

# Towards privatised draft animal power extension in Zambia

by

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## Abstract

*The Western Province Animal Draught Programme (WP-ADPP) has been promoting draft animal power in Kaoma District in the Western Province of Zambia, through research, extension and provision of credit. The training-and-visit extension system assumes that improved agricultural technology offered to village extension groups, will trickle down to the rest of the farming households automatically, via a process of diffusion. However, critical research into diffusion has concluded that it only takes place within homogenous populations and areas, unlike Kaoma District. A second problem with the training-and-visit system is the quality of the information disseminated: there are few clear extension messages that could contribute substantially to improved production. WP-ADPP believes that high quality extension requires taking account of the relevant differences in client categories and farming systems in a manner similar to marketing and advertising strategies.*

*Following dramatic changes in the availability and costs of inputs and crop prices, WP-ADPP initiated an association of farmers and traders. The Kaoma Input & Marketing Investment Association (KIMIA) consists of 15 rural farmers/traders and offers farmers the opportunity to barter maize against fertiliser, seed, oxen, plows and spares and to subscribe early in the season for information and inputs for crops other than maize. Providing extension information is a major part of KIMIA's work. Within KIMIA, crop extension actors are paid according to results, which are established during monitoring of a sample of their clients. Farmer/traders are not paid for their extension work but work on the basis of expected commission on their own barter trade. KIMIA has provided a self-targeting exchange of information that is of most benefit to farmers who already own animals and were most affected by the decline of government-supported lending facilities.*

## Background and farming systems

### Population

Kaoma District had a population of 113,000 people in 1990, with 88% living in rural areas. Roughly 60% of the population live up to 10–15

km from one of the four main roads, where the density varies between 10 and 1000 people/km<sup>2</sup>. The remaining 40% live in more remote areas and consist of households which rely heavily on fishing, hunting, forestry, trade and agriculture for subsistence. The population grew by 5% during the last decade as the district attracts immigrant farmers (CSO, 1990).

### Cropping systems

Maize surplus production increased by a factor of 50 over the past 30 years, which is attributed to the intensive use of fertiliser due to loan provision for its purchase. Kaoma is 170% self-sufficient in staple food production and produces 90% of the marketable surplus of maize, groundnuts and soyabean in the Western Province (PPU, 1991). Marketed surplus was produced by 25–50% of the rural households with average yields of 25 bags, about 2.2 tonnes/ha. During 1994 an enormous change took place in input supply and marketing when government support to lending institutions stopped. As a result utilisation of fertiliser and hybrid seed dropped from 25% to 10% of rural households (Kakwaba, 1995).

### Livestock

The total livestock population grew faster than the human population over the past 30 years. The cattle population is three times larger than in 1963; this growth rate is the highest of all districts in Western Province (MacLean, 1965; DVTCS, 1992). The overall herd of 28,000 livestock in 1992 is 20% oxen, a much higher proportion than in the rest of the province. Livestock are owned by 22% of households, and 13% own oxen. Of the 22,000 rural households, 26% have access to animal draft power, through owning, lending and hiring (Kakwaba, 1995). Kaoma needs to import about 12% of its required quantity of oxen each year (van Leeuwen and Siyambango, 1995).

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This paper is published in: Starkey P and Kaumbutho P (eds), 1999. *Meeting the challenges of animal traction. A resource book of the Animal Traction Network for Eastern and Southern Africa (ATNESA)*, Harare, Zimbabwe. Intermediate Technology Publications, London. 326p.

## The Western Province Animal Draught Power Programme

The Western Province Animal Draught Power Programme (WP-ADPP) of the Department of Agriculture started in 1989 with an emphasis on the task of province-wide coordination. During the first phase (1990–92) more intensive activities were initiated in sub-areas of Kaoma District with a substantial surplus agricultural production. During the second phase (1993–95) these activities have been increased and targeted more precisely.

WP-ADPP Kaoma is part of the Agricultural Engineering Section of the Department of Agriculture. This section assists field staff in 36 agricultural camps in Kaoma District. Other sections are: Animal Husbandry, Home Economics, Land Management and Women and Youth. The main functions of the Department in the period 1993–95 have been:

- promotion of crop cultivation
- crop forecasting and organisation of agricultural shows
- land settlement
- staff training
- promotion of self-help projects
- promotion of animal draft power.

### Research

Agricultural research by the Farming Systems Research Team follows farming systems research (FSR) methodology, with trial groups in one 'recommendation domain' in the district and is mainly formulated and evaluated at provincial level. Tests with technology aimed at alleviating farming systems constraints have led to a domain-wide formulation of extension messages regarding fertiliser use, and some useful specific crop memos for extension staff have been produced (Muwamba and Heemskerk, 1991). Research areas with high relevance to WP-ADPP include:

- dry season feeding of animals
- groundnut cultivation and processing
- intercropping with legumes
- soil fertility management.

Useful information on animal draft power in Kaoma District has also been provided by external organisations. The Palabana Animal Draft Power Programme has tested animal-drawn equipment in

Kaoma for the last five years, and has trained about 30 field staff. Tests with ridgers and groundnut lifters were successful and resulted in sales afterwards (Hoogmoed, 1992).

Some research into participation in, constraints to and impact of adoption of animal power has been undertaken in Kaoma District (van Agt, 1992; Hocking, 1994). The WP-ADPP has carried out research on credit for animal draft power (van Leeuwen and Siyambango, 1993), on ox hiring and borrowing (Kakwaba and van Leeuwen, pp301–305 in this volume), on ox carts (van Leeuwen and Siyambango, 1995) and on the stability of use of draft animal power.

### Group promotion

Since 1983, the Department of Agriculture has promoted formation of groups of resource-poor farmers for savings and credit schemes and small agricultural projects. The experiences of eight female group promoters within the 80 groups have been variable. Defunct groups contrast with a few groups which have expanded their activities and repaid their loans seriously. Although detailed monthly reporting is still carried out there has been no major analysis of the factors contributing to the successes and failures of the scheme at district level. Group promotion has been relevant to WP-ADPP, since many groups perceived lack of animal power as one of the most important constraints for further expansion of their agricultural production. Some groups acquired draft animals and implements through WP-ADPP.

### Extension environment

#### Training-and-visit extension

The background information about Kaoma District given above shows clearly that that not all farmers in the District are the same. It would be wrong to consider the almost 400 medium-scale commercial farmers as progressive farmers who will soon be followed by all other farmers in Kaoma. This misconception is inherent in the so-called 'progressive farmer extension approach', which is at present implemented through the training-and-visit system. This approach assumes that improved agricultural technology offered to village extension groups, will trickle down to the rest of the farming households automatically, via a process of diffusion (Roling, Ascroft and Chege, 1976).

However, critical research into diffusion has concluded that it only takes place within homogenous populations and areas (Roling, 1988). Kaoma District does not host such an homogenous group of farmers. Apart from differences in ethnic and socio-economic background (ranging from retired officers to hunters), there is unequal access to fertile soils, water, labour and cattle for all rural households in Kaoma. A review of 33 training-and-visit extension projects concluded that their performance has generally been poor as inadequate understanding of the farming systems has often led to inappropriate recommendations (Farrington, 1994). It is the opinion of WP-ADPP that high quality extension requires taking account of the relevant differences in client categories and farming systems in a manner similar to marketing and advertising strategies.

A second problem with the training-and-visit system is the quality of the information disseminated. Clear extension messages that could contribute substantially to improved production in the difficult agro-economic environment of Kaoma District are not plentiful (see also Farrington, 1994).

Most farmers in Kaoma do not perceive methods of crop cultivation to be the main constraints. In general, farmers in Kaoma perceive the lack of a reliable and timely supply of inputs and the lack of a reliable market and transport to be the major constraints (Kakwaba and van Leeuwen, pp301–305 in this volume; 18). In addition, it appears that farmers lack the organisation to overcome their own production constraints. This lack of organisation could, to a large extent, be a consequence of government interference in the recent past.

Extension could play a very useful part in mobilising farmers to reorganise themselves to gain greater benefits. This does not mean that extension should become a jack-of-all-trades again. The experience of training-and-visit extension has made that clear. Agricultural extension should not be involved in credit provision, nor in providing markets; it should definitely focus on exchange and organisation of information within different categories of farmers and on production-related factors. Training-and-visit extension does not incorporate techniques and strategies that can

organise the different target categories of farmers to overcome their specific constraints.

### Targeting animal draft power extension

The main objective of WP-ADPP is to contribute to increased access to draft animal power by different target groups in Kaoma. In 1993, WP-ADPP identified three general categories of farmers, each with its own constraints to improved access to draft animal power:

**Category 1 (Owners):** Owners of draft animal power, or farmers with enough surplus production to invest individually in draft animal power. Their main constraint is a lack of reliable dealers or insufficient self-organisation to supply oxen, implements and spares and to transport produce and seasonal inputs in time.

**Category 2 (Potential owners):** Farmers with some but not enough surplus production to invest in major components of draft animal power technology. Their major constraint is insufficient opportunities to save and/or borrow capital over 1–2 years for investment in the major components of animal power.

**Category 3 (Resource-poor households):** Farmers, mainly female-headed households, with insufficient resources (labour/capital and sometimes even land) to invest in animal draft power. Their main constraints are insufficient capital/resources to save and insufficient access to markets, inputs and ox-hiring.

### Services provided to the target groups

As discussed above, extension services can only be effective if targeted properly, so WP-ADPP provides specific services to the target groups:

#### *Category 1: Owners*

The first category appeared to have responded to WP-ADPP's promotion of labour-saving animal powered technology for weeding, harvesting and post-harvesting operations (WD-ADPP, 1995a). The main services which WP-ADPP offers these farmers are detailed written information about local suppliers, prices and implements, and wholesale supply of implements, carts and essential spares to local cart manufacturers (van Leeuwen and Siyambango, pp 176–182 in this volume).

**Category 2: Potential owners**

The second target group appears to take a high interest in mobile courses on ox-training, plowing and adjustments of plows. Experiments with fifty draft animal power loans towards this target group showed very high repayment rates (over 95%; van Leeuwen and Siyambango, 1993). The Loan and Saving Groups, introduced by WP-ADPP required high down payments and repayment in maize rather than cash to counteract inflation.

**Category 3: Resource-poor households**

A tentative strategy, the 'Agricultural Step-Up Programme' (Bwalya and Akombelwa, pp85–88 this volume; WP-ADPP, 1994) towards a further integration of this category into animal power-based and surplus-producing agriculture was initiated in 1994. It has been critically analysed by Huisman (1995).

**KIMIA: privatised extension****Liberalisation in 1994**

During 1994 input and output relations of agricultural production in Kaoma changed dramatically. Firstly, seasonal input supply became erratic, when the Government of Zambia arrested its support to agricultural lending institutions. Secondly, the maize price was left to market forces and farmers had to organise and negotiate marketing of surplus production on their own.

In 1995, after a fruitless effort to support a town-based small-scale trader of agricultural inputs, WP-ADPP decided to initiate an association of farmers and farmer/traders in Kaoma, called KIMIA. (Kaoma Input & Marketing Investment Associations). KIMIA offered farmers the opportunity to barter maize against fertiliser, seed, oxen, plows and spares and to subscribe early in the season for information and inputs for crops other than maize.

**Input and marketing associations**

KIMIA consists of 15 rural trader/farmers who supply inputs to about 1,000 farmer members in their areas, upon consignment from WP-ADPP's ADP Promotion Fund. Through KIMIA, WP-ADPP hopes to accelerate the adaptation of farmers to the new market conditions. WP-ADPP's decision to initiate KIMIA and diversify its service supply was based on three assumptions (WP-ADPP, 1995b):

that animal draft power in Kaoma can only increase and be sustained by sufficient marketable surplus production, which requires inputs and markets

that farmers and rural traders must carry greater responsibility for the costs of lending, marketing and input acquisition

that project activities should increase regional management capacity and accountability and pave the way for private sector involvement.

As of November 1995, KIMIA had supplied on a barter basis fertiliser and seed for 1000 hectares of maize, 40 oxen, 70 plows, 30 ox carts and spares to a total value of over US\$2,000.

**Self-targeting extension**

Farmers within KIMIA paid a membership fee for extension services, especially on prices and marketing conditions. WP-ADPP uses this income to finance a bi-monthly newspaper called *'The Kaoma Farmer'*, and is able to facilitate transport and pay local experts for extension on cultivation techniques for new crops and processing techniques. Within KIMIA, crop extension actors are paid according to results, which are established during monitoring of a sample of their clients. As a part of three 'package programmes', WP-ADPP supplies sunflower, groundnut and castor seed as well as oil expellers and other processing and harvesting equipment to specific areas. The package programmes are an effort to integrate a number of criteria for more successful surplus production in distinct producers' areas. Among these criteria, such as financing, mechanisation, and marketing, agricultural extension still plays a major role. The information supply and farmer organisation needed to achieve 1000 clients investing into inputs this year was realised by KIMIA farmer/traders, who organised meetings in their areas, informing farmers about decisions and prices established during KIMIA traders' meetings with WP-ADPP. These farmer/traders are not paid for their extension work but work on the basis of expected commission on their own barter trade. This commission depends on the maize sale price at the end of the marketing season.

Agricultural extension within KIMIA differs from the more fashionable 'participatory extension approach'. It does not only listen to farmers, but expects farmers to pay for relevant information.

KIMIA extension does not enter an 'open-ended discussion' with farmers, but informs about costs and different options and expects decisions of the clients. While the concept of participatory extension allows the farmer to play a role, KIMIA extension negotiates with specific clients about their opportunities and eventually modifies its available services (Bijl, 1987).

KIMIA has provided a self-targeting exchange of information that is of most benefit to farmers who already own animals and were most affected by the decline of government-supported lending facilities. Substantial numbers of households in the other two categories benefit from KIMIA as well.

## Conclusions

WP-ADPP focuses on identifying and experimenting with locally available (individual) management capacity to exchange consignments of inputs and to provide adequate information on prices, techniques and conditions on a privatised basis. Its longer term objective is not so much to build a new institution, but to make farmers less dependent on loans and more aware of changed price ratios. It is important to create the skills and power needed to counteract the exploitative actors in marketing and input supply who emerge in a liberalised agricultural economy.

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