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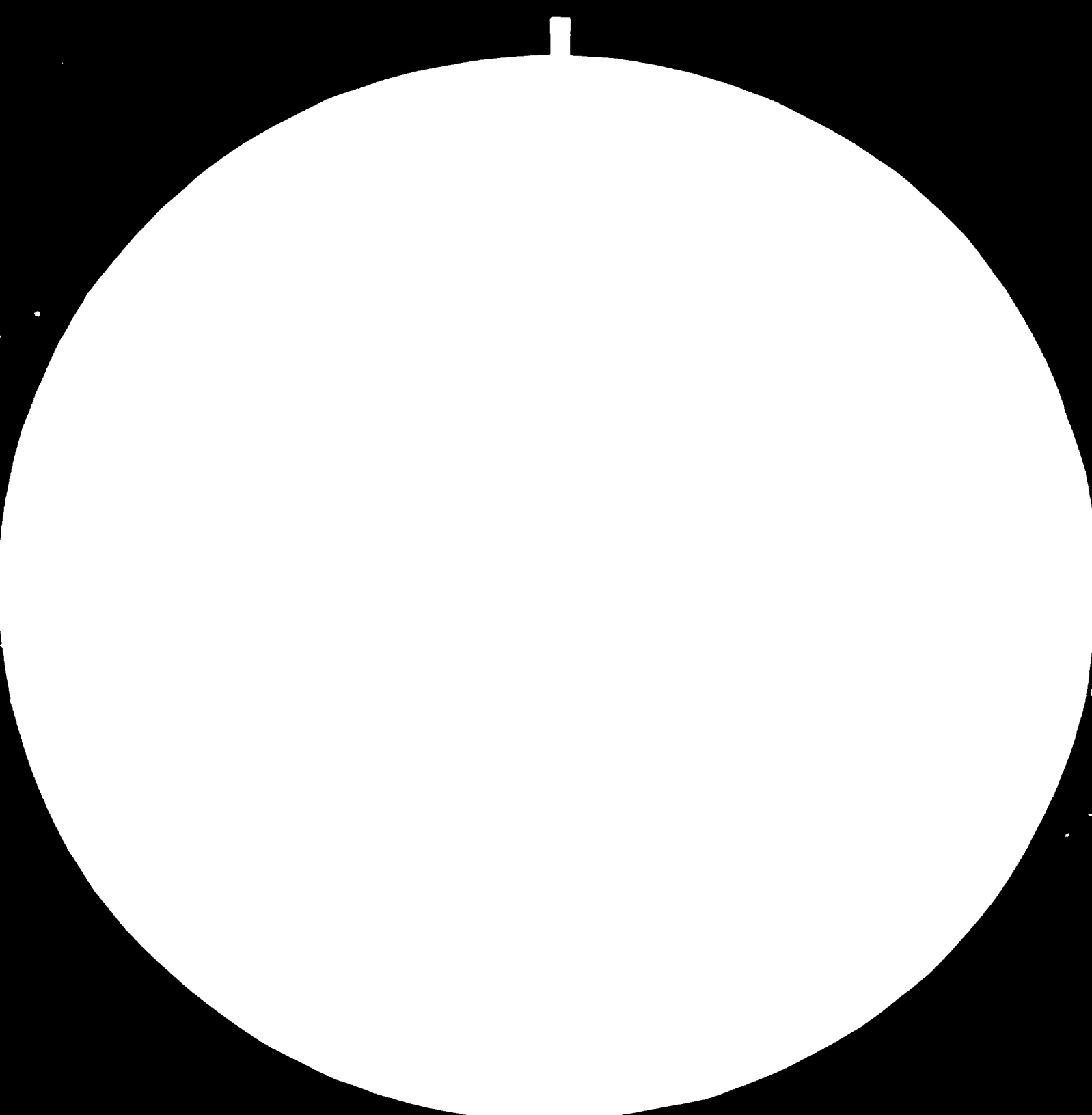
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THE CONSOLIDATION OF THE VILLAGE PRODUCTION OF AGRICULTURAL  
IMPLEMENTS BY LOCAL BLACKSMITHS

US/URT/77/003

UNITED REPUBLIC OF TANZANIA

Terminal report

Prepared for the Government of the United Republic of Tanzania  
by the United Nations Industrial Development Organization

Based on the work of Antonio Pagani, expert in  
small-scale blacksmithing

V.81-20786

### Explanatory notes

A full stop (.) is used to indicate decimals.

A comma (,) is used to distinguish thousands and millions.

Besides the common abbreviations, symbols and terms, the following have been used in this report:

SIDO      Small Industry Development Organization

OXFAM     British bilateral assistance organization

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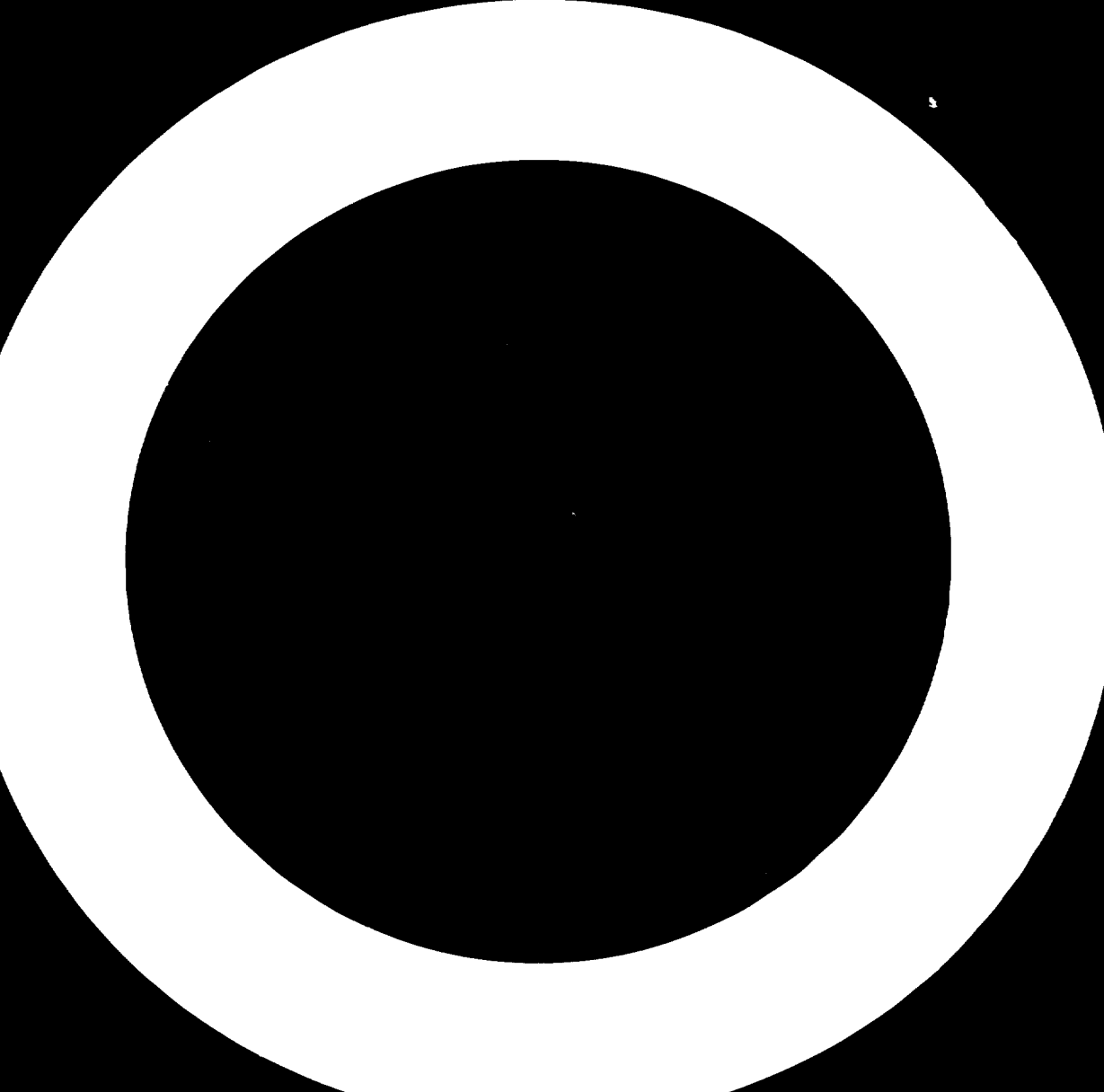
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ABSTRACT

The project "The consolidation of the village production of agricultural implements by local blacksmiths" (US/URT/77/003) began in August 1979 and lasted for a period of one year. It was developed and carried out by the United Nations Industrial Development Organization (UNIDO) with the Small Industry Development Organization (SIDO) acting as counterpart agency for the Government of the United Republic of Tanzania.

The project's purpose was to improve both the quality and production volume of small industries engaged in the manufacture and repair of agricultural implements. To this end, a prototype blacksmith workshop was established, training was given in the local production of blacksmith tools, newer, more efficient tools were provided to local blacksmith units and negotiations were carried out to improve the supply and financing of raw materials.

A key recommendation is that the project be continued, with UNIDO assistance, and a proposal has been submitted. Further recommendations include that SIDO should as soon as possible solve a number of problems having to do with raw material supply and financing, that manufacture of blacksmith workshop components begin immediately and that local staff be sent abroad for training.



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## INTRODUCTION

The project "The consolidation of the village production of agricultural implements by local blacksmiths" (US/URT/77/03) began in August 1979 and lasted for a period of one year. It was developed and carried out by the United Nations Industrial Development Organization (UNIDO) with the Small Industry Development Organization (SIDO) acting as counterpart agency for the Government of the United Republic of Tanzania.

### A. Geographical background

The United Republic of Tanzania is situated in the East Africa region and borders on Kenya and Uganda to the north, Burundi, Rwanda and Zaire to the west and Malawi, Mozambique and Zambia to the south. To the east it faces on the Indian Ocean.

The national territory (940,000 km<sup>2</sup>) includes several islands, among them Zanzibar (1658 km<sup>2</sup>) and Pemba (984 km<sup>2</sup>). The large coastal belt is defined on the west by a plateau (about 1200 m) which is characterized by the savannah in dry areas and by the equatorial forest in wet zones. The plateau is bordered on the north by Lake Victoria which washes the three regions covered by the project: Mwanza, Mara and Bukoba.

Main cities and towns are Dar es Salaam, (the capital, with 500,000 inhabitants), Arusha (200,000 inhabitants) and Mwanza (250,000 inhabitants). The estimated national population is 17.5 million.

The most important economic activity is agriculture, while the industrial sector contributes only 9.3% to the GDP (1978).

Main agricultural products are sisal, coffee, sugar-cane, tea, cotton, tobacco and pyrethrum. Mineral resources are diamonds, gold, tin, lead and coal, and potential new deposits are currently being explored.

Today industry is the focus of national development policies and is firmly incorporated into general plans for rural development and decentralization. Simultaneously modernization and improvement of the agricultural sector is based on the amalgamation of individual peasant holdings into large-scale Ujamaa village farms.

According to the Ministry of Agriculture, serious attention will be given to better use of land resources, irrigation development to reduce dependence on rain-fed agricultural production and encouragement of mechanization of large-scale village farms. Parallel to this, an emphasis will be placed on intermediate agricultural mechanization at the small/medium farms level and, wherever possible, on the introduction of animal-drawn equipment.

B. Strategies for industrial and agricultural development

After political independence the Government of the United Republic of Tanzania elaborated on overall national, social and economic policy in order to start a process leading to true economic independence. In this, industrial development strategy was to play a fundamental role.

Special importance was attached to small-scale industry as one of the basic elements for Ujamaa and "self reliance", and in 1973 the National Party issued specific guidelines on the development of small-scale industry. These stressed the importance of establishing such industries in the villages as tesserae in the mosaic of rural development strategy. It was also emphasized that development of small industries in the villages should be given high priority in order to accelerate the general process of development in outlying areas.

Parallel to that for industrial development, a National Agricultural Development Policy was formulated and, more recently, specific guidelines were issued on the development of agricultural mechanization in the country. The policy emphasizes, among other things, the use of animal-drawn equipment and points out that it is extremely necessary that needed tools and implements be manufactured in the country to avoid high importation expenses.

An official report on the national policy also notes that local manufacturing priority will be initially given to improved hand-tools and animal-powered equipment, later to small harvesting and processing equipment and in a final stage to more sophisticated machines.

In light of the above and after a feasibility study carried out by Kienbaumer Beratungen GmbH (Federal Republic of Germany), the present project was developed and implemented by UNIDO. It was directed towards the rural areas of the United Republic of Tanzania. Its aim was to strengthen the productive capacities of industries with backward linkages to agriculture.

### C. Project objectives

In August 1979 the expert was attached to the Small Industries Development Organization (SIDO) with the task of undertaking assistance activities to a number of village blacksmith units in the three regions of Lake Victoria. Underlying his work and the project's methodology were the following broad development objectives:

- (a) To provide effective extension services to rural industries;
- (b) To encourage the use of appropriate local technologies;
- (c) To strengthen productive capacities in rural areas of industries with backward linkages to agriculture, i.e. producers of agricultural farm implements;
- (d) To increase rural employment opportunities.

Immediate objectives to be realized within the framework of the project were:

- (a) To improve the quality of production of local blacksmiths through the introduction of newer and more efficient tools;
- (b) To increase the production of local agricultural farm implements suited to regional conditions;
- (c) To provide technical extension services to the blacksmith units together with advice on raw material and marketing;
- (d) To establish a permanent supply system of raw material necessary for the production of agricultural tools and implements.

### D. Project conclusions

During its 12-month period, the project, although encountering inevitable difficulties and problems, has achieved some important results. Above all, it has provided the confirmation that those blacksmiths still operating in the United Republic of Tanzania are in a position, if properly assisted and directed, to meet (at least at the district level) the demand for agricultural hand tools and animal-drawn equipment.

At the end of the project, nine groups or units of blacksmiths in the three selected regions of Mwanza, Mara and Bukoba (West Lake) were equipped with modern sets of tools and, in two cases, with a quantity of raw material suitable for the production of agricultural implements. The assistance provided so far has given them new confidence in the possibilities of their industry and they are looking forward to receiving additional assistance and advice.

It might appear that assistance as such, particularly if based mainly on the provision of materials and facilities, would not be enough to revive a spirit of enterprise that has been mortified by years of complete neglect.

On the contrary, however, the actual situation calls for substantive help based on the provision of tools, raw material and workshop facilities. All the project activities and recommendations are oriented in this direction. A more detailed continuation of the assistance provided until now is recommended, with an ever-increasing effort by the Government to give to each unit an appropriate quantity of raw material. The final aim is that of upgrading the technological level of the selected units to that of multipurpose shops able to produce and repair agricultural tools, implements and other equipment.

In all of this, it should be taken into consideration that the problems encountered by the blacksmith units in the course of their activity are more of an organizational than of a technical nature.

## I. RECOMMENDATIONS

Towards the end of the project, the expert was requested by the Tanzanian Government to prepare a project proposal for a possible continuation of the assistance thus far provided. The draft was then submitted to the Government for approval and, after some minor changes, forwarded to UNIDO as a request for further assistance. This proposal represents the whole of the expert's findings and recommendations and it is suggested that it be used as the most comprehensive source of information on the subject.

Nonetheless, a few recommendations, mainly relating to the period between this project and the future one, are given, as follows:

1. SIDO, the government organization in charge of the project, should as soon as possible finalize agreements for a regular supply of raw material from the collection points to the regions concerned.
2. The Government should also find a solution to the financing problems encountered by the blacksmiths, particularly as far as the initial acquisition of raw material is concerned. In this regard, negotiations are already under way with the Tanzanian Rural Development Bank, but other possibilities should also be explored.
3. The technician recently assigned by SIDO to the project should immediately undertake manufacture of the workshop components, following the patterns prepared by the expert. This would enable the staff assigned to the "second phase", should it be approved, to erect the foreseen nine workshops without delays.
4. In order not to interrupt counterpart activities during the period between the two phases, it would be advisable to temporarily assign the project vehicle to SIDO. This should be done with the understanding that it represents a special temporary measure and not a permanent assignment.
5. As foreseen in the original project document, the local staff should be sent abroad for training. It is recommended that a team composed of a technical officer from SIDO headquarters be sent and one or two smiths selected from among those working with the assisted units. The training could take place at the plant of the UNIDO blacksmith consultant who spent six weeks in the United Republic of Tanzania with this project. That well-organized and well-known workshop is an example of an improved and rationally equipped unit.

Such a solution would enable the two blacksmiths to work in a modern environment and receive practice in using more sophisticated tools. At the same time, the technical officer, after having spent a short period at the blacksmith consultant's shop, could devote some attention to visiting agricultural tools and implements factories such as Massey Ferguson and Ransomes.

## II. FINDINGS

### A. Outline of official arrangements

On arrival of the expert in Dar es Salaam, Mr. S.K. Henein, Senior Industrial Development Field Adviser, introduced him to Mr. Mramba, SIDO Director General, Mr. J.V. Bapuraj SIDO Technical Director and Mr. B. Mannyau, Technical Officer specializing in agricultural tools and implements, who is the headquarters counterpart for the expert.

A comprehensive programme for visits to workshops, factories, and industrial sites in Dar es Salaam was then drawn up and arrangements were made for visits to regional industrial sites, regional SIDO offices and other institutions on the way to the expert's duty station (Mwanza).

At the conclusion of these preparatory activities, the expert, together with Mr. Mannyau, set out for Mwanza driving the project vehicle, a pick-up model Toyota Scout. After having visited the Arusha industrial site and the local SIDO office, the expert reached Mwanza where he was received by Mr. Mola, the local SIDO representative, Mr. Falimbega, the regional technical officer, Mr. Washija, the regional economist and Mr. Malpani, economist adviser.

### B. Main activities of project

During the project reporting period, the following activities were carried out:

- (a) Survey of the blacksmith units to be assisted by the project in the regions of Mwanza, Mara and Bukoba;
- (b) Identification, selection and purchase of the tools needed by the units;
- (c) Development, testing and manufacture of additional tools;
- (d) Establishment of a prototype blacksmith workshop at the expert's duty station;
- (e) Training of counterparts in the manufacture of some tools;
- (f) Distribution of the tools in the three regions;
- (g) Identification of the potential suppliers of raw materials;
- (h) Opening of negotiations between SIDO and the potential suppliers of raw material;

(i) Identification of sources of funds for the purchase of raw material and for the establishment of a workshop for each unit;

(j) Opening of negotiations among the units, SIDO and banking representatives for the financing of raw material and workshop facilities;

(k) Participation in the exhibition organized on the occasion of the National Party celebrations;

(l) Manufacture of prototypes of the components for the units standard workshop.

C. Delays in recruitment of international and/or counterpart personnel

In the original project document two full-time counterparts were foreseen for a total of 24 man-months:

11-01 Technical Officer	12 m/m
11-02 Economist	12 m/m

Unfortunately neither of these was assigned on a permanent basis to the project, and a technical officer participated only sporadically in the project activities.

It is estimated that, in all, the expert was given a counterpart for a period not exceeding two man-months. Only after the completion of the original project and during the last week of a six-week extension, was a technician assigned to the project.

D. Conditions of local management and administration

The managerial and administrative structure of SIDO is characterized by some difficulties in implementing at the regional level decisions made and directives given by headquarters. This is particularly notable in the administrative sphere and also arises from problems of communication and transport affecting the whole country.

On various occasions the expert informed headquarters about the financial constraints encountered in project activities due to the lack of funds representing the Government's contribution to the project budget (budget line 15). Despite several assurances made by headquarters, the SIDO regional office was never in position to provide the agreed-upon monthly advance in full.



E. Processes employed and problems observed  
in the equipment used

Although SIDO had already identified several units in the three regions, a decision was made to visit all the units in order to select a limited number. As a result of this survey three units per region were selected, each one having distinctive features so as to test the same assistance concept in different situations and environments.

In the first survey, problems and the bottle-necks identified were the lack of raw material, lack of tools and lack of appropriate workshop facilities. During subsequent visits to the units these problems were discussed among SIDO representatives, blacksmiths, village and district authorities, the project expert and other concerned persons and institutions. The result of these consultations was the confirmation that a simultaneous solution of the three main problems was the only way of consolidating the existing blacksmith units.

Since the most important tools were not available in the country, the expert went to Kenya to select and order tools to be purchased through the Kenyan UNDP office. After three months, when the import licence was obtained from the Tanzanian authorities, the tools were collected, taken to the project workshop and subsequently assigned to the units. Unfortunately slowness in getting both the border crossing permit and the import licence considerably delayed purchase and supply of the tools.

While most of the tools had to be purchased, an effort was made to look for technical solutions that could be locally realized. To this end the suggestions of the UNIDO consultant T. Ballfour, who was assigned to the project for a period of two months, were very useful. Activities related to testing and development were carried out at the project workshop set up a few miles from the duty station.

Among the best results of this activity was the development of a simple bellows that is much more effective than the traditional one used by almost all the blacksmiths and is entirely made out of locally available materials.

A prototype of the bellows was taken to some of the units for testing purposes. The results being encouraging and the request unanimous, a total of 10 bellows was then manufactured at the project workshop.

F. Financial aspects bearing on  
the project objectives

In the United Republic of Tanzania there is an acute shortage of foreign exchange. Since most of the agricultural machinery and tools are imported, foreign exchange is required. The few existing production units and repair and maintenance shops are not properly and extensively enough equipped to meet local demands and even the simplest hand tools like hoes and rakes must be imported from China or the United Kingdom. These are not the only imported goods but are certainly among those that can be locally manufactured.

To achieve complete self-sufficiency, however, at least in the hand-tools and animal-drawn equipment sectors, two prerequisites must be met:

- (a) An adequate supply of raw material, which is available in the country;
- (b) Additional equipment that could be provided under bilateral or international assistance.

G. Availability of skilled labour

Blacksmithing is a tradition and, in some areas of the United Republic of Tanzania, an art. As such, it is handed on from father to son and in many cases the blacksmith units operating in the villages already act as a spontaneous training centre for the local youth.

At the existing technological level, skill does not represent a problem though training courses have been organized, with SIDO assistance, in the Tabora region.

A comprehensive training programme is to be designed and undertaken with the introduction of more complex technologies and equipment, such as those foreseen in the proposal for continuation of the project.

H. Advice provided to the government institution

The government institution concerned with this project (SIDO) has been advised to establish as soon as possible a national system of scrap iron and raw material collection, storage and distribution.

Moreover, if any project or initiative undertaken by SIDO in rural areas is to be successful, the entire transport system should be reorganized and vehicles assigned to the regional offices made more efficient and reliable.

The foreign currency problem presently affecting the country does not allow for the complete renewal of SIDO transport equipment. However, a general overhauling of the existing vehicles, more definite instructions on their use and maintenance and perhaps an increase in drivers' salaries would certainly improve the situation.

I. Relationship of the project with other non United Nations projects

During the course of the project the opportunity arose for contact with other initiatives operating in the same ambit. Specifically, in the Mara region, OXFAM, a British bilateral assistance organization, launched and has in progress a programme of assistance to some blacksmith units. The intervention standard is based on the financing (up to 75%) of the equipment required by each unit.

The selection, purchase and distribution of the equipment are taken care of by the regional SIDO office. The expert had talks with Mr. J. Swainson, the OXFAM director, in order to avoid overlapping and to co-ordinate the two initiatives systematically.

In the Mwanza region some forms of co-operation have been established with a bilateral assistance project of the Federal Republic of Germany. This project is managed by the GTZ organization and operates in the field of agricultural training. At the GTZ premises, some new technical solutions have been successfully experimented with and adopted by local blacksmiths.

J. Co-operation of other United Nations or bilateral experts received

During the project reporting period a consultant in blacksmithing co-operated for a period of six weeks with the expert.

With his assistance, some prototypes of new tools were developed and a new bellows system was manufactured as an alternative to imported forges.

K. Involvement of counterpart staff in project activities

As previously mentioned (subsection C), the involvement of counterpart staff in the project activities was low and casual. Moreover, the level of the personnel assigned to the project was not the most appropriate. Instead of a part-time technical officer in Dar es Salaam and a part-time technical officer in each of the three regions covered by the project, the expert should have been assigned a full-time technician, to be posted at the project workshop and, when necessary, detached for short periods to the various units.

The headquarters technical officer could have been charged with the overall co-ordination of project activities.

Unfortunately, despite several requests made by the expert, the technician only reached Mwanza 11.5 months after the beginning of the project and 10 days before its completion.



