

# Participatory rural development and technology transfer: empowering small scale farmers with appropriate technology skills

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## Abstract

*This paper deals specifically with what Kasisi Agricultural Training Centre (KATC) is doing in order to improve rural development in the surrounding villages and the district of Chongwe (Lusaka Rural East). The overall objective of KATC is to empower local people in the district and those who come from elsewhere to enable them to improve and sustain their lives through use of appropriate and ecologically sound agricultural techniques. KATC believes that the use of sustainable, environmentally friendly agricultural practices coupled with animal traction is a high priority in the development of the rural areas and a nation as a whole. Animal traction is an important tool in development because farmers using traditional techniques, which are labour intensive, are unable to produce enough food for the increasing population.*

## Introduction

Kasisi Agricultural Training Centre (KATC) is a church supported non-governmental organisation situated in the Rural East District of Lusaka Province. Lusaka Rural District is dominated by medium-scale and small-scale farmers with a few large commercial farmers situated mainly along Great East road and along the railway line in the Chisamba area. The commercial farmers mainly grow high value export crops, tobacco, herbs, vegetables and flowers and they also have large herds of beef and dairy cattle.

The district has the highest number of trained oxen compared to the other (Luangwa and Kafue) districts in Lusaka province (Dibbits and Mwenya, 1993). Among the medium-scale and small-scale farmers, 13% of the households own oxen and 66% of the total planted area is ox-ploughed while 34% is hoe-cultivated.

The report (Dibbits and Mwenya, 1993) states that cattle owners have managed to buy sufficient animal implements. On average, there is one workable plough per pair of oxen and the number of ridges, harrows and cultivators per 100 hectares ploughed with oxen is high, 9.5, 12.8 and 11.6 respectively. Rural transport is also reasonably well developed with 19 ox-carts per 100 trained oxen.

The original inhabitants of Lusaka Rural East, the Soli people, are not traditional pastoralists but due to immigrants from other provinces like Southern, Western and Eastern provinces, the local people have adopted the cattle keeping tradition. Animal traction activities are slowly gaining recognition in the district due to:-

(i) The establishment of Palabana Animal Draught Power Development Programme in 1988, offering

training courses to small-scale farmers, extension staff, ox-trainers, professionals and students.

(ii) The training programmes and follow-up support offered by KATC to small-scale farmers and rural blacksmiths.

## Historical background of KATC

KATC has been functioning since 1974 as a small-scale farmer training centre for married men and women who come from the surrounding villages of Chongwe District.

In 1982, the workshop for Appropriate Technology was established at the centre to carry out research, test and develop equipment and tools suitable for production and use in rural areas. The workshop has been working in collaboration with other institutions and organisations such as the University of Zambia, Technology Development Advisory Unit (TDAU), the National Council for Scientific Research, the Food and Agricultural Organisation (FAO), Africare and the Natural Resources Development College (NRDC).

In 1995, the centre opened a blacksmith workshop within the appropriate technology workshop to train rural artisans. The centre completed the construction of a dormitory, dining and conference facility in 1996. This conference facility is for conducting short courses in sustainable agriculture, agroforestry, dairy and pastures, animal draught and blacksmithing.

## Programmes

### *Two-year farmer training programme for families*

Ten small-scale farmer families are in the two-year farmer training programme at any one time, with



The major activity at the appropriate technology workshop in promoting animal traction is the training of practising rural blacksmiths. Participants are drawn from villages within Lusaka Rural East District (Chongwe District) and are taught basic skills in blacksmithing. Nine participants have been trained every year starting from 1995 and the following are the skills the rural blacksmiths are taught:-

- (i) In the first stage, the rural artisans are taught how to make basic shop tools like the chisel, hammer, tongs and cutting sets.
- (ii) In the second stage, the artisans are taught how to make agricultural tools, and spares like the hoes, axes, plough parts, ridger parts and harrow parts.
- (iii) In the third and last stage, the artisans learn how to disassemble, assemble and to repair ox implements. They are also taught costing and marketing skills and how to set up a rural repair and manufacturing shop.

At the end of their training programme, the centre helps them with basic equipment such as a combination of drum bellow forge and the improvised anvil.

### Oxenisation

In Zambia, ox-power is restricted to cultivation and transport and does not easily find other applications. This is due to incomplete diffusion of the technology, non-availability of implements other than ploughs, harrows, cultivators and ox-carts. Tradition and gender specific division of labour also hinder efficient utilization of ox-power. For example, men usually assume the right of disposal over draft animals, and use them for their specific fieldwork. This happens even when women would want to use the animals for water lifting and grinding maize at the time of ox-power under-utilization.

KATC will continue to maintain the cattle for training, draught, beef and dairy purposes. With appropriate implements KATC hopes to encourage farmers to use ox-power for water supply, irrigation and for construction of small earth dams, using ox-drawn scoops. Presently, the centre has constructed two big earth dams using tractors, bulldozers and motor scrapers.

### References

**Dibbits H. and E. Mwenya** 1993. Animal Traction Survey in Zambia, National ADP coordination Project, Lusaka Zambia pp 71, 73.

At the International Livestock Centre for Africa (ILCA) field station at Debre Berham in Ethiopia, a pond of over 10,000 cubic metres was built in less than six months using eight ox teams. This example of work of ox-power gives KATC the confidence in the need for ox-power supplementation in the execution of its projects namely: dam construction, road construction and maintenance, transport and cultivation.

If ox-drawn scoops were available, KATC would encourage farmers to build small earth dams for irrigation and livestock. The advantage of dam construction with oxen is that the embankments are consolidated by their hooves. The ox-drawn scoops can also be used for the construction of contour channels, ridges and for maintenance of farm and rural roads. The construction and maintenance of feeder roads using labour based methods can be complemented by animal power for heavier tasks like transport work, using the ox-cart, and digging or leveling using scoops.

### Conclusion

Animal traction technology offers the growing population of developing nations a means of sustenance in food production. The full benefits of animal traction can be achieved if:

- (a) The small-scale farmers realise and take advantage of opportunities offered by draft animals in their production of food.
- (b) The promoting and implementing institutions, and the private sector organisations dealing directly with the rural populations, are encouraged and materially or financially supported by government or any other interested organisations.
- (c) The financial institutions could provide credit to the motivated rural people who readily show and are able to use animal traction technologies.

Without any doubt, increase in productivity amongst the small-scale farmers, depends to a large extent on animal power as hoe cultivation is insufficiently productive and tractor cultivation is uneconomical on small scale farm operations.

**Muller, H.** 1986. Oxpower in Zambian Agriculture and Rural Transport, Rader Verlag Germany.

**Starkey, P., E. Mwenya and J. Stares** 1994. Improving Animal Traction Technology.. Proceedings of the first workshop of ATNESA, Lusaka Zambia. 444p.