

QUARTERLY PROGRESS REPORT

3RD QUARTER OF YEAR 3

WESTERN KENYA INTEGRATED ECOSYSTEM MANAGEMENT PROJECT

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1. Introduction

Western Kenya Integrated Ecosystem Management Project (WKIEMP) has been initiated with support from the World Bank for implementation through a grant from the Global Environment Facility (GEF). The project, which became effective in July 2005, seeks to improve the productivity and sustainability of land use systems in selected watersheds in the Nzoia, Yala and Nyando river basins through adoption of an integrated ecosystem management approach. In order to achieve this the project will: (i) support on-and off-farm conservation strategies; and (ii) improve the capacity of local communities and institutions to identify, formulate and implement integrated ecosystem management activities (including both on-and off-farm land use planning) capturing local global environmental benefits. The project is based in Kisumu and is achieving its objectives through a community driven development process whereby communities decide on resources for infrastructure investments, technical assistance and implementation of ecosystem management activities.

Progress during the third quarter was slowed by the civil unrest in western Kenya following the elections. During this period, the ICRAF team focused on data entry, quality control and on processing soil samples. Field work resumed toward the end of January and we have been able to achieve normal planning for the coming rainy season.

2. Baselines

The draft baseline report for Yala and Nzoia has been written and a draft was shared with KARI. Work is ongoing for the Nyando baseline report, but an early draft for the lower Nyando block was also shared.

The major findings of the baseline report for Yala highlight the differences in the agricultural systems and the resource base across the river Basin. The lake plain suffers severe erosion and soil degradation. This is due largely to inappropriate management practices on very fragile sodic soils. Low vegetation cover and continuous cropping have led to widespread soil degradation. Soil erosion and hard setting are major problems in this block and baseline data shows severe land degradation in the entire block, except for the river valleys. Hence, activities which halt the degradation of areas that are still being cultivated should be given priority. The Project should also promote rehabilitation of degraded areas, particularly in the western portion of the block. Such activities should include tree planting and control of free-grazing.

The middle Yala block can be divided into two parts with the Gold River serving as the dividing line. The northern part of the block is characterized by unsustainable farming practices and low woody vegetation cover, whereas in the southern part of the block has greater tree cover and better managed farms with established tree plantations and banana orchards. Sheet erosion can be found in the entire block and farming of steep hill sides is common, with few or no conservation measures in place. Therefore, the management recommendations for the Middle Yala block involve five distinct sets of activities:

- Increasing the woody cover with special focus on diversification through promotion of indigenous trees.
- Soil and water conservation. Here focus should be on the importance of soil and water conservation in relation to sustainable production and on the integration of trees in soil and water conservation measures.
- Intensification of current land use, with special focus on conservation agriculture and legumes.
- Establishment of fodder banks with special focus on indigenous trees and legumes.
- Capacity building of communities and CBO's in the above mentioned topics and elements related to their preferences.

In the Upper Yala block, soil erosion is an important problem, but it is not as advanced as elsewhere in the river basin. The project has the opportunity to intervene here before the problem reaches crisis proportions. High incidence of depth restrictions suggests that this block is near a tipping point and could see significant erosion problems in the near future. There are significant amounts of abandoned degraded land in the southern and western portions of the Block. Steep areas are also degraded and abandoned. These abandoned areas should be the focus for land rehabilitation work. In the southern portion of the block there is a high incidence of depth restrictions on soils that are still cultivated. These areas are frequently flooded. These areas should be targeted for soil conservation and development of agroforestry systems that maintain more permanent vegetative cover. Additional erosion and hard setting on these sites could render them unfit for cultivation.

Interventions in this block should mainly focus on soil conservation and increasing soil cover, boosting soil fertility and enhancing biodiversity. When discussing interventions with communities, farm size and soil depth restriction need to be considered. Average farm size is only 3.2 acres, which is considerable smaller than elsewhere in the Project. Around 20% of the sampled points have soil depth restriction at 20 cm, hence it is important that soil depth is assessed before any activity is planned and implemented.

3 Species screening trials

3.1 *Lower Nyando*

Several follow-up activities for these trials were conducted early in the quarter. The survival count and tree measurement has been completed. In many of the plots we found trees severely affected by environmental stress. There was some tree mortality, but in general the trees are growing slowly due to the soil type and lack of water during dry season. Several plots are also prone to flooding, which affects tree growth. We note significant progress in the control of free grazing due to training given to the communities after this problem was identified earlier. Some farmers are managing their plots very well as they have added manure to the seedlings during weeding time. They are also applying mulch to retain moisture in the soil as they say this helps the seedlings during dry spells. Some farmers have been forced to water their seedlings to ensure survival through the dry season.

3.2 *Lower Yala*

Several follow-up activities for these trials were conducted early in the quarter. The ICRAF team revisited some plots where survival counts were done for validation of data. About 20 plots out of 140 plots had some gaps on the data for survival counts. These problems were sorted out. Tree survival counts began in late February and are ongoing. The area is still experiencing dry periods which are affecting survival. We have noted that some plants heights have decreased since the last count. This is due to terminal shoot dieback, where the tips dry up and break off, hence reducing their former height. This has been observed in tree species such as *Makhamia* and *Albizia*. In evaluating the trials, we note the following:

- Termites are still coming up as a major pest affecting tree growth in lower Yala block. Most trees have been totally or partially destroyed by the pest, especially exotic species.
- Chlorosis is another problem facing some tree species in tree screening trials in this lower block. This has been observed primarily in *Makhamia* and *Grevillea* in some plots. A tree such as *Albizia* has also shed their leaves in some plots. Regeneration of trees marked as dead in previous counts has also been observed in some plots which have led to survival count variability in some plots.

- Stunted growth has been observed from some tree species such as *Makhamia*, *Grevillea* and *Albizia* species.
- Livestock movements in some the plots have not been restricted this has led to tree destruction.
- Most tree screening plots have been managed well.
- As tree survival counts and measurements continue, farmers are also sensitized to prepare holes in readiness to plant grafted mangoes immediately the rains start.

4 Degraded site rehabilitation trials

Kowala: Desilting of water pans and weeding of trees in both the woodlots and Kowala 2 rehabilitation sites have been accomplished through the food for work programme. We met with the community on the management of trees, mainly to discuss how to prune the trees. We made an agreement with the community to buy grafted mangoes seedlings from the Kokoto group at a half the normal price, since we will help them in grafting the seedlings. ICRAF will provide training to the group in grafting. Planting will take place next month.

Most of the planted trees are still stunted, with sparse ground cover. The cover that is returning is mainly naturally regenerating grass and some scattered indigenous trees and shrubs, mainly *Acacia* species. We have agreed with the community that we will seed good quality fodder grass on the bare patches.

Kalacha: Pruning of tree seedling is on-going. The grass in the site is ready for harvesting and will be made into hay. With the support of the food for work money they are planning to build a hay storage house where they will keep hay to help solve the problems of free grazing during dry spells.

Kokoto: Maintenance continued during the quarter, including mulching and manure application to the newer tree seedlings. The group has been planning its activities for the coming rainy season. Communities have been watering the young seedlings that were planted during short rains. At the same time they are planting strips of aloe to control soil erosion. More tree seedlings are needed and will be planted in some remaining portions that need rehabilitation. Grass reseeding will be great importance for reversing the degradation. *Acacia polyacantha* and *Acacia perisiflora* have been growing well on this site.

Kokumu Aora Gulley: This is a new site which was initiated in November 2007. Planting of tree seedlings is on-going. About 3000 seedlings have been planted to date and more planting is planned for this rainy season.

Alwala: Over 400 seedlings have been planted at this site. Preparations for the current planting season are under way and more trees will be planted as the rains progress.

Sidundu: Late rains have delayed planting at this site. Preparations for the current planting season are under way and more trees will be planted as the rains progress.