

# Improving the supply and distribution of farm implements in Ethiopia: some experiences and constraints

by

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## Abstract

*Agriculture in Ethiopia is in a transition phase. Previous government policy was oriented toward highly mechanised collective farming, but today's policy starts from the assumption that the peasant sector will be most important for several decades to come. Present policy provides room for private and commercial enterprises to take part in the technology development and promotion process oriented toward the peasant sector. This paper outlines government efforts to guide this process, and describes some views and steps taken by a small private farm implement and tool manufacturing enterprise. Major problems are inadequate transport, communication, maintenance and repair facilities. Joint government and private efforts, and links with relevant international networks, may provide effective and efficient solutions.*

## Introduction

The previous Government of Ethiopia followed a socialist policy for agriculture: the aim was that all farming would be carried out on mechanised collective or state farms. But lack of infrastructure and industrial skills hampered the introduction of large-scale mechanised farming. Today it is recognised that the peasant sector will be most important for several decades to come, and with this in mind, new agricultural policies and strategies are being developed. Important elements are increasing private sector involvement and participation of the peasant sector in developing new agricultural technologies, including farm mechanisation technologies.

This paper gives a brief outline of the approach and activities of a small private production workshop for farm implements. It begins by describing the various institutions involved in agricultural implement development and distribution, and their modes of collaboration; the way farm mechanisation has been taken up in Ethiopia in recent years; and some of the main bottlenecks encountered.

## Institutions involved in implement development and promotion

A major institution involved with farm mechanisation in Ethiopia is the Rural Technology Promotion Department (RTPD). This department was created in 1985 to coordinate and give impetus to the development and transfer of rural technologies, including farm tools and implements. Before that time, several other government institutions and projects were involved in this work, but with unsatisfactory results.

RTPD has established seven rural technology promotion centres (RTPC) throughout the country. These have several functions, including adaptive research, initial production and extension, and they support a network of about 200 cooperative-based Farmer Technical Service Stations (FTSS). The FTSS provide a wide range of services, including blacksmithing and welding services, as well as rental services for seasonally used machinery such as threshers. The collective and semi-commercial nature of these workshops, however, has important drawbacks. This is why RTPD became increasingly oriented toward commercially viable and privately run enterprises.

RTPD can be seen as one component of a "technology development system". Other components comprise projects, government institutions and private enterprises, such as the Institute of Agricultural Research (IAR), the Agricultural Implements Research and Improvement Centre (AIRIC), the Farming Systems Research Department of IAR, the International Livestock Centre for Africa (ILCA) and the Agricultural Extension Department (AED). In this system, all the component institutions and enterprises have important complementary technology development and promotion functions. The Ministry of Industry would mass produce those implements which have been proven to be acceptable to the farmers.

## Main elements and bottlenecks of the mechanisation programme

A farm implements and tools industry cannot fully mature in only six years—certainly not through efforts of independently operating institutions. It is mainly due to the difficult and adverse circumstances the country has experienced that effective linkages between the various relevant institutions have not developed.

In order to meet an apparent urgent demand for small implements on the one hand, and in response to pressure from above for quick and visible results on the other, RTPD itself was forced to assume a number of essential functions and tasks of the technology development and promotion process.

RTPD started its programme by importing advanced and promising equipment from such countries as China, India and North Korea, as well as France, Germany and The Netherlands. The aim was that, through its RTPCs, RTPD would gradually allow for the local manufacture of most, if not all, parts of the implements which were acceptable to farmers. However, lack of raw materials and adequately trained workshop technicians were among the factors responsible for limited performance at this level.

RTPD faces serious difficulties in reaching farmers and involving them in adaptive trials. The Agricultural Extension Department (AED), which seems a natural partner for such activities, is confronted with resource constraints of its own. In this situation AED gives priority to extension related activities on crops and livestock rather than to tools and implements. It is the experience of RTPD, moreover, that extensionists lack the knowledge and skills to properly guide the adaptive research stages of implement and tool development. However, RTPD cannot mobilise enough experienced people of its own. The department is also confronted with inadequate means of transport. Investment in facilities for communication and transport is urgently needed if implements are to be successfully introduced and sustained in the peasant sector.

Repair and maintenance services are also crucial for the viability of the new technologies. Initially the idea was that the FTSS would perform these functions. Experience has shown, however, that such functions cannot be performed properly by collectively run institutions. The FTSS were but one component of rural cooperatives managed by a central board. Important management problems arose and the FTSS were found to be out of touch with the economics of using equipment. It is now

considered that the technical facilities of the FTSS may be used by some sort of “loose network” of private blacksmiths who are currently returning to the scene. Obviously this will be a long-term process in which RTPD and collaborating institutions may have important organising and training roles.

The question of how to remove these and other bottlenecks in the development and transfer of farm mechanisation technologies is currently the subject of considerable debate within the RTPD. Clearly RTPD is becoming more “outward oriented”, which has given private enterprises such as ours an opportunity to develop meaningful ties with the department.

## Approach and activities of Selam

Our private production workshop for farm implements, which is about to begin operations, is part of a vocational training centre, which in turn is part of an orphanage (Selam) in Addis Ababa. Selam is financially supported by various international non-governmental organisations (NGOs).

In order to prepare pupils of Selam for a good future, the Selam board decided that teaching them to design and repair small farm implements and tools might be a very meaningful thing to do. Because it was felt that students would only pick up the required skills and management insights in a true machinery development and production environment, a commercially operating independent production workshop was established.

The first step being taken by Selam is similar to the first step taken by RTPD—importing promising equipment in knocked-down kits. There are several differences between Selam and RTPD—for example, the scale of operations and the type and size of the implements. Also, Selam is trying to introduce the implements on a purely commercial basis, right

*Photo 1: Prototype broadbed maker with ducksfoot tines for the cultivation of vegetables*



Photo: Hans Zaugg



Photo: Hans Zaugg

*Photo 2: Prototype implements made at Selam workshop. Based on Latin American designs, they fit onto a long wooden beam. From bottom left to right: mouldboard plow, chisel plow, ridger, cultivator, ridger and potato lifter*

from the start. As a new enterprise, we do not have much experience of how this will work in practice.

Although we have encountered numerous types of small imported farm implements in this country, it is our experience that the international machinery industry has little to offer the peasant sector. They are keen to offer some of their prototypes but they do not invest much of their research and development capacity in follow-up activities, such as adaptive trials.

These and other considerations led us to conclude that before setting up a production unit with a significant capacity, it would be vital to collect more information and to take farmers' views and insights into account when designing our products. At the present state of farm mechanisation development in Ethiopia, distribution of small farm implements cannot be seen in isolation from intense on-farm testing; to our knowledge few, if any, newly introduced implements have already proven their viability over time.

With this in mind we are strengthening our ties with RTPD. We can offer, on a modest scale, expertise in production techniques. In fact, with help of the NGO community, we have been able to provide a training course in technical skills to some RTPC technicians. In its turn, RTPD offers us participation in the supply and on-farm testing and distribution network: although the present production at Selam is limited to a small multipurpose toolbar for tillage implements and animal-drawn carts, we are experiencing difficulties in having them distributed and assessed by end-users. Finally, because of our international contacts, we have access to promising types of machinery (Photos 1 and 2), and so can supplement the efforts of RTPD in importing technologies from foreign countries.

Participating in ATNESA workshops and activities is another way in which Selam can collect information on promising implements used in conditions similar to those in Ethiopia. Through ATNESA contacts, Selam can also learn of on-farm testing approaches and methodologies which may be followed in the process of their adaptation.