and leather products industry can be levied so as to meet part of the operational cost of the institute in case Government finds it difficult to bear the entire cost.

2. Due to lack of properly trained personnel and experience at present, outside managerial and technical guidance will be required in the initial stages to train the national personnel, supplement local staff and carry out the objectives of the institute. The Government should seek the help from a group of international experts or established research institute for a period of two to three years.

3. Staff at the senior level employed at TILT should be deputed on fellowship programmes for a period of one to four months to well-established research-cum-training institutes abroad to become exposed to or trained in research and training.

4. For additional machinery and equipment which the institute may require when it increases its activities and also for equipping the library, the Government may seek the assistance through international organizations or under bilateral aid.

B. Suggested Actions by TILT

1. TILT, once it starts its activities, should strive to have close liaison with the industry, as its objectives are only to aid the industry through training and adaptive research.

2. TILT should orient its activities like training, R+D, services, etc. to suit the specific and immediate needs of the industry.

3. Transfer of know-how should be immediately disseminated to the industry by field work at the plants.
4. The various training courses should be conducted efficiently so that the participants attain/improve their skills, practices and technical competence and apply them in their plants for better efficiency.
5. All scientific, technical and trade information should be collected by the information division and disseminated to the clients and staff of TILT.
6. A well-equipped library, various documentary devices and training aids have to be built up at the earliest to help the participants as well as staff of TILT.
7. TILT should be more technologically advanced than the industry which it is supposed to help.
8. R+D should be a continuous one, keeping abreast of the rapid changes taking place in science and technology and in the trade.

C. Suggestions for UN Organizations

Assistance of UN Organizations like UNIDO is required for TILT:

1. for giving managerial and technical guidance right from the initial stages, for a period of 2 to 3 years by fielding experts so as to train the counterparts, to supplement the national personnel and to carry out the activities;
2. to offer fellowship programmes for the technical staff to be sent to well-established research-cum-training institutes abroad for a period of 1 to 4 months depending on their level, so as to become exposed to or trained in research and training activities;
3. for installation of machinery and equipment;
4. in donating UN publications regarding leather, leather products, research, training, information etc. and also in helping TILT to procure technical books, journals including back issues etc. from other countries/institutes;

5. assistance from organizations like FAO is also required for  
(a) supplying tools, equipment, audio-visual aids etc. for effectively conducting the training programme on hides and skins improvement,  
(b) supplying pilot plant equipment for utilization of animal and tannery by-products, and (c) fielding a short-term expert specialized in by-products to be associated with the training programme on utilization of animal and tannery by-products.

Post 11-53 - Consultant in Leather Products Training  
Mr. R.W. Beeby, Terminal Report 1 February 1983

1. Put a crash programme of training of operatives and lower management staff into operation at the earliest possible date.
2. When training has been given, ensure that each post has a clear job description and its holder is made accountable for his/her performance.
3. Demote management personnel who fail to manage.
4. Define quality standards clearly and ensure they are maintained without equivocation.
5. Do not plan any production unless the material, equipment and labour is available in its entirety for the whole production batch.
6. Ensure production plans are balanced in all departments theoretically and then see that they are carried out precisely to target each day.
7. Make certain that graduates and other beneficiaries of higher education employed in the industry are more than receptacles of received knowledge; they should all be capable of taking innovative executive action in any crisis and have had extensive practical experience.
8. Insist that the first item in the job description of training officers is the preparation and publication of operative and process training manuals, and reduce the length of induction courses to no more than five days.



9. The ultimate aims of producing a greater volume of products, of acceptable quality at lower cost, depend on improved productivity and better employment of labour and materials. The economy generally will benefit from this larger volume at lower cost by reduction in retail prices. The quickest route to this desirable state of affairs is by intensive training, range reduction and product simplification; an attempt has been made to reflect this in the syllabi.

Post 11-54 - Consultant in Steam Boilers, Mr. A. Kapitaniak  
Technical Report 21 March 1983

1. A special chemical service should be established to advise on water treatment, chemical cleaning and corrosion protection during operation and off-load of the boilers. The chemical service would also elaborate requirements for package boilers and existing or modernized equipment, train boiler staff in water treatment and supervise periodically water-treatment units and protection methods. Taking finance into consideration, two permanent posts - one chemical engineer and one technical or laboratory assistant - would be sufficient to advise boiler house staff in leather industries. The service could be based in the chemical laboratory at the Morogoro Tanneries (the expert was not able to visit all TLAI factories; therefore, this choice should be verified).
2. Spare parts should be ordered well in advance in order to speed up operations and shorten downtime.
3. The management of all factories should pay more attention to daily boiler staff problems and strengthen internal inspection. It would be useful if the management of TLAI factories could visit the boiler house at Keko Pharmaceutical Industries Limited, which is a good example of proper operation.
4. To improve the economy of boiler operations (fuel saving, steam consumption per unit of final product etc.) the boilers should be equipped with additional measuring devices (flue gas-analysers and thermocouples or resistance thermometers and draught gauges).

5. Further training for chosen participants in boiler maintenance and operation would be very profitable for the factories. Two-month scholarships abroad might be provided for study in countries that produced package boilers used by Tanzania Pharmaceutical Industry Arusha, Kilimanjaro Textile Corporation Arusha and Morogoro Tanneries.

6. To further improve boiler operations, further training should be organized for new participants. The expert recommended a six-week course on improvement of boiler operations, maintenance and availability, an outline of which is presented in Annex IV (of the expert's report).

ANNEX 10

GOVERNMENT COUNTERPART PERSONNEL

<u>Project Personnel</u>	<u>Government Counterpart Personnel and Position</u>
Chief Technical Adviser	A.O. Ng'amilo, General Manager, TLAI
- B. Svensson	I.H. Nnembuka, Project Officer, TLAI
	E.J. Kivelege, Project Manager, TLAI
	Y.J. Mwailolo, General Manager, Bora Shoe
	J.S.L. Benne, General Manager, Tanzania Tanners Ltd. (TTL)
	A. Kalalu, General Manager, Mwanza Tannery
	G. Kimweri, General Manager, Morogoro Tannery
Leather Manuf. Expert	S. Temba, Prod. Manager, TTL
- P.B. Buit	C. Riwa, Technical Manager, TTL
	M. Rutashobya, Prod. Manager, Mwanza Tannery
	Wakari, Prod. Manager, Morogoro Tannery
	I. Manambi, TBS
	I. Nzowa, Chem. Engineer, Morogoro Tannery
Shoe Technologist	R. Mlemba, Rubber Techn., Bora Shoe
- J.N. Bek	A. Mwasoga, Prod. Manager, Bora Shoe
Shoe Designer	E. Shija, Designer, Bora Shoe, and his team of five designers
- D. Russell	Designer, Morogoro Shoe and additional trainees attended course organized by the expert
	Designer, Zanzibar Shoe
Maintenance Engineer Tannery	G. Ghikas, Engineer, TTL
- M.H. Imam	R. Ibrahim, Engineer, Mwanza Tannery
	B. Baran, Engineer, Morogoro Tannery
	G. Budili, Bora Shoe
Maintenance Engineer Shoe	G. Budili, Director of Maintenance, Bora Shoe
- F. Malata	

<u>Project Personnel</u>	<u>Government Counterpart Personnel and Position</u>
Training Expert - T.S. Krishnan	Training programme conducted for the leather sector with a total of 15 participants (financed through DP/URT/78/001)
Closing Room Expert - W. Cogger	E. Shija, Designer, Bora Shoe
Boiler Maintenance Engineer - A. Kapitaniak	Participants from industries such as leather, textile, food, etc. Course programme conducted with close co-operation of Ministry of Industry.
Training Consultants (a) leather industry - T.S. Krishnan (b) leather products ind. - R. Beeby	T.B.M. Mbiling'i, Manpower Development and SITO, TLAI
Footwear Industry consultancy services provided through SI/URT/82/802	Consultancy services provided for the shoe industry survey in Tanzania.
Renewable Energy Expert - L. Valette	I. Nzowa, Chem. Engineer, Morogoro Tannery

ANNEX 11

UNIDO PROJECT PERSONNEL AND OTHER EXPERTS IN  
ASSOCIATION WITH PROJECT DP/URT/78/010

<u>Post</u>	<u>Post Title</u>	<u>Name and Nationality</u>	<u>Period Served</u>
11-01	Chief Technical Adviser	B. Svensson (Sweden)	25.11.79 - 31.5.83 1.8.83 - 19.9.83
11-02	Leather Manufact. Expert	P.B. Buit (India)	19.4.80 - 18.4.83
11-03	Shoe Technologist	J.N. Bek (U.K.)	4.7.80 - 4.7.82
11-04	Shoe Designer	D. Russell (U.K.)	a) 6.2.80 - 5.4.80 b) 3.1.82 - 3.4.82 c) 11.9.82 - 10.12.82
11-05	Maintenance Engineer (Tanneries)	M.H. Imam (India)	7.10.80 - 7.10.81
11-06	Leather and Leather Products Marketing Expert	R. Chambers (U.K.)	6.1.82 - 5.1.83
11-07	Maintenance Engineer (Shoe)	F. Malata (CSSR)	22.2.82 - 9.7.83
11-50	<u>Short-term Consultants</u>		
	- Training Expert (leather technology) (funded through DP/URT/78/001)	T.S. Krishnan (India)	10.12.80 - 25.2.81
	- Closing Room Expert	W. Cogger (U.K.)	16.2.82 - 16.5.82
	- Boiler Maintenance	A. Kapitaniak (Poland)	20.10.82 - 20.12.82
	- Training Consultants: (a) leather industry	T.S. Krishnan (India)	25.11.82 - 24.2.83
	(b) leather products	R. Beeby (U.K.)	10.11.82 - 10.2.83

<u>Post</u>	<u>Post Title</u>	<u>Name and Nationality</u>	<u>Period Served</u>
	Footwear Industry Consultant (Management Expert) (funded through SI/URT/82/802)	O.F. Kloetzer (F.R.G.)	11.10.82 - 10.12.82
	UNIDO Consultancy sub- contracted to BMKI/INTERAG of Hungary with the parti- cipation of five experts (funded through SI/URT/82/802)	F. Schmel (Hungary)	1.11.82 - 23.11.82
		Geza Bori (Hungary)	" "
		Josef Csonka (Hungary)	" "
		Sander Scongei (Hungary)	" "
		I. Soponyai (Hungary)	" "
	Renewable Energy Expert (supported and sponsored by CID/EEC)	L. Valette (Belgium)	13.1.83 - 30.1.83

Note: In addition to the above, lectures and practical instruction were supplemented by leather technicians from overseas companies, such as Bayer, Stockhausen, BASF, Stahl, Rohm and Haas during a number of seminars conducted by the project for the leather sector.

ANNEX 12

EQUIPMENT SUPPORT PROVIDED BY PROJECT DP/URT/78/010

	<u>Name of Equipment</u>	<u>Remarks</u>
1.	Two vehicles	TLAI
2.	One lastometer	Morogoro Tannery
3.	One Bally flexometer	Morogoro Tannery
4.	Two single-needle, post-bed sewing machines	Bora Shoe
5.	One single flat-bed sewing machine	Bora Shoe
6.	Equipment support for TILT through project US/URT/79/240	

