FINAL REPORT ON REHABILITATION OF ZONE 5 GRAZING LAND

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Background

Kwakala Plot No. 126, comprising of 66 hectares, was bought in 1970. The main justification was to try different land rehabilitation formats within the reach of ordinary people. It is within Zone 5. Rainfall is less than 200mm. per year and is variable in terms of duration for the land is in the Yatta Plateau rain shadow.

Over the years, two people worked on the land. It was fenced and gully rehabilitation was started. Essentially this was simple for it entailed only blocking them with stones or brushwood. Since 1970s, the gullies were completely eliminated. The second treatment was to ensure that naturally grown trees were protected from the charcoal producers. As a result, there is a forest of the denuded land coloniser species - essentially acacia melliferra although other acacias are found. The third treatment was to eliminate the anthills, which dominated the landscape. Although ants have positive impacts on land, where they are dominant is not easy getting good range grass.

To generate some income, goats and a few cattle were put on the land. MoA carrying capacity recommendations for Zone 5 are that each goat needs about 4 hectares per year. By 1975, the land had produced enough woody biomass such that the actual carrying capacity of the land was exceeded. Typically, there has been a goat on every quarter hectare since then. Although woody biomass – the ideal food for goats, was effectively produced, the land did not generate enough good grass though. What was dominant was *lamuyu* (the first grass coloniser in zone 5), which is not ideal for cattle. Good grass would be produced if more water remained on the land.

When Dryland Trust was formed, negotiations about investing in terracing were undertaken. The idea was that terracing would hold all the rainfall on the land. This in turn would increase the carrying

capacity of the land for cattle, whose returns are better than goats, would have adequate fodder. Further, the land would carry horticultural tree crops.

Project Objective

The project objective was to terrace al the land so as to see whether the better grasses-especially –*Nthata kivumbu and kithuku*- the Kamba favoured grasses in the range areas would establish naturally. If these grasses established, it would indicate that there was enough effective moisture in the soil to enable the farmer to plant mangoes and pawpaws on the land without irrigating. The idea was that these fruit trees would provide an alternative income to farmers in the region for land pieces were becoming too small for extensive ranching.

Project Activities

The first activity was to dig *fanya juu* terraces. The land was terraced from the top towards the lower parts of the farm. Terracing started in 1996 and continued up to March 2001. Terracing was done by hired labour. Since the slope was not too steep excavation was two feet deep and three feet wide, digging and uplifting the soil was Ksh. 5 per cubic foot. Casual labour was used and they had to provide their own mattocks, jembes and spades.

The second activity done, after the completion of terracing, was to dig pits for planting mangoes and paw paws. To simplify the layout for those digging, the pits were laid out in 15 feet squares. Five thousand pits were dug for eventual planting of mangoes and paw paws. Casual labourers who provided their own tools and equipment did this work.

The third activity was manuring the pits in readiness for planting. A debe of manure was put in 2000 pits and mixed with the surface soil.

The fourth activity was to plant mangoes. 2000 mangoes were planted in December 2001. After planting, there was no rain and they dried up. Three hundred were replanted in March 12002 and irrigated to establish. They are surviving. Another 100 have just been

planted during the onset of short rains in 2002. Paw paws are yet to be planted.

Results and Conclusions

Terracing for the purpose of improving the grazing is most successful. The better grasses have re-established and the farmer can now increase the number of animals on the land.

Although the initial mango planting, without supplementary irrigation for establishment was a failure, it should be noted planting was late. In the short rains of 2002, there was new planting early in the season. There really is no reason why the mangoes cannot be established without supplementary irrigation.

It is expected that there will be planting of paw paws in the 2003 long rains if good varieties are found.

Actual Costs

Terracing

Layout	Ksh. 20,000
Digging 40,000 feet x2ftx3 ft x Ksh. 5	Ksh. 1,200,000

Pitting

Layout	Ksh.18,500
Digging 5000pits x Ksh. 20	Ksh. 100,000
Manure 2000 pits x Ksh. 5	Ksh.10,000
Mixing Manure and Top Soil 2000 pits x Ksh. 2	Ksh. 4,000

Mango Seedlings

Purchase 200 x Ksh. 30	Ksh. 72,000
Planting Labour 2400 x Ksh. 6	Ksh. 14,400
Irrigation Labour 300 plants	Ksh. 10,500

Supervision Travel	Ksh. 831,840
Total Project Cost	**Ksh. 2,281,240**