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Kenya Maize Development Program II

Cooperative Agreement No. AID-623-A-11-00011

Final Report: December 21, 2010 – September 30, 2012

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List of Acronyms

CAADP	Comprehensive Africa Agriculture Development Program
CAN	Calcium Ammonium Nitrate
CBO	Community Based Organization
CGA	Cereal Growers Association
CIG	Common Interest Group
COP	Chief of Party
FIPS	Farm Inputs Promotions Service
GOK	Government of Kenya
KACE	Kenya Agricultural Commodities Exchange
KMDP	Kenya Maize Development Program
DAP	Di-Ammonium Phosphate
MT	Metric ton
VBC	Village Bulking Centres
PO	Producer Organizations
SMS	Short Message Service

Overview

Context



“Last year I farmed beans. After harvesting and selling the beans, I planted tomatoes. I got about thirty thousand shillings from the beans and a hundred thousand from tomatoes. Then I bought two dairy cows and sold them for seventy thousand. With that money I bought a quarter an acre of land ... and the money that remained from the profits is what I have used to farm maize, beans and tomatoes.” Kilongekey women’s group member, Uasin Gishu County, recounts using skills gained via KMDP II Farming as a Family Business training to develop an integrated farming system.

Medium Term Investment Plan as part of the CAADP Compact implementation process. Concurrently, the U.S. government launched its Feed the Future (FtF) strategy with its first phase grounded in two key paths: accelerating inclusive agricultural growth and improving nutritional status. FtF supports country-owned plans that are investment efficient, well-targeted and mutually reinforcing.

Maize is the principle staple food crop in Kenya. The average Kenyan consumes 98 kilograms of maize annually.¹ Smallholder farming in rural Kenya revolves around maize, despite maize’s vulnerability to price swings, production and post-harvest challenges and government interventions. It is grown by roughly 3 million farm households, only one-third of which are net sellers. Virtually one out of every two acres cultivated in Kenya is maize, which means that maize is a major staple food crop and also a key income-generation activity for a significant proportion of Kenya’s population. Despite the high consumption of maize, Kenya’s maize is among the most expensive in Africa and the poorest quarter of the Kenyan population spends 28 percent of their household income on the crop. Inefficient production, blurred transaction channels and costly marketing have suppressed the sector’s competitiveness and exacerbated economic stagnation and poverty in Kenya.

Similarly, over the past decade in Kenya, maize production has increased while production of other staple crops, particularly legumes and root crops, has declined due to underinvestment in adaptive research, limited access to planting material, pests and disease, and adverse weather. It was widely recognized that there was a need to complement maize production activities with a revitalization of other staple crop value chains to alleviate soaring household spending, provide alternative income streams, and increase household nutrition.

Recognizing the importance of agriculture in sustained economic growth, the government of Kenya launched the Agricultural Sector Development Strategy (ASDS) in July 2010. The Kenyan government subsequently released its

¹ Unless otherwise stated, all statistical data in this document come from the Tegemeo Institute of Agricultural Policy and Development, www.tegemeo.org

Kenya's agricultural sector is in the midst of its most radical institutional and governance change in 40 years, for example, the over 100 laws governing agriculture in Kenya will be cut to only three. With these reforms, Kenya's staples sector will likely sustain positive developments in input supply systems, land reform, availability of supporting services for production, and market price dynamics.

USAID's investment in the staples sector through KMDP II complemented market enhancing initiatives and built solid relationships between private sector enterprises (including producers) and public-sector-enhancing reform ambitions.

The Program

USAID/Kenya mission's Feed the Future strategy recognizes that the inefficient production and marketing system of maize and other crops greatly contributes to economic malaise and heightened levels of poverty in Kenya. The mission's strategic plan indicated that increased productivity, more efficient markets and rational government policies could dramatically alter the economic contribution of Kenya's maize subsector, helping it become a key element in accelerating growth and reducing poverty.

From December 2010 to September 30, 2012, ACDI/VOCA implemented the USAID-funded Kenya Maize Development Program II (KMDP) follow-on agreement No: AID-623-A-11-00011 in continuance to the Kenya Maize Development Program cooperative agreement which ran from 2003 to 2010. ACDI/VOCA managed the \$3 million program, implemented in partnership with three subgrantees: the Cereal Growers Association (CGA), Farm Input Promotions (FIPS)-Africa, and the Kenya Agricultural Commodity Exchange (KACE). Assisted by key collaborating private sector partners, KMDP II worked with a wide range of individuals, entities and institutions throughout the maize and alternative staple crop value chains—from individual farmers and farmers' organizations to millers and other bulk users—to increase rural household incomes through improved productivity, reduced costs, and the establishment of more transparent and efficient marketing systems. Additional talent and resources were drawn from other players throughout the maize subsector, including other donors, multilateral institutions, researchers, NGOs and private enterprises.

KMDP II used a value chain facilitation approach, focused on increasing the value of maize and alternative staple crops at different levels in the respective value chains. It emphasized continuous quality improvement and upgrading.

The project addressed critical factors including production costs, quality and distribution through a range of services and institutions key to enhanced production and marketing efficiencies in Kenya's staples crop sector. KMDP II identified alternative and competitive strategies for strengthening extension, business development, input and financial services.

KMDP-II's technical approach was based on best practices and lessons from KMDP I which demonstrated the importance of developing the maize value chain as a key strategy to enhancing household food and income security. The addition of alternative staples on KMDP-II recognized the status of alternative staples (legumes, sorghum, sweet and common potatoes) in enhancing household food and income security, particularly in less fertile areas of Kenya.

KMDP II helped smallholder farmers solidify linkages and relationships between value chain players in the alternative staple crop subsectors by focusing on interlinkages within the private sector and integrating participants in the value chain to increase efficiency.

KMDP II key program objectives were:

- Increase incomes for 20,000 households producing and consuming maize, as well as selected staple crops, in targeted regions of Kenya
- Enhance nutrition information and knowledge management in staple food crops
- Facilitate participation of youth and women in decision-making processes at the farm unit level through better access to factors of production
- Increase investment in ongoing activities to improve alternative staple food crop value chains in Kenya, including sorghum, sweet potato, pulses and Irish potato
- Increase mainstreaming of gender and youth concerns into staple crop production to improve beneficiary household income distribution

KMDP II achieved these objectives through the following key activities and intermediate results:

IR1: Improved productivity

- Increase adoption of appropriate production practices through training, and seed and fertilizer distribution and demonstration to smallholder farmers
- Support the development and transfer of appropriate soil conservation practices, e.g., soil and water conservation measures appropriate to locale and climate, through use of chisel ploughs, soil remediation mapping, etc.
- Increase awareness and adoption of alternative staples for soil fertility, income generation and food security
- Increase investment in farm and tertiary level post-harvest handling and storage management

IR2: Increased access to markets

- Build capacity of trader and producer groups by developing alliances and identifying market opportunities for maize, including linking traders in maize-deficit areas and maize-surplus areas of Kenya, and identifying opportunities for trade in other produce (beans, peas) from the deficit areas through trader and producer group linkages
- Facilitate initiatives in new product development and diversification
- Provide technical assistance to the strategic review of the EAGC-managed grain warehouse receipting system and link the producer groups with microfinance institutions (MFIs)
- Strengthen the business capacity of individual farmers through successive Farming as a Family Business trainings to project beneficiaries

IR3: Increased access to business development services

- Strengthen the maize and alternative staple supply value chains with active involvement of smallholder producer groups and via relationship-building events with public and private sector actors
- Promote the provision of private services (by input suppliers, traders, stockists, private consultants and extensionists) critical to rapidly and sustainably increasing income for smallholder farmer organizations; trader organizations and small-scale millers
- Facilitate new product development and promote branding of value-added products for consumer market penetration by small-scale millers, traders and smallholder farmer organizations

IR4: Increased effectiveness of producer organizations (PO)

- Organize existing and new smallholder maize farmers into groups that work together with other members of the value chain (both upstream and downstream) to improve their product so as to meet customers' requirements
- Strengthen the capacity of existing and new smallholder farmer organizations to provide business services to their members; develop relationships; improve negotiation skills with services providers (including input companies, MFIs and banking institutions); pool funds; and integrate savings to build a capital base for groups to engage in business and lending to members
- Facilitate existing smallholder farmers' organizations to build a strong national affiliation with the Cereal Growers Association (CGA) for policy and advocacy support

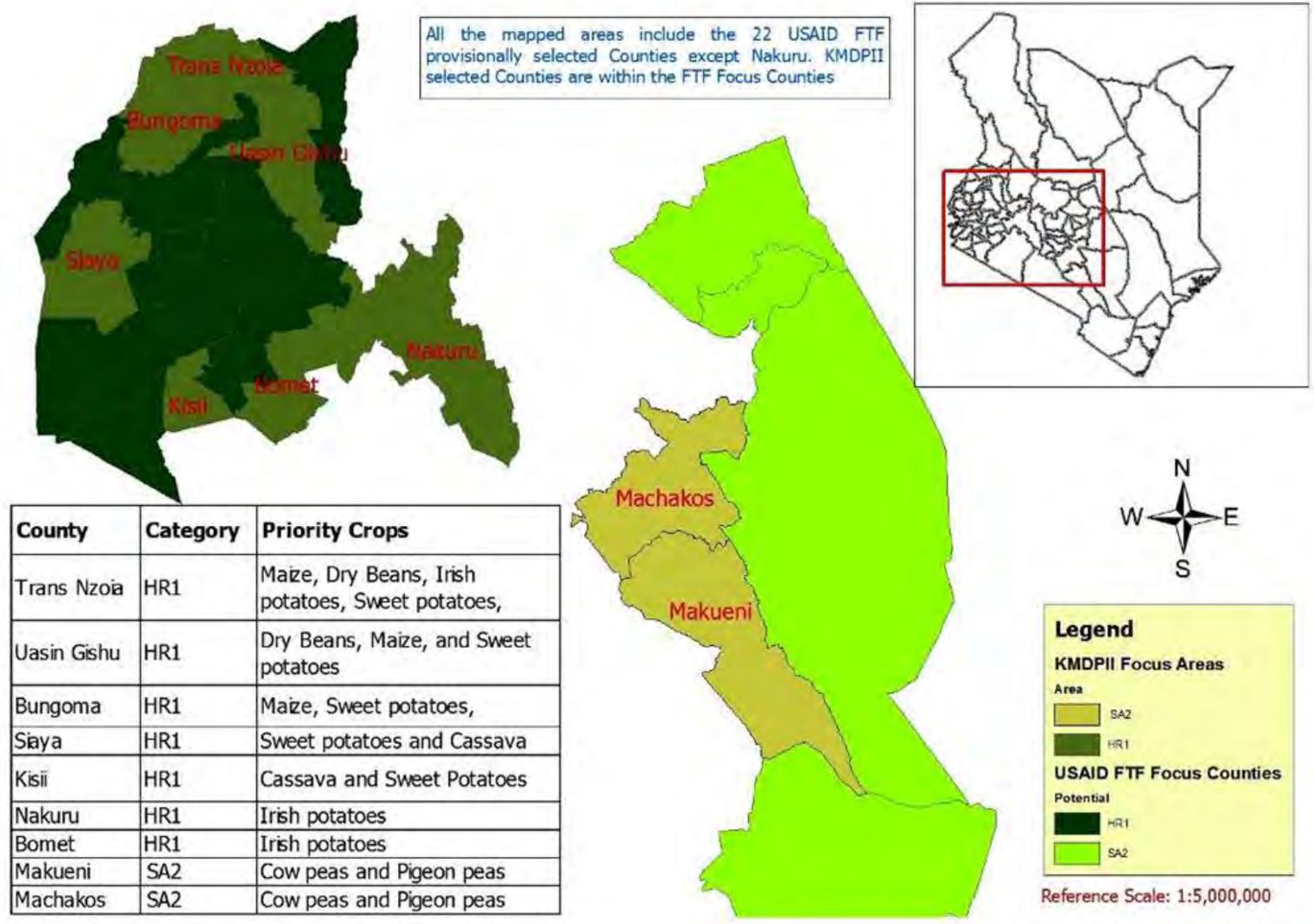
Geographic Focus

The geographic regions, part of HR1 (high rainfall zone) and SA2 (semiarid zones), included a sizeable proportion of Kenya's arable land and allowed for crop diversification and increased food security. The geographic focus included:

- The Rift Valley (Uasin Gishu, Trans Nzoia, Nakuru, Bomet, Laikipia)
- Medium-potential productivity areas (Bungoma, Kakamega-Lugari and Nyandarua)
- Marginal-potential areas in Eastern Kenya (Embu, Machakos, Makueni, Kitui, Mbeere counties)
- Nyanza Province (Siaya and parts of Kisii/Nyamira)

During the follow-on period, the program supported the maize, legume, bean, Irish potato, sweet potato, cassava, cow pea, green gram and sorghum value chains. Crop selection was geographically stratified according to the suitability of the crop to the agro-ecological zone, as well as consumer preferences and the supply/demand characteristics of each crop per geographic area. Crop stratification ensured that program resources were optimized and benefits scalable.

KMDP II Sites Superimposed on the FTF Focus Area Locations



Key KMDP II Achievements

Since the beginning of the agreement period, KMDP II has achieved stated targets and, in instances, exceeded them. Key achievements include: **23,177** rural households benefited directly from U.S. government (USG) assistance² with enhanced outreach in 13 counties, 12 of which are in the target FTF focus areas. This **exceeded the program target by 15.9 percent.**

Improved Productivity

24,460 demonstration sites and 3,024 field days

12 technologies or management practices

95% of farmers report adopting new technologies

30% increase in use of certified seed

20% increase in the use of fertilizer

Average 19 90-kg bags per acre; from the previous 3 bags per acre

incremental sales estimated at \$US496,192.65

1,000 acres planted with alternative staples

Increased Trade and Marketing

The gross margin for maize farmers increased by 47%

2,671 average price for a bag of maize; up from 1,575

5% of total traded yield attracting premium prices

450,000 reached through the Soko Hewani radio program

15% of targeted traders purchasing directly from POs

At least 100 MT sold through farmer-managed bulk marketing stores

² Source: KMDP II Final Performance Management Plan

Increased Access to Business Development Services

1 new livestock feed formulated, processed and launched to the market by private sector service providers

At least 25% of targeted stockists and other private service providers offering embedded extension services to farmers

Profitable agribusiness enterprise created from the utilization of maize and alternative staple byproduct

US\$45,000 in grant funds disbursed to deserving producer-owned business concerns to support income generation and market access

38 VBAAAs established as rural input dealers and extension providers

Increased Effectiveness of Producer Organizations

231 producer groups were trained on various elements of leadership, management skills and governance

17 women organizations received USG assistance

US\$10,000 mobilized through producer-owned savings and credit initiatives

At least 20% of producer organizations joined the CGA and affiliation to the EAGC

At least 20% of the producer organizations opened banking accounts with MFIs

4,044 PO members received training on trade and market access

At least 5% of producer groups negotiated and accessed favorable small enterprise development credit facilities



The KMDP II hypothesis was that increasing per-unit productivity and marketing efficiency of maize and alternative staples, coupled with rational government policies, and an enabling environment, would dramatically alter the economic well-being and food security of smallholder farmers, and become a key element in accelerated growth and poverty reduction in Kenya.

The three essential, interrelated principles of our approach were a) participation, b) learning, and c) networking, within a system where incentives are explicit, capacity development is enabled, and trusting relationships are built.

Chapter I: Program Design

The Kenya Maize Development Program II was designed as a follow-on activity to KMDP I and a predecessor program to future USAID and government of Kenya (GOK) initiatives to strengthen the maize and alternative staples value chains. The program value chain facilitation methodology emphasized the importance of addressing key gaps and constraints along the chain in order to improve the efficiency and competitiveness of the subsector, with an eye toward promoting inclusiveness of smallholder producers.

KMDP II worked with key actors along the value chain, including: producers, producer organizations, input providers (suppliers, stockists, agrodealers, village-based advisors), service providers (extension, financial, business development, mechanization, marketing), apex associations and councils, private sector players (traders, bulkers, aggregators, SME millers, processors, buyers), and government representatives and agencies. Under KMDP II, farmers became active members in the value chain, were better able to address issues faced across the whole value chain and learned how they can address challenges through other value chain actors or producer organizations. KMDP II focused on smallholder farmers with an average of 2.5 acres per household under production. Our approach emphasized all elements of the maize value chain from input commodities and services, to production, processing, marketing and distribution, as well as environmental and sociocultural impacts of the program's activities.

Program Implementation Team:

ACDI/VOCA acted as the prime implementer of KMDP II. ACDI/VOCA is a U.S.-based nonprofit organization with almost 50 years of experience in Africa increasing agricultural productivity, improving markets and promoting agricultural trade through the organization and training of smallholder farmer groups, the facilitation of business services, and the provision of market-driven solutions. Managed by Chief of Party (COP) Steve Collins, ACDI/VOCA provided technical oversight, support and quality control for subteam leaders (subrecipient program managers), and other technical specialists engaged in each of the project components, sharing concepts, components and project progress with the government of Kenya, USAID and other stakeholders. ACDI/VOCA also provided competency leadership in key program components:

improved effectiveness of producer organizations; marketing, productivity and increased access to business development services; as well as monitoring and evaluation and reporting.

Farm Input Promotions Africa Ltd. (FIPS-A) is a nonprofit farm input extension provision firm that is a pioneer of local affordable solutions to increase productivity. FIPS-A works with rural producers to improve soil fertility, use resources sustainably and expands access to appropriate farm inputs, plus the information necessary to use them effectively. Along with ACDI/VOCA, FIPS-A led the improved productivity component of the KMDP follow-on program. FIPS-A increased productivity through a network of village-based advisors, small-pack input technology, private sector-led demonstration plots and field days.

The Cereal Growers Association of Kenya (CGA) is a member-owned and managed cereal grower organization which markets bulked maize to millers and other large buyers such as the World Food Program (WFP). Along with ACDI/VOCA, CGA worked to build farmer business organizations' capacity to engage with other value chain players through enhanced member services, enhanced decision-making capability and access to markets. CGA focused on producer organization development; marketing by mobilization of farmer groups and product consolidation; training on harvesting, post-harvest handling and grades and standards; and market facilitation.

The Kenya Agricultural Commodity Exchange (KACE) is a privately owned firm established in 1995 that facilitated increased volumes of commodity trades within the region through the provision of market and trade information via the KACE Regional Commodity Trade Information System (RECOTIS). KACE furnished timely and reliable price discovery and market information via a variety of methods, including SMS, phone, radio and internet. KACE provided capacity training and support to farmer organizations on output marketing.

Additional subgrantees included:

- Strategic Business Advisors, which carried out the initial value chain assessment for KMDP II
- East African Grain Council, which developed a Staple Crops Nutritional Cookbook, and hosted the 2013 agribusiness fair
- Crop Nutrition Laboratory Services, which developed a soil remediation map to provide detailed information on fertilizer recommendations

KMDP II also worked closely with a number of collaborating agencies/organizations that were also involved in upgrading the staple crop value chain. At the upstream end of the chain, the notable agencies from the private sector involved included:

- The GOK's Ministry of Agriculture (MOA) personnel and extensionists
- Kenya Agricultural Research Institute (KARI)
- Kenya Plant Health Inspectorate Services (KEPHIS)
- Seed companies
- Agrochemical companies
- Fertilizer distributors and financial institutions
- Commercial traders (Lesiolo Grain Handlers), National Cereals Board (NCPB) and small-scale grain bulkers at the producer-group level focused on warehousing/storage

At the downstream ends of the chain were:

- Grain millers (Unga Millers, Mombasa Millers, Pembe, Kitale Millers and United Millers, among others)

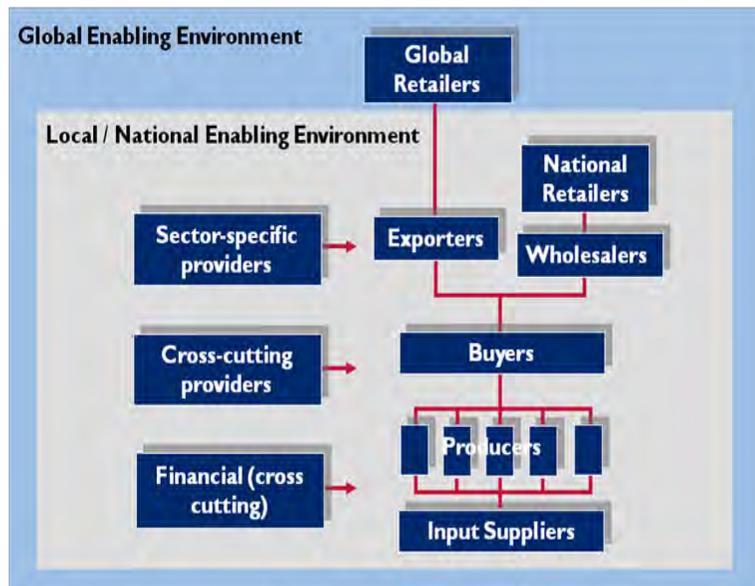
Implementation Methodology:

Value chain approach: KMDP II utilized a market-driven production approach, applying the principles of ACDI/VOCA’s value chain design.³ The program built the capacity of farmers to understand the diverse elements across the staples value chains and their role in it. The program was supplemented with experiential learning, private-public partnerships at all levels of the value chain, commercialized maize farming, and end-product diversification.

Training: In order to increase productivity and bolster maize production, provide services, boost the availability and access of credit and credit services, and foster, promote and facilitate equitable linkages among value-chain actors, KMDP II focused on improving human and institutional capacity and capability of all stakeholders in the maize value chain. Using the Kirkpatrick Model,⁴ KMDP not only provided training to individuals, but the program followed participants over time to assess increased capacity at an individual as well as institutional/organizational level. KMDP assessed 1) participants’ perceptions of training (making sure it was responsive and purposeful to beneficiary needs); 2) adoption of techniques, methods, and/or tools as a result of project training; 3) knowledge, skills and ability as measured by proficiency of adoption (how well are they able to use this skill) and; 4) increased organizational and/or institutional capacity as a result of being an adopter.

ACDI/VOCA provided technical assistance through the use of agronomists, extension agents, enterprise development specialists, volunteer consultants, local consultants, etc. ACDI/VOCA worked extensively with private sector service providers to provide a rich variety of opportunities to program clients throughout the value chain. In collaboration with FIPS, KMDP II created, selected and utilized village-based business promoters (VBAs)—project support agents recruited from young members of farmers’ associations to create an interactive interface between private sector service providers, working in collaboration with public extension workers to provide improved service to farmer organizations. VBAs proved invaluable and served as a connection between the

Figure 6. Value Chain



³ More information on ACDI/VOCA’s value chain approach on www.acdivoca.org/site/ID/ourwork_valuechains

⁴ The Kirkpatrick Model is a rapid-learning evaluation method that measures the reaction of the student, learning behavior (and capacity improvement) and ultimately, the results—the effects on the business or environment resulting from training improvement.

project and smallholder farmer clients. The agents assisted in farm production calendar planning, coordination of agriculture input delivery, sourcing and transporting products to markets, and the exploration of relationships with private-sector service and business providers. By the end of KMDP, 80 percent of the VBAs were absorbed into various private sector firms in permanent and temporary employment.

Business development services: ACDI/VOCA used the business development services (BDS) model program to strengthen demand for, and supply of, these services with minimum market distortions. Business development services required by maize farmers ranged from extension services, business skills, marketing, access to credit, access and use of inputs, crop management practices, transport, storage, etc. Prior to implementation, KMDP commissioned a value chain analysis to determine the best possible interventions points, especially with regard to the alternative staples. A copy of the analysis is contained in Appendix 2.

Farmer organizations: KMDP II worked with farmer groups to develop them into business-based organizations providing services to their members. KMDP II's farmer groups are now governed by professional management teams that are held accountable to the membership with an ultimate objective of increasing returns to members.

Environment and natural resources management: Throughout the life of the project, KMDP II considered the impact of the proposed activities on the environment and instituted measures to minimize negative impacts. As a result of the introduction of new technologies for managing diminishing land resources, smallholder farmers adopted conservation tillage practices.

Gender and youth mainstreaming: ACDI/VOCA identified disparities in opportunities and constraints that program activities presented to men and women. Preference was given to activities that attempted to increase benefits to women. The project provided women with functional business literacy training courses focusing on leadership roles, attitude change and decision making at the household level. Training programs and schedules were configured to fit the rigorous time management required to ensure female participation in training, including utilizing the Farming as a Family Business curriculum developed under the original KMDP. KMDP carried out a gender analysis. The contents and recommendations of this analysis are included in Appendix 3.

Partnerships: KMDP was successfully implemented as a result of solid collaboration between ACDI/VOCA and relevant government agencies of Kenya, Kenyan and U.S. private sector firms, and Kenyan and U.S. NGOs. During the program's implementation, additional talent and resources were drawn from other players throughout the maize subsector, including other donors, multilateral institutions, researchers, NGOs and private enterprises.

Chapter 2: Improved Productivity

For the past two decades, the high cost of unreliable quality of inputs and substandard agronomic practices in many regions of Kenya contributed to the high costs of producing maize. Farmers' investments often resulted net loss. Incorrect inputs were frequently applied at incorrect rates, and inappropriate blanket recommendations were disseminated by extension workers. Moreover, the price of DAP fertilizer can account for forty to fifty percent inputs costs. The sale of substandard seed in counterfeit packaging was endemic. In addition, inputs are not widely available in package sizes affordable to smallholder farmers. The approval process for new planting material was laborious, thus new varieties were slow to enter the marketplace. Distribution networks failed to reach rural areas. New planting varieties such as high protein quality maize (QPM) and disease resistant varieties (for potatoes) are not readily available. Therefore, alternative staples lack varietal maintenance programs and few companies focus on developing improved or clean seed of these crops.

During KMDP II, there was a 20 percent increase in diesel fuel cost leading to an increase in land preparation costs, including an increase in cost of seed, fertilizer and farm operations. Exacerbating the high input cost, there was a certified seed shortage in the country. Market leader Kenya Seed Company was unable to service market demand especially for the popular 600 maize series seed.

Program approach: This component prioritized activities to improve per-unit-area production while reducing costs. KMDP II engaged with smallholders to increase productivity by providing technical assistance, as well as training to increase on-farm per-unit productivity, reduce production costs, and improve the quality of maize and alternate staple crops. In conjunction with FIPS-A, ACIDI/VOCA and private sector partners offered training in crop management to increase profits and yields, improve post-harvest handling to reduce losses and improve marketing skills. KMDP II focused on transferring technology and management practices to farmers by engaging private sector input suppliers in demonstration plots, field days and training events and developing robust rural networks of input and extension providers. The program addressed costs, quality and distribution of improved technologies through a range of services and institutions. To bring vibrancy to the existing market, KMDP built strong relationships within the seed subsector to accelerate the introduction of improved planting materials.

Key results and outcomes:

- From a baseline figure of Ksh 10,373 (US\$123) per acre in January 2011, maize production gross margins increased to Ksh 21,910 (US\$260) in the 2012 season
- 2,500 demonstration locations were established in conjunction with private sector input providers
- 80 percent of targeted households increased acreage of alternative staples
- 10 percent increase in number of women accessing and controlling factors of production
- 550 cassava and sweet potato producer-managed multiplication sites established
- 65 percent of client farmers applied improved fertilizer/lime
- Production costs decreased by 10 percent despite global increase in input cost

Activity: Development of a Village-Based Advisor Network

KMDP II, through partner FIPs, employed an extension outreach model that engages youth under the age of 35 as village-based agricultural advisors (VBAs) to deliver extension and inputs in rural areas. This model has been successfully implemented by FIPs in the Eastern and Western provinces. VBAs are empowered to deliver fee-based services in villages targeted by KMDP II. FIPs identify young people with limited education or formal workforce skills that nonetheless demonstrate energy, aptitude on the farm, and an entrepreneurial spirit. Through this model, these young farmers can obtain formal sector employment or succeed as microentrepreneurs in the informal sector.

Through VBAs, farmers are able to access appropriate technologies, practices and inputs. Services typically include sales of seeds and agrochemicals in small, affordable packets, pesticide spraying, poultry vaccinations and sales of chicks, sales of sweet potato vines, and tree grafting (additional details can be found in Chapter X: Increase Access to BDS). Unlike traditional group-based approaches, VBAs have a target to work with every farmer in their community, meaning thousands of farmers can be reached quickly and cost-effectively. The approach builds on the entrepreneurialism and community spirit common among smallholder farmers.

Under KMDP II, FIPS-Africa developed a network of 77 self-employed village-based advisors (VBAs) in Bomet, Makueni/Nzaiu, Western (Bungoma, Kakamega, Butere-Mumias and Ugenya) and North Rift (Uasin Gishu, Trans-Nzoia). To cascade learning, VBA's engaged an average of four "subVBA", reaching out to more households. In Bungoma for instance, VBAs recruited 30 subVBAs. In Trans-Nzoia, one VBA manages a team of 10 subVBAs and in Nakuru there are seven subVBAs.

Learning Packs: VBAs distributed small seed packs of improved varieties of crops to farmers so that the farmers could establish learning plots on their own farms. The plots are a practical way for farmers to experiment with new varieties and stimulate demand for improved seed, as well as increase the food available to the household, as the yield from the learning plot is often much better than that from the farmer's own farm.

Over the life of the project, in addition to 24,460 demonstration sites, VBAs distributed over 22,000 small packs to farmers to set up learning plots. Protocols included over 32 seed varieties of 14 crops, including five maize varieties laid out in conjunction with private sector input providers. For example, working with Leldet Ltd, VBAs set up 1,490 demonstration sites for alternative staples. VBAs held a total of 3,024 field days to showcase maize and alternative crop demonstration plots, and train farmers on good farming practices. In addition, VBAs mentored farmers on saving seed of improved nonhybrid varieties of crops, such as legumes and butternut squash. The saved seed was replanted in the following season accruing benefit from increased performance relative to local unimproved varieties.

Overviews of VBAs' contributions to setting up demonstration sites, field days and multiplication sites can be found in more detail below.

As part of FIPS-A's innovative model for delivering inputs and extension services, VBAs are supported to carry out other income-generating activities, such as sale of seed, fertilizer, alternative crops and trees and providing vaccinations. More details on this can be found in Chapter 3, Increase Access to BDS.

Extension sustainability: KMDP II, through FIPS-A, links VBAs with private sector input supply companies, who are keen to use VBAs as promoters. One of our partner organizations, Western Seed Company, reported a resurgence in demand for their varieties after they started working with VBAs, and even sold out of seed in advance of the short rainy season. Leldet Ltd. found that working with VBAs enabled them to expand into new areas quickly and cost-effectively, which they would not have been able to do on their own. Leldet Ltd. believes that working with VBAs enabled them to increase their market tenfold.



Activity: Demonstration Sites and Farmer Field Days

KMDP II worked with FIPS-A and CGA on farm demonstration plots to educate farmers on improved production practices, such as use of certified seed, proper application of fertilizer and timely planting as well as environmentally friendly practices such as conservation tillage. The program's demonstration plots were strategically located in areas with a high concentration of maize farmers. The extensive network of demonstration plots were effective in disseminating information to program beneficiaries on new staple crop seed varieties and the use of fertilizers. To increase the speed of adoption of new varieties, KMDP II worked with various



seed companies to create demand. Through experiential learning, farmers tried new varieties and selected those most suitable for their soil and geographic region. The use of improved hybrid seed, certified seed or clean seed, inorganic fertilizers, chemicals and modern land preparation technologies enhanced production.

KMDP II set up demonstration plots in eastern Kenya to introduce staple alternative crops to mitigate food security. The demos were established with private-sector service providers who provided seed and pest control while producers provided labor and land. Indicative of the private-public relationship integral to program relations, the Kenya Agricultural Research Institute (KARI) and Ministry of Agriculture also participated in providing planting materials and technical guidance. The eastern Kenya and Siaya regions often experience drought conditions and irregular rains resulting in chronic food shortages. To overcome this problem, KMDP II demonstrated soil management techniques using a mole djembe to dig deep into the soil and also demonstrated making tied ridges which helps water infiltrate into the soil so that it is later available for the crop.

Details of the number of different demos laid out in the different regions are provided in Table 1. The maize demonstrations were conducted with WH507 or WH505 varieties from Western Seed Co. Multiple alternative crops were donated from Leldet. VBAAAs focused heavily on soil fertility management in Makueni, particularly on skills to retain water in the soils.

Technologies on display in addition to maize and beans included Irish potato, cassava, sweet potato, cowpeas dolichos lablab and pigeon peas, bananas, grounds and soybeans (depending upon the climatic region).



KMDP II promoted multicrop options for smallholder farmers, tailored to their agroclimatic region. Increasing productivity in Irish potatoes was essential in areas where farmers were hit heavily by the onset of maize necrotic disease. Potatoes provided an important alternative income for farmers in this rain-heavy region.

The over 40 crop varieties at the sites encouraged crop diversification among the small-scale farmers. 20 varieties of maize were showcased in in Trans Nzoia and Bungoma. Other varieties planted included millet and sorghum, assorted improved sweet potato varieties, two Irish potato varieties, assorted vegetable varieties, beans, soya and butternut squash.

Private Sector Partnerships for Input Promotion:

KMDP II obtained in-kind contributions from private sector companies for demonstrations. Inputs were distributed to the target districts for demonstration, and multiplication sites. The tables below showcase private sector partner contributions for a typical demonstration plot.

Table 1: Representative example of multicrop systems planted in the two demo sites (Bungoma), CGA

Seed Company	Seed Variety			
	Maize	Other cereals	Pulses / legumes	Vegetables
Kenya Seed	PH04, H513, H516, H520, H6213, H628	Millet (P224), sorghum (seredo),	Cow pea, green grams, beans	Tomatoes, kales and indigenous vegs
Western Seed Co.	WH507, WH505, WH509, WH402	Sorghum		
East African Seed Ltd	KH500-43A, KH 600-16A			Collards

Olerai Seed	Olerai 22, Olerai 46			
Agri-Seed / Syngenta	Duma 43, PundaMilia 53, Simba 61, Tembo 71	Sorghum (Sila)	Soy beans	Tomatoes
Monsanto	DK 8031, DK 8053			
Pioneer Hi-Bred	PH30G19, PH30D79, P28			
Pannar Seed	PAN 4M-19, PAN 63, PAN 67, PAN 683, PAN 691,			
Freshco Ltd	KH 500-31A, KH 631Q, KH 600-16A			
ICIPE			Desmodium	

Table 2: In-kind Contributions for demonstration plots

Company	Input description	DETAILS	QUANTITY (Kg)	UNIT PRICE (Ksh)	Value (Ksh)
Western Seed Co.	Maize/WH403	20*200*250g	1000	140/kg	140,000
	Maize/WH505	50*200*250g	2500	140/kg	350,000
	Maize/WH507	80*200*250g	4000	140/kg	560,000
Leldet Ltd	Maize/KH500-49A	300 kg	300	125/kg	75,000
Olerai Ltd	Maize/ KH500-42A	2000*25g	50	125/kg	6,250
Lachlan	ECO-T	976*5g		106	103,456
	Turbo seed fertilizer	200*8*10g		22	35,552
	Black majik fertilizer	200*5*50g		22	22,220
Kondola Enterprises	Minjingu rock phosphate granules	15*50 kg	750	1,900	28,500
Total (USD)					1,662

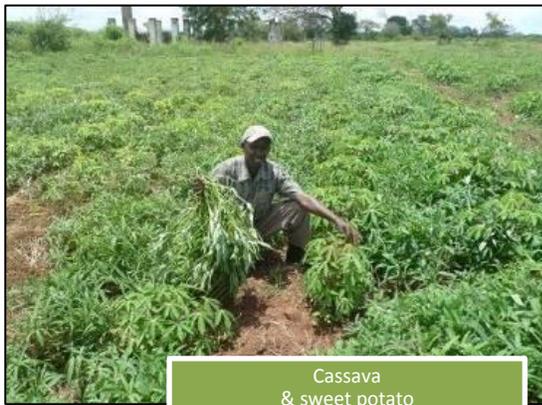
Activity: Increase Access to Improved Alternative Crops (Sweet Potatoes, Cassava, Tubers)

KMDP II improved access to improved varieties of sweet potatoes, cassava and tubers in rural areas through a tiered approach to multiplication that included working with KARI, certified producers and village entrepreneurs. Multiplication of these crops is typically done at the village level, with cuttings from neighbors or past season vegetative material; many of these varieties are susceptible to disease or do not produce high yields. To improve the quality of planting material, 9,069 bulking sites of improved varieties of sweet potato were established with the assistance of 2,996 male- and 6,073 women-headed households who hosted and looked after the sites on their farms. 10,646 bulking sites of improved varieties of cassava were established with the assistance of 3,387 male and 7,259 female farmers. Vines of improved varieties of sweet potato and cassava were also disseminated to 4,474 farmers to establish small food security plots.

Alternative staples—especially cassava and sweet potatoes—are traditionally grown by women, almost entirely for household consumption.



550 producer-managed multiplication sites



Cassava & sweet potato



Sweet potatoes

Cuttings: Multiplication sites (total of five acres) of improved varieties of cassava (ex-Mariakani, 990005, 990183) and sweet potato (KSP47)

Cassava is arguably the most important food security crop in Kenya's Eastern Province. It survives periods of drought, grows well in poor soils, and performs better than cereal crops. The cassava crop, however, has been devastated by the cassava mosaic virus over the past 10 years, resulting in very low yields.

developed by KARI were established under irrigation at Masongaleni (KARI substation) and at Matinga. These sites provided materials for demonstrations in target areas in Eastern Province. KMDP II purchased 853 and 833 bags of vines and cuttings of improved varieties of sweet potato and cassava, respectively, to establish village-based multiplication sites. KMDP II used local farmers to multiply the cuttings at these sites. As farmers have a local source, they can access more cuttings easily and at a more affordable price as the transport costs are lower. Moreover, the farmers could appreciate how each variety performs in their village before they buy it, including tasting some of the tubers on the local market. This is critical since the bitter taste of some improved varieties of cassava often deters farmers from planting it even though the yields are higher than local varieties.

In the short rainy seasons of 2011 and 2012, VBAs in the western region disseminated improved sweet potato varieties. The quickest route to food security in western Kenya is through the sweet potato. It is easy to propagate, grows well on the poor soils, needs little water, and gives high yields within four months. Disease-free planting materials of improved varieties, such as

Mugande, SPK13, and Salyboro, sourced from KARI – Kakamega, give up to 10 times higher yields than diseased local varieties which have been recycled for hundreds of years.

VBAs obtained disease-resistant cassava varieties from KARI and distributed them smallholders to test out and establish multiplication sites. By Q4 2011, VBAs were able to distribute cuttings from

the cassava multiplication sites established in previous seasons and disseminating them to farmers. Each farmer received 20 cuttings, enough to start their own food security plot.

Irish potato seed:

Irish potatoes have become more popular in Kenya and are a near-perfect substitute to maize, the quintessential calorie contributor to Kenyans' household diet. Area under production and yields have steadily increased over the past decade to keep up with demand. Supporting producer response to demand, VBAs distributed certified Irish potato seed (Kenya Mpya and Asante varieties) to farmers in the Nakuru and North Rift regions, which have suitable agro-ecological conditions for Irish potato. KMDP II distributed Irish seed potatoes to the North Rift VBAs for direct dissemination to farmers or to establish multiplication sites. 2,000 kg of Irish seed potato was distributed of the Asante and Kenya Mpya varieties. Irish potato was distributed to farmers under a "seed loan" system, where VBAs give 1 kg of potato seed to each farmer at the beginning of the season and the farmer returns 2 kg at the end of the season. This approach enables the VBA to reach more farmers. Moreover, the experience of KMDP I and II shows that farmers value inputs more if they are not seen as free gifts. VBAs in North Rift report that Irish potato is very popular with farmers, many of whom are growing it for the first time.

Activity: Soil Remediation and Fertilizer Recommendation GPS Mapping

A key outcome of the KMDP is improved per-unit area production, along with overall reduced production costs. This objective was achieved despite degraded soils in the program's selected geography. Soil fertility is a critical success factor for increasing productivity while sustaining farm-level natural resource management. Producers require current information on their soils to make informed decisions on fertilizer use that will recapitalize the soil's ability to absorb minerals and ensure enhanced crop nutrient uptake.

According to a 2009 Tegemo Institute of Agricultural Policy Analysis/Michigan State University study, Kenya relies on the world market for its fertilizer supply. Local manufacturing is minimal at 10,000 MT. Fertilizer blending in country is estimated at 60,000 MT. Although the industry lists ten importers, it is dominated by four major firms holding 85 percent of the market share.

Based on this background, KMDP II engaged private firm Crop Nutrition Laboratory Services Ltd to carry out an analysis into soil remediation and develop a GPS-referenced, crop-specific fertilizer recommendation map. The first assessment of its kind in a decade in Kenya, soil samples were taken from 330 sites and analyzed for main and trace minerals to ultimately provide recommendations to the fertilizer industry on how best to blend fertilizer to specific crops, agro-ecological zones and locations in Kenya. The results and maps were released in May 2011. The map below represents a sampling of GPS-referenced maps for selected counties in FTF target counties and recommended fertilizer amelioration.

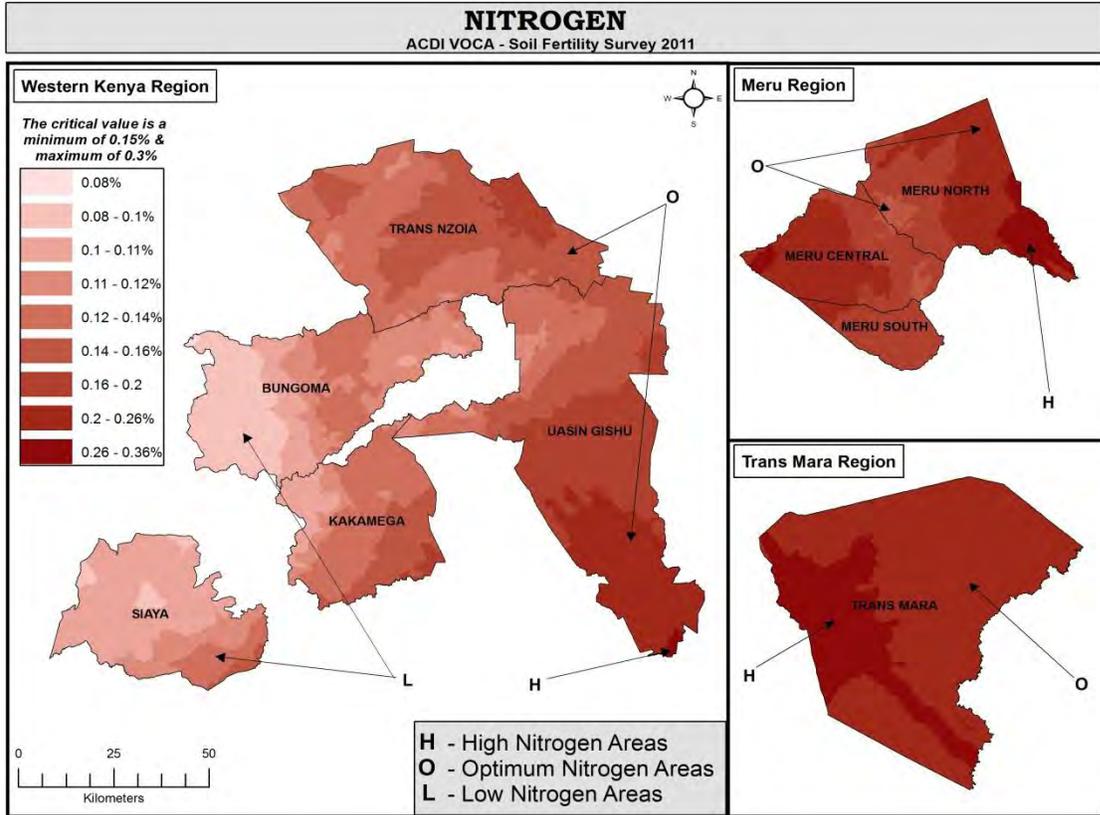


Figure: Map of nitrogen content across the districts determining remediation of nitrogen in selected FfF counties

Chapter 3: Increased Trade and Market Access

Kenya's staples sector, and especially the critical maize subsector, has been beset with problems stemming from official resistance to policy reforms, policy failure and jealously guarded power relationships governing value-chain-player interaction. KMDP II focused on increasing smallholder farmers' access to trade and markets in the face of rigid value chain governance and growth-constraining market determinants. Resistance to market policy reforms and tightly controlled market access define value chain governance characteristics of Kenya's staple crop subsectors especially for the key maize sector. The proportion of household expenditure on staples is higher in urban poor Kenya which is more dependent on lengthier value chain routes carried on a largely inefficient distribution chain.

Producers gain more if their commodities reach a more structured market, and consumers benefit from efficient supply chains. KMDP II increased the amount of smallholder product reaching the formal market by increasing smallholder farmers' understanding of end-market requirements, providing them with training to meet these requirements and improving their level of market intelligence and capacity to make informed decisions. Project activities helped producers and service providers set up centralized marketing locations where farmer associations constructively negotiated with buyers in the value chain. By concentrating a volume of guaranteed quality commodity in single locations offering satisfactory storage, smallholder farmers reduced post-harvest losses, increasing their traded income by at least 3 percent.

Key Results and Outcomes:

- A total of 62,631 90-kg bags of maize, valued at US\$1,396,052.38, were traded through KACE- and EAGC-structured trade platforms
- POs were linked to buyers such as Unga Millers, Mombasa Maize Millers, National Cereals and Produce Board, and Lesiolo Grain Handlers
- 4,440 members of producer organizations received training of trainers (ToT) in marketing, grades and standards, and bulking
- 9 village bulking centers were established
- 29,000 producers now have access to market information through U.S.-government supported ICT-based price and market discovery systems
- KMDP II supported CGA and EAGC to host the 2011 agribusiness fair. The agribusiness fair draws more than 30 private sector companies and 7,000-10,000 farmers annually

Gross Margins:

A key indicator for the success of this component is gross margins. From a baseline figure of Ksh. 10,373 (US\$123) per acre in January 2011, gross margins from maize production increased to Ksh. 21,910 (US\$260) in the 2012 season. Based upon the KMDP II end-term evaluation, on average, 12 90-kg bags of maize were harvested by farmers who sold their produce. The average number of bags sold was 8.8-90 kg bags. Uasin Gishu and Trans-Nzoia regions had the most harvested bags and

Uasin Gishu, Laikipia, Trans-Nzoia and Bungoma sold the highest number of bags. The gross margin for maize farmers was Ksh 21,910, up from Ksh 10,373 during the baseline. This increase can mainly be attributed to higher prices at which farmers had sold their harvests in the last cropping year. The average price for a 90-kg bag of maize was 2,671 compared to 1,575 at the baseline. There were variations in price in the regions with Nakuru, Machakos and Kisii experiencing high prices. Lower prices were experienced in Makueni and Siaya, which also recorded lower gross margin. Gross margins for maize were also higher for male-headed households (23,780 Ksh) compared to female-headed households (19,871 Ksh).

An average of 3.8 90-kg bags of beans was harvested by farmers who sold their produce. The largest average harvest was in Kisii (11 bags) and the lowest in Makueni (1.1 bags), Bomet and Laikipia. The average number of bags sold was 3. Farmers in Kisii sold the most (10 bags) and those in Bomet sold the least (0.7). There was price variation for beans. Regions such as Machakos and Kisii recorded very high prices. The average price for a 90-kg bag of beans was 3,849 which was slightly higher than the price recorded during the baseline (3,258).

The quantitative data in the end-term survey showed 63 percent of the all farmers interviewed said they had traded farm produce in the last cropping season; the remaining 37 percent had not. Of the regions, Laikipia had the highest number of households which had traded farm produce (97 percent), followed by Uasin Gishu (87 percent), Trans-Nzoia (87 percent), Nyandarua (86 percent), Nakuru (78 percent) and Bungoma (76 percent). In Kisii/Nyamira only 57 percent of the households had sold part of what they harvested while in Makueni (36 percent), Bomet (31 percent) and Machakos (27 percent) fewer households traded their produce. Siaya had the least number of households that sold farm produce from the last cropping season.

Quantitative data across the regions indicated that the main crops traded were maize (93 percent), beans (48 percent) and Irish potatoes (11 percent). The key avenues for trading maize produce included brokers (37 percent), small traders (21 percent), large traders (12 percent), institutions (12 percent), direct consumers (12 percent) and village markets (11 percent). Beans were mainly traded through brokers (33 percent), small traders (24 percent), institutions (17 percent) and the village market (17 percent). Brokers (64 percent) and large traders (23 percent) were the two key markets for Irish potatoes.

Increasing Output Marketing and Private Sector Linkages

Partners KACE and CGA facilitated the trade and market access trainings. Both organizations facilitated market linkages between producers, producer organizations and private-sector buyers. KMDP II mapped out a number of marketing channels for producers, tailored trainings to producer organizations, provided groups with a better understanding of market options and increased negotiation skills. These steps allowed producers to tap into more lucrative channels. The program identified the following channels (See table below):

- **Small traders:** Producers see small traders as offering a closer market and quick money for inputs
- **Brokers:** Farmers see brokers as offering better prices than small traders; brokers were mainly used due to the poor road conditions that would require the farmer to spend an excessive amount of money transporting produce to the market.
- **National Cereals and Produce Board:** Farmers who sold their produce to the Board felt the price offered was better.
- **Institutions** including hospitals, schools and hotels were mainly used in order to repay credit.
- **Processors/millers** were mostly accessed through brokers, however farmers showed emerging interest in directly sourcing to large processors.



Grain delivery at a KMDP II supported trader showing various modes of transport and quantities

Preferred Markets:	Maize	Beans	I. Potatoes
Total	482	247	56
Broker	37%	33%	64%
Small trader (on foot/bicycle)	21%	24%	7%
Large trader (lorry)	12%	8%	23%
Institutions (hospitals, schools, hotels)	12%	17%	0%
Direct consumer	12%	9%	2%
Village market	11%	17%	9%
NCPB	4%	2%	0%

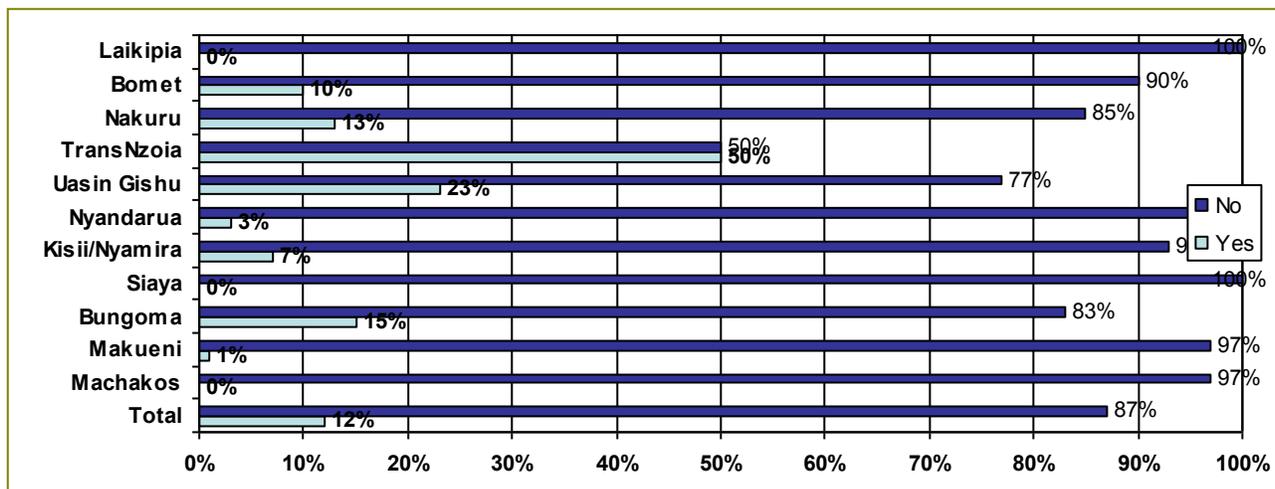
Coop/Group	3%	1%	0%
Small (posho) millers	2%	0%	0%
WFP	2%	1%	0%
large miller	1%	0%	0%
Food processors	1%	1%	2%

Overall a total of 6,169 MT of assorted grains, valued at 198,021,915 Ksh, were traded over the project implementation period. Bulking centers were developed to facilitate bulk marketing (see below). However, farmers who sold their produce from their last harvest did so to mainly brokers (37 percent) and small traders on foot or bicycle (21 percent).

KMDP II fostered several business transactions between the public and private sector. To date our farmer firms have been able to sell their maize collectively and individually to the following organizations: Unga Millers, Pembe Millers, United Millers, Mombasa Maize Millers, National Cereals and Produce Board, and Lesiolo Grain Handlers.

At least 50 percent of project participants in Trans-Nzoia reported they used new markets introduced under the program to sell their produce, the highest percentage of the regions. Laikipia, Machakos, Makueni and Siaya reported the least use of new markets.

Percentage of farmers accessing new markets facilitated by KMDP



Activity: Grades and Standards

Producers with higher-quality crops have more leverage when engaging other market players and can negotiate better terms for their produce. The use of grades and standards to improve the quality of maize encouraged buyers to offer better prices for high-quality maize. KMDP II directly trained

6,501 farmers throughout its target regions with a focus on business practice capacity building with ACDI/VOCA's FaaFB module. The module emphasizes the importance of a quality product and collective marketing. In addition, KMDP II provided training on topics such as post-harvest handling, moisture management, storage management and quality specifications in order for farmers to produce quality maize for buyers such as the National Cereals and Produce Board (NCPB) and millers. Trainings were facilitated in collaboration with NCPB and Unga Ltd., who are important players in the maize industry in Kenya. Higher producer prices meant higher premium prices and consumer assurance of an aflatoxin-free grain (more below). Results indicate that 63 percent of producers increased their saleable yields and increased their incomes.

Activity: Improving Post-Harvest Handling and Storage

Given the increasing problem of mycotoxin poisoning in eastern Kenya (which negated maize production surplus in the 2009-2010 season) the follow-on period allowed the KMDP II team to play an instrumental role in providing much-needed post-harvest handling methodology critical to income preservation for farmers in these areas. KMDP II provided a facilitative role to



policy and private-sector investment incentives discussion in storage management to ensure an enabling environment for producers to invest in post-harvest handling equipment. Working with the Lesiolo Grain Handlers, KPMC-Grain Pro, NCPB and the Eastern Africa Grain Council, KMDP II implemented an intensive *grain conditioning training program* to sensitize producers on new storage practices. Moreover, 58 percent of producers targeted by the project implemented improved post-harvest handling practices.

With training and technical support, producers (slightly more women than men) gained knowledge on the use of good storage facilities. The impact of this knowledge was seen more in Laikipia (91 percent) and Kisii (77 percent). At least 47 percent of farmers overall indicated they had experienced some post-harvest loss, whereas during the baseline 52 percent of farmers reported post-harvest loss. Farmers, who lost their maize harvest, lost 21 percent of their produce in post-harvest loss.

Results indicate that the use of improved stores for maize was highest in Uasin Gishu County which reported the highest use of improved storage for maize (60 percent%) and least in Nyamira County

reported the least adoption rates. Baseline data showed that most of farmers in Makueni County use traditional stores for maize (62 percent) while farmers in Siaya mainly used a room in the house for storage of both maize (84 percent) and beans (81 percent). Noteworthy, outcome survey results indicated that Siaya also recorded the least ownership of improved stores and highest use of rooms in the house for storage, indicating no change in store type over the period. The use of improved stores for beans was highest in Bomet County.

The type of storages for different crop types varied and 40 percent of farmers under the producer group approach storing their maize harvest. Uasin Gishu had the highest rate of improved storage (60 percent). Nyamira had the lowest rate of improved storage. The use of improved storage for beans was highest in Bomet (58 percent). Use of traditional storage for beans was highest in Machakos (53 percent).

Activity: Facilitate Collective Marketing and Bulking

Village Bulking Centers

Often, producer organizations fail because they lack revenue centres or activities that are continuously liquid. Through business training, CGA facilitated business planning and action planning to create producer group run and operated joint market sales and input purchasing. Producer organizations created and operated joint consolidation and marketing facilities in three geographical regions – Bomet, Bungoma and Makueni. These regions were selected from an analysis which indicated the highest potential for business growth in grain storage services. Members of PFOs managing the VBCs were trained in principles of marketing, post-harvest handling, contract negotiation skills, record keeping, and contracting.

Market Resource Centers

Five market resource centers were also established by KACE. KACE facilitated the trade of 3,605 MT valued at 106,154,000 Ksh in 2011 and 2,032 MT valued at 71,114,400 Ksh in 2012. Market resource centers (MRCs) are information kiosks in rural markets providing KACE market information for farmers and agribusinesses, as well as market linkages—the MRCs match commodity offers and bids. KACE set up five MRCs in Western, Rift Valley and Eastern Provinces of Kenya. Farmers, agribusiness operators and other users visit MRCs to obtain information which is often available on bulletin boards, or to place offers and bids on trading boards.

Value Addition and Cross Pollination with the Dairy Value Chain

For small holder producers, the dairy and maize value chains are intrinsically integrated especially in the medium and high potential areas of Kenya. Manure from dairy farms is used as manure. Maize farmers often use the lump sum revenues from their maize harvest to restock their dairy farms – and the continuous incomes from milk sales tides over farmers throughout the lengthy maize growing season. Left over maize stalks and even grain are major contributors to dairy feed.

Transforming the Kenyan dairy feeds system by exploiting this inter-linkage can dramatically improve productivity and livelihoods for farmers practicing mixed farming.

Benefits of additional feed or animal care are rarely examined in the context of increasing yields or in relation to the upstream maize sector. With limited cash, farmers often depend on open grazing to feed their animals resulting in inconsistent and below-average milk production. Maize producers sometimes reduce the inconsistent feed availability by making home-made mixes by buying or producing the ingredients on farm and then mixing them. This can be a cost effective feeding regime and can provide a higher level of reliability of feed content.

To increase overall farm-level gross margins from producers' integrated dairy and maize revenue centers, KMDP worked with producers to develop animal feed formulation with maize byproducts key ingredients. The image below shows producers making animal feed with machinery provided by KMDP grants.



Fig: Producers in Trans-Nzoia County making dairy feed from maize by-products

Activity: Strengthening Market Information Dissemination and Systems

The KMDP II introduced to beneficiaries six market information systems (MIS) on trade and market access. This initiative was mainly championed by KMDP II partner, KACE. The MIS included information-exchange platforms such as SMS service, interactive voice response service (IVRS), internet-based Regional Commodity Trade and Information System (RECO'TIS) database, Market Call Centre (MCC), the KACE website and the Soko Hewani radio program. Information offered to farmers included the market price of commodities, quality of produce needed for

different markets, market available for produce, quantity of produce needed in the market, need for produce bulking and general market intelligence.

SMS Services:

Cell phones are ubiquitous in rural Kenya. They have revolutionized the way business is done in Kenya, affecting price and market discovery. In addition, they are the primary way Kenyans transfer money. KMDP set up an SMS service on commodity prices with Safaricom and promoted it to traders and farmers. In the first quarter, the service was scaled up and partner Airtel set up a similar SMS information dissemination service on its network. The SMS service covered 20 commodities including cereals: maize, rice, sorghum, millet, pulses: beans, soy beans, red grounds, green grams, fresh produce: cabbages, potatoes, tomatoes, bananas; and livestock: steer, goat, chicken-broilers, eggs; and farm input: DAP fertilizer, urea fertilizer and maize seeds, (KACE, 2011a). From KACE reports, the average number of SMS hits in 2011 was 13,158 for maize and 12,056 for other crops. The monthly average hits for all the crops were 25,214. In 2012, the average number of hits for maize was 16,035 and 16,572 for other crops. The overall monthly average hits were 32,607.



Radio Program:

Soko Hewani helped to reach a much wider audience (estimated at 5 million) but went off air in September 2011 due to the high cost of airing the program.

Interactive Voice Response Service (IVRS):

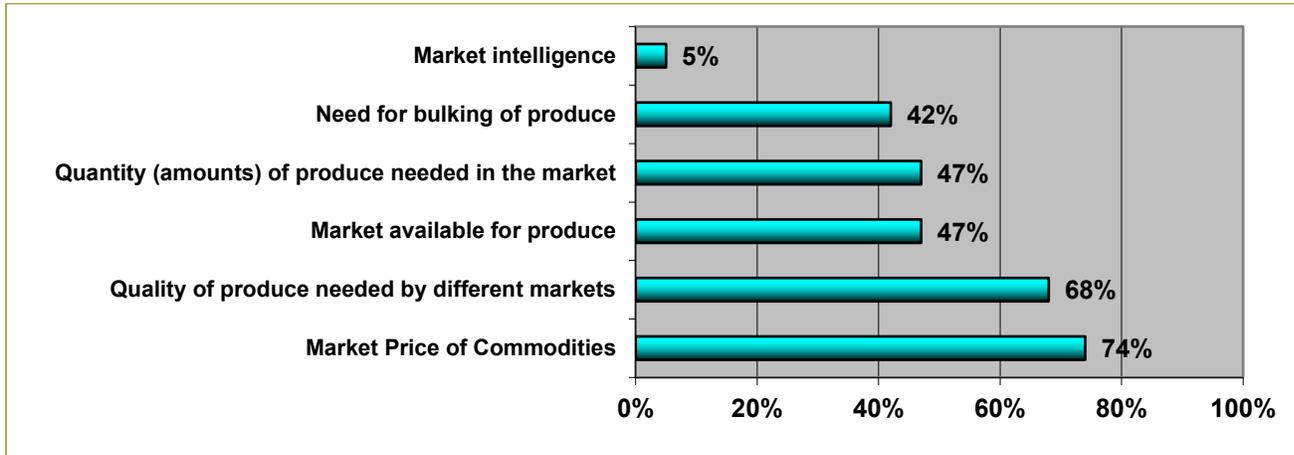
Market information for the 20 commodities was also available through the IVRS service. In this service, KACE submitted updated market information to Adtel Phone Company which then translated the information into voicemail. The IVRS service, branded Kilimo Hotline, was provided in two languages, English and Kiswahili. A client could dial a number for a fee then follow a simple prerecorded voice prompts to access the Kilimo Hotline. The average monthly number of IVRS hits in 2011 was 1,351 and in 2012 was 2,206.

Online System:

KACE ran an electronic information system through its website www.kacekenya.co.ke and the RECOTIS. The organization updated data on commodity prices, bids and offers on a daily basis. The website's information was only available to clients who paid a small fee to KACE for a subscription (KACE, 2011c). Most of RECOTIS's clients were in agriculture-related sectors with the

top five slots being taken up by farmer groups, agricultural research centers and universities, commodity traders, processors and donor/relief/development agencies. The monthly average of hits for the KACE website in 2011 was 669 and 1,666 in 2012. The number of subscribers for RECOTIS remained constant at 600 subscribers in 2011 and 2012.

Figure: Market Information Disseminated to Farmers



While 20 percent of the farmers did not intend to sell their produce to any new markets in the future, another 20 percent did intend to sell, specifically to the National Cereals and Produce Board. Farmers who intended to sell their beans to new markets indicated they would use the local market and institutions.

Farmers used radio (Soko Hewani) and SMS the most to obtain market information at 12 percent and 11 percent, respectively. Of note is that 77 percent of the farmers indicated they had not used the technology offered at all and this figure was slightly higher for female-headed households (80 percent).

Table: Proportion of Farmers Using ICT Marketing Technology

	Total	MNF	FNM	M & F
Total	818	26	84	708
Use of SMS for market information	11%	15%	10%	12%
Interactive voice response service (IVRS)- Kilimo Hotlines	2%	0%	0%	2%
Internet use- RECOTIS	0%	0%	0%	0%
Use of radio- Soko Hewani	12%	12%	10%	12%
Use of the KACE website	0%	0%	0%	0%

Use of the KACE market call center	2%	4%	2%	2%
None	77%	77%	80%	76%

Farmers felt they benefited most from use of SMS and radio (Soko Hewani) technologies at 49 percent and 36 percent, respectively. Male and female households reported a higher intention to use radio.

Quantitative data indicates that the SMS was used most (53 percent) followed by the radio program Soko Hewani (38 percent). The farmers recorded very minimal usage of the other MIS systems such as the KACE website (2 percent), RECOTIS (2 percent) and the market call center (6 percent).

Component Constraints:

Farmers experienced various challenges over the course of the project that contributed to reduced trading volumes. These included unfavorable weather conditions in some of the project areas like Makueni, seed shortages during the 2011 planting season, and fertilizer shortage. The maize lethal necrosis disease was also a contributing factor to reduced yields particularly in Trans-Nzoia. Late contracting and long procurement procedures by the World Food Program (WFP) were also cited to have lowered farmers' confidence with the structured market channels.

Chapter 4: Increased Access to Business Development Services

A functioning value chain requires support services to foster upgrading and efficiency, such as input provision, extension services, financial and marketing services, production support to farmers, and business support services to private sector actors. BDS activities naturally cross cut other components, and had a two pronged approach:

- Supply side: ACDI/VOCA and its consortium strengthened or developed appropriate BDS services to address gaps or constraints within the focus value chains. KMDP II facilitated linkages with rural agrodealers and suppliers and markets. Using viable BDS models, ACDI/VOCA worked with the private sector to improve private sector services and provided feedback as lessons learned and best practices to the BDS Working Group.
- Demand side: KMDP II worked primarily with farmers and SMEs to identify and develop financing for needed upgrading support services.

Results and Outcomes:

- 1 new livestock feed formulated, processed and launched to the market by private sector service providers
- At least 25 percent of village input stockists and other private service providers now offer embedded extension services to farmers.
- A profitable agribusiness enterprise that uses maize and alternative staple byproduct was created.
- Nine new village bulking centers and 4 market call centers were established.
- 77 new VBAs were established as microentrepreneurs
- US\$45,000 in grant funds were disbursed to deserving producer-owned businesses to support income generation and market access

Activity: Fostering Private Sector Extension Services

Through FIPS-A , KMDP II developed a network of village-based agricultural advisors (VBAs)—young farmers with an agricultural background linked to private sector input suppliers who offer their communities a number of services. KMDP II has strengthened their ability to offer embedded services and access credit through capacity building, training in extension methodologies and toolkits. The VBAs were given equipment and minipacks of seed or fertilizer and starter kits, leveraged in part through our input supply partners. KMDP II linked the VBAs with farm input firms and agrodealers, and VBAs, in turn, provided extension services on behalf of the input suppliers to potential customers, such as farmer organizations.

Examples of for-fee services VBAsAs have offered include:

- VBAAAs sold commercial size packs of improved seed varieties to farmers. Crops sold included maize, sorghum and butternut squash.
- VBAAAs sold fertilizer in target areas in Western Province. 11 MT of Minjingu rock phosphate granules have been supplied to VBAs for sale. Minjingu fertilizer, developed with the technical assistance and promotion of KMDP in the previous cooperative agreement, is cheaper than DAP (Di-ammonium Phosphate fertilizer), and more appropriate for the acidic soils in Western Kenya due to its high levels of (30 percent) CaO (Calcium Oxide).
- VBAAAs were trained to establish vegetable and tree nurseries. VBAs earned income by selling seedlings to farmers, while farmers benefited from access to improved varieties and grafted seedlings.
- VBAAAs provided poultry vaccinations against Newcastle disease in chickens, which causes mass mortality in untreated flocks. Although not a traditional crop, chicken plays a key role in the diet and income of smallholder farmers, particularly in semiarid areas where poor or unpredictable rain results in crop failure. VBAs vaccinated 174,125 birds against Newcastle disease, reaching 13,923 farmers (6,030 men and 7,893 women). Between February and July 2012, 28,824 chickens were vaccinated in Bungoma, 4,958 in Nakuru and 11,406 in North Rift.



VBAA Service: Input Provision

Client farmer production costs decrease by 10% despite global increase in input cost. This VBA sells fertilizer in smaller packs to farmers in his village.

Activity: Developing Bulking / Marketing Businesses

Village Bulking Centers

KMDP partner CGA worked with producer-owned organizations to establish nine village-based bulking centers (VBCs) to consolidate produce and group market. Part of a capacity development process under the supervision of KMDP II, a VBC management team hired and trained a store clerk to manage records, oversee consolidation and eventual marketing of the assorted grains. Participants

were trained on post-harvest handling skills and warehousing, record keeping, negotiation skills and contracting.

Market Resource Centers (MRCs)

KACE set up five MRCs offering a number of services in KMDP II target regions. The MRCs were franchised by KACE to local entrepreneurs to operate on a commercial basis. The new business owners developed and brokered a range of community-based demand-driven services, including transport, storage, input supply, product bulking, quality control and e-services—internet access and electronic money transfers.

Activity: Facilitate New Products or Services in Nutritional Information

Through a KMDP II grant, the East African Grain Council (EAGC) developed and published the Kenya Culinary and Nutrition Cookbook, comprised of recipes using staple foods with basic nutrition information on each dish. EAGC will be able to sell this book for profit, as one of the many services and products they are now able to offer to farmers and organizations throughout Kenya.

KMDP II worked with Unga Ltd to showcase a new nutritional flour at the annual agribusiness fair in 2011 and 2012. Linking Unga flour with home economics students from the local university, fair participants were able to test out freshly baked goods from the flour.



Fig: Extract from the Culinary and Nutrition Guideline Cookbook

Activity: Facilitate New Products or Services in Nutritional Information

A short-term technical expert mapped supply and demand for financial lending products applicable to smallholders and SMEs in selected geographic areas. This research was integrated into FaaB lessons plan on credit and MFI requirements. KMDP II provided MFIs with ToT packages to deliver to potential SMEs or farmer organizations. CGA signed a MOU with Equity Bank and the Agricultural Development Corporation (ADC) and ensured that farmers were guided through the financial service process and introduced to the lending institutions.

Product Upgrading:

Stimulating demand for product and services is a symptom of market responsive value chain upgrading. KMDP II's value chain approach facilitated value chain actor interaction to encourage market and product development responding to client need below and above respective value chain hierarchy positions. As a result, on the supply side, input suppliers adapted their packaging to satisfy smallholder farmers smaller purchasing requirements. KMDP facilitated training to smallholders to develop agribusiness services – for instance, individual became stockists for maize seed, fertilizer, dairy products. KMDP II provided training and technical support to farmer-owned enterprises and small to medium sized enterprises to provide cost effective services providing financial and marketing transaction support in the maize and other staples value chains.

Activity: Increase Access to Advisory Services through the 2011 Agricultural Fair

The 9th agribusiness fair took place July 28-29, 2011 at the Rift Valley Institute of Science and Technology (RVIST). It was a joint effort between three partners, CGA, EAGC and RVIST. The theme for the year's fair was, Enhancing Returns on Agribusiness Investment; Opportunities and Challenges. The event was sponsored by Unga Ltd., Commercial Bank of Africa and Unga Farm Care E.A. Ltd.

The fair brought together a wide range of agricultural stakeholders from all over Kenya including farmers, traders, millers, input suppliers and service providers such as banks, insurance companies, warehouse operators, government agencies, research institutions, international and national organizations operating in the Eastern Africa region and the general public.

The fair showcased a wide range of innovative products and services in agribusiness and brought together participants to exchange views on risk mitigation, aggregation of commodities for economies of scale, market linkages, research and biotechnology, post-harvest technologies, ICT and market information access.

There were 65 exhibitors including private companies, banks, educational institutions and organizations who displayed their products and services during the two days. More than 7,000

farmers visited the fair.

The farmers who attended benefited from linkages with the exhibitors and from participating in training given by organizers and exhibitors at the fair. In addition, they received training on crop husbandry and viewed crops (maize, beans, wheat, sorghum, pastures, and vegetables) at the demonstration site. The demo site had 176 entries from 17 companies.

The dairy unit showcased various dairy cow breeds including Holstein-Friesian, Ayrshire, Jersey and Guernsey. Other livestock included sheep and dairy goats.



Cooperative Assistant Minister, Linah Kilimo gets market information for grains at the CGA stand at the business fair

Activity: Facilitate MSME Upgrading through Access to Capital

KMDP II worked closely with producer organizations (described more fully in Chapter 5) to strengthen their ability to provide basic services to their members. Beyond basic bulk purchasing and aggregation, producer organizations can offer their members a wide range of services, including milling and threshing.

KMDP II Upgrading Grants

Through asset improvement grants, KMDP II enabled 22 producer organizations to maintain sound working capital and entrepreneurial skills to enable them to actively participate in the various crop value chains. The grant making process included requests for grant applications which allow producers to identify the best possible enterprise to build, grow or invest as long as the enterprise provides strategic fit to KMDP's objectives.

The most common grant proposal was to invest into a posho milling business, in spite of the risks associated with this business type: location, cash flow characteristics, payback periods, and business experience of technical skill capacity required of producer organizations.

Financial Institutions Loans/Grants

Several POs received credit via grants or repayable loans. The loans acquired by the POs were mostly channeled towards purchasing farm inputs especially seeds and fertilizers in order to improve yields. At the close of KMDP II, the POs are on schedule to meet their loan repayment obligations owing, in part, to the good weather conditions this season.

In Bungoma, Kimaeti community-based organization (CBO) received a grant of Ksh 303,000 from SCC-Agroforestry to establish tissue-culture bananas. Sirisia CBO received a Ksh 200,000 loan from Agricultural Finance Corporation (AFC) which they used in the purchase of farm inputs (seeds and fertilizers) for their members. In Trans-Nzoia, Kiloongukeey CBO obtained Ksh 750,000 as a loan through Equity's Kilimo Biashara program. The money was channeled towards buying seeds and fertilizers to members. Already they have successfully serviced a Ksh 120,000 loan and are banking on the relatively good harvest to service the present one.

Chapter 5: Increased Effectiveness of Producer Organizations

Producers benefit the most from linkages to markets through organized structures; therefore, KMDP II built and developed horizontal linkages among producers through their organizations to increase linkages in the maize and other staple crop value chains. Producer organizations were the entry point for KMDP's interface with farmer members. Producer organizations can improve the efficiency and marketing of farmer produce. Their strength is their ability to represent member interests, purchase in bulk and market collectively and gain from economies of scale when accessing other value chain services. By focusing on the dynamics of interlinkages within the private sector, and integrating different participants in the value chain to increase efficiency, KMDP II delivered impact on the capabilities and activity profiles of targeted smallholder farmers. Enhancing smallholder producer organization business engagement capacity was key to making significant progress to solidify linkages and relationships between value chain players in the alternative staple crop subsector.

Key Results and Outcomes:

- A total of 231 producer groups were trained on various elements of leadership, management skills and organizational development against a target of 60 groups. Thus the program managed to surpass the set target by 285 percent.
- The number of women organization associations who received U.S. government assistance was 17 against a target of five. The project achieved 340 percent of the target.
- KMDP II also helped establish 14 producer organizations; they now manage bulk grain collection and marketing village-based stores in Eastern Kenya.

Activity: Organizational Capacity Assessment Tool (OCAT)

KMDP II carried out an organizational capacity assessment tool (OCAT) specifically tailored for the program across producer organizations. The test assessed organizations' governance, leadership, financial management, gender integration and service provision. The OCAT formed the basis for tailoring programming for each organization. A KMDP requirement that at least 50 percent of producers be present allowed group feedback and buy-in for the customized solutions. An MOU was signed between the project and the groups. As a result the organizations' capacity increased from 39 percent to 50 percent across the program.

Activity: Producer Group Strengthening Training

A range of training sessions were offered to POs during the KMDP II program period. The trainings were organized at two levels: training of trainers (ToT) and grassroots-level training (GLT).

ToTs conveyed marketing skills as well as entrepreneurship and organizational skills. In Makeuni, a total of 20 POs had their representatives trained as potential grassroots trainers in marketing skills. The three-day training conducted July 18-21, 2011, had 40 beneficiaries of which 18 (48 percent) were women and 22 (52 percent) were men. The participation was as follows: a total of 40 participants (15 from Nguu division, 10 from Kalamba division and 15 from Mbitini division). In Trans-Nzoia and Bungoma, 10 POs' members were trained on entrepreneurship and business planning in Eldoret Asis Hotel. The training was conducted by a CGA-hired consultant and 21 people attended (15 men and 6 women).

At the grassroot level, CGA provided key trainings touching on organizational development, marketing skills, entrepreneurship, business planning and post-harvest handling. The trainings were conducted by CGA field staff and a consultant trainer hired by CGA. The collaborators included staff from the Ministry of Agriculture and VI-Agro forestry.

Selected Trainings Conducted During KMDP II

Title of training	Dates	Venue (district / location)	Name of facilitator	No. of SHAs	Beneficiaries		Total
					Men	Female	
Post-harvest handling (GLT)	23 rd -26 th August 2011	Bungoma	Nelson Sumba (CGA Staff North Rift)	5	123	172	295
Organizational development (GLT)	1 st -12 th Dec 2011	Bungoma	Alice Mlongo (Consultan t)	6	138	214	352
	6 th -10 th Dec 2011	Trans-Nzoia	Alice Mlongo (Consultan t)	8	149	143	292
Marketing skills (ToT)	1 st -8 th Dec 2011	Makueni	Alice Mlongo (Consultan t)	9	147	356	503
	18 th Aug-21 st July 2011	Makueni	S.Mwanja (Consultan t)	20	18	22	40
Entrepreneurship and business planning (ToT)	13 th -15 th July 2012	Trans-Nzoia and Bungoma	Mutura Ngooro(Co nsultant)	10	15	6	21
TOTAL				58	590	913	1,503

Activity: Joint Producer Consolidation and Marketing

As discussed in Chapters 3 and 4, above, small-scale farmers often find access to markets a daunting task. This can change, however, when they come together to achieve economies of scale and consolidate their produce to sell jointly. With the help of CGA, a total of 1,900 MT of assorted grains was consolidated in eight VBCs in Trans-Nzoia, Bungoma and Makeni. 1,400 MT has been jointly marketed by producers in the Kibisi, Sirisia, Maeni, Jipemoyo, Abasani, Surewa, Saboti and Kisekeu. With better quality product, producers accessed the WFP Purchase for Progress (P4P) procurement instrument.

Five of these groups used the proceeds to purchase 4,840 kg of maize seed and 4,000 kg of DAP planting fertilizer valued at US\$12,075. Two other groups in Bungoma jointly purchased over 1,000 kg of maize seed from Kenya Seed Company. In addition four groups from North Rift are planning to purchase 549 kg of seed and 36 MT of planting fertilizer. Farmer groups in Laikipia were also assisted to purchase the government-subsidized fertilizer totaling 75.1 MT valued at Ksh 3,755,000 (US\$41, 877).

Table: Joint Marketing Through Village-Based Centers

Area	Farmer group	Location	Quantity (MT)	Price/MT (US\$)	Value (US\$)
Trans-Nzoia	Jipemoyo SHG	Makoi	30	356	10,680
	Abasani SHG	Kaisagat	179.7	356	64,080
	Suwerwa Huruma	Suwerwa	107.9	349	37,692
	Mumanyanga CBO	Kiminini	17.9	324	5,832
Subtotal			335.5		118,284
Bungoma	Sirisia CBO	Sirisia	5	342	1,711
	Kibisi SHG	Kibisi	20	342	6,840
	Mali CBO	Maeni	6	342	2,052
Subtotal			31		10,603
Total			366.5		128,887

Activity: Farmer Exchange Visits

Farmers learn better when they come together to share knowledge and experiences. In the first quarter of 2012, producers from producer organizations in the North Rift region visited successful farmers and POs in the Central Rift and central Kenya. On two of the farms visited, the proprietors had very successfully exploited the market opportunities and were keeping dairy cows as well as producing horticultural crops for export on contract. The farmers visited were making their own feeds for the animals. The farms visited were Deneside Farm in Nakuru, John Karuga Kamau's farm in Lari, Lawrence Njuguna Munyua's farm in Kiambu and Giwa farm also in Kiambu. Other than Daneside which is a large-scale farm, all the other farms ranged from ¼ acre to 10 acres. These

exchange visits gave producer organizations tips and ideas for how to diversify their own farm businesses and PO services.

Activity: POACH training

Members of KMDP II producer organizations were trained in two important curriculums. POACH (Power of Attitude Change) enables farmers to plan and manage based on sound decision making. 118 leaders from 90 groups in Central Rift (Gatero, Kijup, Barikiri, Dama, Sipili, Plot 10, Gitudanga, Sosiot, G youth, Muhangiri, Kilimo Bora, Mwamko Mpya, Thairiria, Utheri women, Kanjau Modern farmers, Kitharimo, Nguba Vision youth and Tembwet) in Laikipia, Nyandarua and Mauche) and two groups (Okuskong and Sugo) in North Rift underwent the capacity-enhancing training program. OCAT (Organizations' Capacity Assessment Test) results indicate the producer organizations whose leaders went through training had sound financial and enterprise development scores and sold more through collective marketing and their ability to interact with public and private firms from a position of knowledge.

Producer Participation in Policy Discourse

On February 29, 2012, CGA led a team of farmer representatives to a meeting with the permanent secretary of the Ministry of Agriculture to discuss current challenges facing the agricultural subsector. They discussed government fertilizer subsidies (and their negative effects on farm input supply systems), importation duty on maize, financing through credit guarantees and 2012/2013 government financial estimates.

Activity: Producer Group Savings

Often, producers lack structured access to mainstream financial services. Lack of credit hinders asset growth, retarding on-farm capital investment. KMDP II worked with producer groups (POs) in developing self-managed saving and lending products and services. KMDP II created a system in which PO members met, as stipulated in their calendar, and made contributions (owned as shares by each member) which were then banked or loaned to a member who later pays back the loan with interest. The POs kept the group accounts with mainstream financial institutions ensuring that individual producers were rated as “bankable” entrepreneurs, and could access loan facilities.

Each PO is unique in their meeting schedule, contribution, lending and lending rates.

Below is the list of POs who significantly contributed towards this scheme.

Selected groups practicing table banking

Region	Name of FBO	Seating	Member Contribution (Ksh)	Amount (Ksh) mobilized in 3 rd Quarter	Activity Profile and Profit Sharing Arrangement
Bungoma	Naima CBO	Every 2 weeks	100	22,500	Done at CIG level. The amount

	Sirisia CBO	Monthly	200	170,000	collected is either loaned to one member or banked. Banked and also loaned to members with financial difficulties
Trans-Nzoia	Kiloongukeey CBO	Every 2 weeks	200	200,000	Banked and owned by individuals as shares
	Abasani SHG	Every 2 weeks	350	70,000	Banked and also loaned to members
	Mumanyanga	Monthly	400	25,000	Banked and also loaned to members
Makueni	Ngomge SHG	Monthly	1000	100,000	Divided within 3 members
	Mbike Nwike SHG	Weekly	200	5,000	Submitted to an individual member in a rotating basis
	Koma Wisi SHG	Monthly	2000	15,000	200 banked and 1800 given to one individual member in a rotating manner
Total				607,500/ US\$ 6,015	1US\$=Ksh 101

Chapter 6: Lessons Learned

Although KMDP II and partners in this project moved the targeted smallholder farmers to the successful adoption of good farming practices and facilitated the formation of working partnerships between producers and other players in the value chain, most staples are low-rated value chains. This means that regardless of the gains that can be made in raising the smallholder producers' returns and increasing their incomes, they will still have an unsatisfactory standard of living, however one with more food security. In the long term, therefore, it is necessary to transition producers into more diversified and economically viable farm businesses.

Additionally, while KMDP II has successfully reached out to 23,000 producers (against the target 20,000), there remain many more not connected to the program and its benefits. KMDP was funded as an 18-month endeavor by USAID. The type of sociocultural change facilitated by USAID through KMDP cannot be accomplished in 18 months; the project goals were too ambitious. In fact, the literature on adoption of innovations⁵ and cultural anthropology literature dealing with cultural change state the normal cycle for full cultural adoption of a new practice, for example, birth control, or improved farming practices, generally requires three generations. Thus, USAID's endeavors of permanently improving household incomes through increased efficiency in staple value chains require at least a cycle covering at a generation of consistent reinforcement, reaching out for further links, making modifications as participants change and developing a sustainable infrastructure for the assorted participants. Consequently, in the summary of challenges and recommendations below, some recommendations can be implemented immediately whereas others require a horizon beyond what was originally envisaged under the KMDP II RFA.

⁵ The seminal work of Everett Rogers on the diffusion of innovations demonstrates this.

Chapter 7: Impact, Indicators of Success and Recommendations

KMDP was designed with FtF objectives and indicators in mind, reaching 23,000 farmers over 18 months. However, it is important to discuss the definition of success of the project and to determine, insofar as possible, what success would look like for the various players in the Kenyan maize value chain. The results stated in the following sections emerged from the end of project evaluation carried out by the Pan African Research Services Ltd. The following section summarizes the findings of key informant interviews with various value chain players on the subject of “success”. It should be noted that this interaction may include stakeholder hold-on from KMDP I. For many individual value chain actors, this is a somewhat difficult concept to articulate since they had not thought about it specifically. This is not an uncommon occurrence since most of the individuals involved in the many aspects of staple value chains are action oriented. So, for them, it was easy to say what they were trying to do, e.g., change plant spacing practices, increase adoption of hybrid varieties and utilization of fertilizers, etc. Yet, if asked to state what was at the root of success for any of these endeavors, they would sometimes restate the action, rather than the benefit to be derived from adoption of the action. Nevertheless, it was possible to discern what success would look like in most cases.

The below recommendations are from the various stakeholders on the project from different sectors that entered into the KMDP II and (KMDP I) change process to maximize the likelihood of successful change in behaviors and attitudes. As is evident, some of the recommendations cut across more than one type of stakeholder. This is consistent with the value chain implementation model; players at one level must work in partnership with players at other levels in the chain.

The first group of stakeholders is the producers. It can be argued the farmers are the most critical members in this value chain, although other players can make legitimate claims regarding their importance in the chain. However, in the end, if there are no farmers, there is no grain, at least Kenyan staples. As noted above, there are other areas where staples are grown with varying comparative advantage. But, the intent of the USAID program, as implemented through KMDP, is to enhance the position of the smallholder producers in HR1 and SA2. Thus, the recommendations look at actions taken (and which could be taken) by the farmers themselves to improve the value of their staple product, as well as other actions they can take to improve the economic viability of their smallholder farms.

Farmers: At the most fundamental level, the producers want an improvement of livelihood. In addition, they wanted to be treated fairly and with respect by other members in the maize value chain. Success would also encompass feeling as though they had the right information in a timely manner so they could make better decisions—in short, this frequently meant feeling as though they could access information easily and in a format that was easily understood.

The collective input purchase process and bulk marketing and the positive results it brought have noticeably changed farmer attitudes towards cooperative work. In the various surveys carried out during the life of the project, indicate that membership in cooperatives and associations has grown

significantly as a result of the project. In 2012, 65 percent of producers and farmers working within the program geography belonged to an association. Indicators on changed practices and attitudes exhibited earlier show that a majority of beneficiaries who received training and benefited from the project have consistently used the improved technologies and practices and engaged other value chain players more intelligently (demonstrated by the better prices they obtain when purchasing inputs and when selling their produce).

An outstanding finding of the program is that beyond adopting the improved farming practices encouraged by KMDP, farmers need to address product quality issues they can control. A straightforward improvement fostered by KMDP was the farmer groups' acquisition of scales to weigh and measure their grain. This simple device eliminated the practice ascribed to brokers and traders of pouring grain into a 2 kg container in such a manner as to ensure that 2.5 kg of grain is actually taken, thereby shortchanging the farmer of .5 kg each time it is measured.

Another improvement progressive farmer groups undertook was to purchase moisture meters. This allowed them to test their grain (especially the moisture-sensitive maize) to be sure it meets moisture content requirements. Again, the greatest incentive for doing this was the ability to gain a higher price from the millers. A secondary incentive was the ability to tell brokers and traders the moisture content to eliminate abuse in the purchasing process. Moisture meters are expensive. Thus, this is an action that probably should be considered with other parties in the value chain, for example, other farmer groups, traders and perhaps millers. The model here would be for a joint effort by farmer groups, or farmer groups working together with a trader group, or perhaps a miller, sponsoring a moisture meter among farmer groups. In the latter case, the farmers would likely need to obligate some or all of their grain to that particular miller. Millers did indicate a willingness to consider such options, as well as contracting for specified amounts of quality grain. KMDP II addressed this problem by providing grants to producers to purchase quality checking equipment.

To overcome the transport barriers facing smallholder farmers, farmer groups pooled their bags of maize to achieve truck-size loads. This meant 50 to 100 90-kg bags for a small truck and 400 90-kg bags for a semitrailer. Both traders and millers, and lately the World Food Program's Purchase for Progress program, were willing to bring trucks to a single location for loads of good quality grain of this size. Of course, they would discount the price paid slightly to defray the cost of transport—one miller quoted 10 Ksh. per bag as the cost of transport. This process immediately cut out the broker, and her or his cut, and the associated bad practices. Again, this yielded higher returns to the farmer.

Related to pooling is the development of secure and clean storage facilities for bagged maize. This requires the expenditure of some capital to build a common storage facility for a farmer group. The size of the storage facility needs to at least accommodate loads pooled for truck hire. This perhaps represents the next step in the investment train for producer organization capacity building. Another reason for developing secure and clean small storage facilities is the ability to hold grain until the market prices improve. Not surprisingly, maize prices drop significantly when the primary maize harvest comes in. Producers must either harvest early to gain higher prices before the market is saturated or hold grain until after the harvest is over and the glut has subsided for the best prices.

Developing storage facilities may be a good joint effort with other players in the value chain. This could be with other farmer groups in the area, or perhaps trader groups, etc.

Increased farmer profitability and improved farmer household livelihood: Ultimately, changes in knowledge, skills and attitudes leads to better margins for farmers. While the low yield seasons during 2010/2011 was a major factor behind generally high prices of those years, evaluation evidence clearly suggests that beneficiary farmers produced better quality grain, were able to access transparent markets, recognize market signals better and generally, attract the interest of other value chain players in entering into more formal business arrangements. Results show that average household income increased over 2010 figures.

Gender mainstreaming and youth inclusion: the project had profound impact on the role of women in the decision-making processes at the household level. The percentage of women involved in group activities grew by 30 percent over the life of the project, with women occupying leadership roles in targeted producer organizations. Through training programs—the Power of Attitude Change and Farming as a Family Business—attitudes related to access to economic factors and decision making on the dispersion of income at the household level improved. Youth constitute 67 percent of Kenya’s population but have had little access to factors of production. Although youth concerns were not an original concern of KMDP, their importance in ensuring continuity of household livelihood and their role in the farm economy mean they became an important subtarget of the program. Training initiatives such as “My Future, My Choice” were designed to introduce approaches through which young people could be part of the income-earning segment in the rural economy. Supporting activities included, for example, private sector-sponsored spray teams, and business and financial literacy training with financial institutions. It is imperative that these initiatives and others that target this at-risk segment of the rural agricultural economy be supported with further investment.

Traders/Brokers: Traders and brokers view success as being able to grow their business and increase their income. For some, success means being able to do more for their customers, for example, being able to offer them credit, being able to hold their grain to sell at better market prices, being able to move grain to parts of the country with food shortages, etc. When they discussed these kinds of things, the root generally seemed to lead back to being able to grow their business and increase their income, although there were also distinct expressions of customer care and social concerns in these conversations.

In addition, brokers described success as “not being the enemy.” In other words, success would mean being seen as a trusted member of the maize value chain, at least respected, if not liked. Traders also wanted to be seen as trusted members in the value chain. Neither party feels trusted by farmers or millers.

Traders and brokers working with the project shed the oppressor tag, pursuing activities fitting a structured and transparent market to increase their value to both farmers and millers. In so doing, they gained value through increased revenues. First and foremost, beneficiary traders and brokers now act as “honest” agents between the farmer and miller. Interestingly, this does not necessarily require any additional capital. In this capacity they work with the farmers to help improve the quality of their grain by providing accurate information regarding millers’ standards for maize. Second, by working with farmer groups, they assist in pooling maize and thus reducing transport costs.

Third, perhaps most importantly, they provide the farmers with accurate market information regarding prices and compensate the farmers accordingly. Proliferation of mobile phones means brokers cannot hoard information. To remain relevant to the farmer, traders have embraced the transparency in information flow. While this has seemed to require traders/brokers to forgo income (by eliminating their “extra margin” gain with false information on the market price), over the long-run traders/brokers have gained a valued supplier that provides the quality of grain required in a timely manner. Further, it means they don’t have to spend as much effort to find grain because farmers will work directly with them regarding their harvest schedule, volumes, etc.

Investments in capital assets, such as moisture meters by traders and assemblers provide additional services to farmer groups. Related to this, traders are now working with farmer groups to establish safe and secure storage so grain can be held until market conditions are more favorable, or until enough product has been accumulated that truckload lots are available for shipment to market.

In these actions, alliances with millers have been a critical success factor. Working with KMDP, millers participate (either financially or with facilities) to help ensure they receive a supply of grain that meets their requirements.

These positive results notwithstanding, there is room for improvement. Traders and brokers need to develop organizational management skills if they are to act as unified groups. Their participation in leadership and management development programs is critical to their long-term growth and development. This is particularly the case if they intend to develop organizations (such as traders’ groups, brokers’ groups, SACCOs, etc.) wherein they have to comply with formal regulatory requirements in the form of bylaws, articles of incorporation, financial records, etc.

If enough traders and brokers organize, it would be possible to form a national organization of these groups. Such national organizations can then begin to address national policy issues on trade, tariffs, transport improvements, etc. This is a possible long-term objective, but these are issues that directly impact traders and brokers and it is in their interest to seek solutions that are beneficial to themselves and their customers and suppliers. At a minimum, such formal groups of traders and brokers can meet with their counterparts to discuss common issues with customers and suppliers. This information exchange is critical for the growth and development of group leaders and their members.

Millers: For millers, success means getting quality grain consistently. Regardless of the miller, and their end-customer, they felt success would mean getting the quality of product they required, when they required it. If this happened, it would certainly reduce their cost structure through reducing the cleaning and sorting done to create the milled product required by their customers. In addition, success for the millers meant having confidence the people delivering product to them, brokers, traders and farmers would meet any commitments they made to the millers—in short, success would be trusting others in the value chain to act as they promised.

Millers seemed to believe that if these indicators of success could be achieved, then they could deliver to their customers the desired products, when the customer wanted them and, over time, at a lower cost or higher quality. If that could happen, then the miller would gain a loyal customer base. Millers see themselves as the “good guys” in the staple value chain. They believe they cannot trust farmers, brokers or traders to produce quality grain in the quantities they need when they need it, yet

they must supply a quality product to their customers in a timely manner and in the quantities required.

Nevertheless, the millers that worked with KMDP made good on promises to reach out to farmer groups to educate them on their requirements. Based on the relationships created, millers are more confident they will receive product that meets or exceeded their standards every time. This is a precursor to probable contractual agreements in which they would guarantee purchases and would eliminate some of their required quality testing. This presents a marketing model that could be explored further as a long-term solution to decreasing rent seeking and intransigence typical of larger milling concerns. Doing the latter eliminated steps in their current inbound processing and reduced their cost structure. Reducing their cost structure in this manner, allows them to pass some of these savings on to the suppliers (farmers, traders and brokers) in the form of higher prices paid for delivered or received grain. Millers are understandably more susceptible to macro-economic structural shocks and more exposed to the global market by the very virtue of their position on the national value chain structure. Despite their effort in transferring the gains of the national value chain to consumers, this osmotic effect of the global environment has meant they are unable to maintain profit while passing so savings on to their customers via lower prices, or higher quality product at the same price. In addition, millers have not achieved the consistent margins required for capital asset improvement that would bring additional margin.

There is an opportunity, however, for millers, farmer groups and trader/broker groups to come together in their respective regions to form working alliances around the objective of improving staple production and distribution. At this juncture, with consistent KMDP lobbying and now with EAGC, it appears the millers will be receptive to participating in attempt to promote such alliances.

Lesson

- Development of market skills is required for all stakeholders.
 - For value chain interventions or business investments to be successful and sustainable, they must respond to a constantly changing market demand.
 - Understanding market demand is key to designing for production increase.

Suppliers: In the staples (and especially maize) value chain, the main suppliers are seed and fertilizer companies and stockists. Farmer co-ops can also be a supplier in this value chain, although at the moment they do not represent a significant player in the chain. A secondary set of suppliers is comprised of animal feed companies. In addition, there are suppliers of farm implements/equipment and various services such as training, business consulting, etc.

Regardless of the size of the supplier, and the particular products or services they provide, it is in their interest to have farmers thrive. Suppliers recognize that if farmers do not succeed, then the suppliers will not succeed. Thus, for many suppliers, they do define their success in terms of their customers' success. As a result, there are many possible roles for these companies to fill.

One obvious role is in the arena of outreach. At present, most of the seed, fertilizer, etc. companies do farmer outreach in one or more of the following ways: demonstration plots, seminars,

participation in business fairs and participation in major regional agricultural shows. The demonstration plots are more or less passive events in that they are typically located in close proximity to some regional/local facility that is likely to be visited by farmers. The expectation is that farmers will stop to look at the demonstration plot whenever they happen to visit facility, for example, a county office. Usually there are no company representatives at the plots to discuss what is happening on the specific plot. Although at certain critical times of plot lifecycles there will be representatives present, either performing tasks, such as planting, fertilizing, etc., or on hand simply to discuss relevant facts about what can be observed on the plot at the time. The business fair model however, created solutions to the latter program and presents a methodology through which agricultural shows can regain their place as key technology transfer avenues.

KMDP arranged seminars, typically through stockists. Usually this occurred as a result of the stockist noting common difficulties among her/his farmer customers. The stockists then requested a seed company, for example, to send its representatives to the area to give a seminar to a group of farmers. A large numbers of farmers and others attend these field days. In those settings, the attendees walk around to visit whatever vendor appeals and they may interact with a company representative.

In the last seven years, many of these companies consistently participated in business fairs sponsored by ACDI/VOCA. These events brought large numbers of participating farmers (from the various farmer groups facilitated by KMDP) together with suppliers. All of the companies indicated a desire to accomplish more outreach, while at the same time they recognized their constraints in terms of time and money. It is not feasible for them to reach out to individual farmers. While most seminars, for example, are initiated by stockists' requests, there was a clear indication that seed companies and others would be responsive to requests from organized farmers' groups for seminars or training sessions. The business fairs create opportunities for the farmer groups to establish working relationships with these supply companies.

Another area where these companies, working with KMDP, have initiated programs aimed at the smallholder farmer is that of packaging seeds, or fertilizer, for example, in small packets that are more affordable for small farmers. Some seed companies sell to farmer groups at a bulk rate and deliver the seed to them. In addition, they habitually send their technical specialists to visit the farms on a scheduled basis (for free) to see how the crops are doing and provide on-site consultation on the care and nurturing of the plants or, in the case of feed companies, livestock. For those farmer groups that can coordinate their purchases of feed and seed, they will be able to attract a company specialist to visit their farms on a regular basis. This is clearly a highly desirable service and should, over the medium- to long-term, yield sustainable improvements in agricultural productivity for these farm groups.

Finally, while these supplier companies clearly have expenses attached to the participation in the business fairs, they do see them as very valuable and worth continuing beyond the horizon of KMDP. Their regular feedback during KMDP's implementation suggested that they may be willing to help organize and manage these events. However, they do not want to take on that burden directly; they would help support an event contractor having the responsibility for organizing and managing the business fairs.

When farmer groups contribute financially—even in a modest way—to business fairs, it helps entice supplier companies to step up to the task of being major financial contributors. Traders and brokers could play an increased financial role. Finally, milling companies have a vested interest in seeing improvement in maize production, harvesting and distribution. Thus, these organizations should be approached to participate financially, as well as with booth exhibits.

Lesson: Link extension message delivery with market-led facilitation services, at the very least, embed the value-add service into a product or bundle of services

Government of Kenya: To the government of Kenya, success is being able to foster an environment where inhabitants of the republic of Kenya are able to gain useful employment and livelihood in a secure, peaceful and conducive macroeconomic environment. Agriculture being the mainstay of the economy provides a viable engine through which these objectives can be met. In the past decade, the government of Kenya has made substantial system improvements in the way it does business, creates and implements policy and involves private entities in its decision-making process. These improvements, however, have not all manifested on the ground, for example in the case of the extension service (and especially research extension liaison). Notwithstanding the extension service shortfalls, there have been commendable improvements in research outputs through the Kenya Agriculture Research Institute demonstrated by increased release of new germplasm, varieties available for private sector dispersion and technological improvements. Other critical government bodies such as the Agricultural Development Corporation, the Agricultural Finance Corporation and the Kenya Seed Company are in the throes of slowly but successfully reorganizing. The result is better service and profitability. These changes, however, will be eclipsed in the new structure of the Agriculture, Livestock, Fisheries and Food Authority Bill, 2012⁶

Attesting to the efficacy of the Farming as a Business methodology developed by ACIDI/VOCA, the Ministry of Agriculture has adopted the (FaaB) curricula as its primary farmer enterprise development interface. The ministry's vision statement is "Farming is Business."

Case Summary: Arguably, the most obvious area where the Kenyan government needs to act in a positive manner has to do with the National Cereals Board. It is beyond time for the government to act on recommendations regarding renting/selling surplus storage capacity that were presented at least two years ago. The practice of the minister announcing a purchase price for maize that bears no relationship to the existing market conditions needs to cease immediately. This behavior creates an enormous distortion in the maize market and actually harms the people for whom it was intended to assist.

The Kenyan government has a significant role to play in altering the banking and financial institutional constraints on loans for smallholder farmers, traders and brokers. The lending and payback requirements have been beyond adverse to these sets of people. The government is adopting policies (including incentives) to ensure these groups receive favorable rates and payment schedules that are consistent with their normal annual cash flow circumstances.

⁶<http://www.ascu.go.ke/DOCS/The%20Agriculture,%20Livestock,%20Fisheries%20and%20Food%20Authority%20Bill%202012.pdf>

Lastly, the Kenyan government needs to begin to seriously address land succession and gender issues this next year. These issues dramatically impact future generations of maize farms and farm holders. This is both a legal and a cultural issue. The government must proactively address both aspects.

Government policy plays an important role in establishing a level working environment so that business can thrive. These national issues impact millers both in terms of the deleterious consequences for farmers and traders/brokers—especially related to information flow and margin sharing—as well as creating direct costs for their own operations. The evolving economic environment in Kenya provides an apt opportunity to for value chain players to exercise political muscle surrounding banking and microfinancing practices, as well as the legal limitations on holding grain as collateral. Without policy and law changes, good initiatives such as the value chain financing grain warehouse receipt system and weather-indexed insurance cannot gain traction. KMDP has led in the policy lobbying arrangements for these initiatives and now, the EAGC has the goodwill muscle required to move these trade environment methodologies forward.

KMDP: Success for KMDP meant smallholder farmers achieving consistent utilization of the skills being promulgated through the KMDP initiatives and most importantly, gaining a much higher farm income level that allowed the farmers to care for their families and themselves above the poverty level. In addition, success meant women being more equal partners in farms and households. Lastly, success manifests itself in more cooperative and collaborative endeavors between various members of the staple value chains, such that the voice of the smallholder farmers was an integral and important part of the dialogue among the various parties.

Lessons:

- Making stakeholders aware of which other actors are operating in the value chain is an essential step in improving market chain efficiency.
- Study tours and events can facilitate introductions between actors in the value chain. Dialogue between actors is essential in order for issues to be identified and to enable improvements in chain linkages.
- Government agencies and private sector can play a role in helping stakeholder access markets and in scaling up technology and services.
- Linking producer groups to other chain actors is crucial to lasting change.

Annex I: KMDP II End-Term Evaluation



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FROM THE AMERICAN PEOPLE

Kenya Maize Development Programme II Performance Evaluation-2012



SEPTEMBER 2012

This publication was produced for review by Pan African Research (PARS) for the ACDI/VOCA-managed USAID funded Kenya Maize Development Program II.

KENYA MAIZE DEVELOPMENT PROGRAMME II

PERFORMANCE EVALUATION

SEPTEMBER 2012

DISCLAIMER

The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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KENYA MAIZE DEVELOPMENT PROGRAMME II: PERFORMANCE EVALUATION

ACDI/VOCA	Agricultural Development Cooperative International/Volunteers in Overseas Cooperative Assistance
CGA	Cereal Growers Association
CHH	Child Headed Household
FIPS	Farm Inputs Promotion
FTF	Feed The Future
FNM	Female No Male type of Household
IVRS	Interactive Voice Response Service
KACE	Kenya Agricultural Commodity Exchange
KARI	Kenya Agricultural Research Institute
KEPHIS	Kenya Plant Health Inspectorate Services
KMDP	Kenya Maize Development Programme
M & F	Male & Female type of Household
MCC	Market Call Centre
MNF	Male No Female type of household
MOA	Ministry of Agriculture
OCAT	Organisation Capacity Assessment Test
RECOTIS	Regional Commodity Trade & Information System
SHA	Small Holder Association
SMS	Short Messaging Service
VBAs	Village Based Advisors
USG	United States Government

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- Agencies involved in the programme implementation and who readily provided information when needed (KARI, Kenya Seed , West FM among others)
- Regional programme coordinators in the KMDP II programme areas including VBAs who enabled ease of communication and contact with the farmers
- And most of all farmers who actively and willingly participated in this survey making it a success

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Introduction

Since January 2011, ACDI/VOCA implemented the USAID funded Kenya Maize Development Program II (KMDP II) follow-on grant in continuance to the KMDP cooperative agreement which ran from 2003 to 2010. ACDI/VOCA implemented KMDP II programme in consortium with three grantees; the Cereal Growers Association (CGA), Farm Input Promotions (FIPS)-Africa, and the Kenya Agricultural Commodity Exchange (KACE). The program's objectives contributed towards USAID/Kenya's Strategic Objective 7: *Increased Rural Household Incomes through sustained economic growth* through improved production and marketing efficiency in maize and other selected alternative staple crops among small holder producers towards the US Government's *Feed the Future* Initiative.

1.11 Program Goals

The key program objectives were:

- ❖ Increase incomes for 20,000 households producing and consuming maize as well as selected staple crops in targeted regions of Kenya.
- ❖ Streamline gender and youth considerations in the programme activities in both maize and other staple crop value chains.
- ❖ Intensify smallholder's business engagement capacity

Geographical Scope of the Programme

KMDP II was funded through the US Government's Feed the Future Strategic mechanism with geographical focus in Kenya's:

- ❖ Rift Valley (Uasin Gishu, Trans Nzoia, Nakuru, Bomet, Laikipia),
- ❖ Medium potential productivity areas (Bungoma, Kakamega-Lugari and Nyandarua in Central)
- ❖ Marginal potential areas in Eastern Kenya (Embu, Machakos, Makeni, Kitui, Mbeere counties) and
- ❖ Nyanza Province (Siaya and parts of Kisii/Nyamira).

The geographic regions, part of USAID's HR1 (high rainfall zone) and SA2 (Semi-arid zones) included a sizeable proportion of Kenya's arable land, allowing crop diversification and increased food security.

During the follow-on period, the program supported key staples value chains including maize, legumes, beans, Irish potatoes, sweet potatoes, cassava, cow peas, green grams and sorghum. Crop selection was geographically stratified according to the suitability of the crop to the agro-ecological zone, as well as consumer preferences and the supply/demand of each crop per geographic area. It was anticipated that the crop stratification would ensure an optimization of programme resources and scalability.

ACDI/VOCA and its partners implemented the Kenya Maize Development Program (KMDP II) since January 2011 with the program's end date being September 30, 2012. Part of the key project deliverables required on all USAID funded projects is to carry out a rigorous performance evaluation at the end of the project period. A performance evaluation was therefore carried out between August and September 2012.

The objectives of the performance evaluation were:

- (i) To measure the success (development effectiveness) of KMDP II project in reaching the desired objectives along the value chains (production, processing, Marketing) given the design and implementation approach adopted by the project
- (ii) To generate lessons from the design and implementation process with an aim of sharing best practices forming the basis for updating standards and practices within the industry
- (iii) To identify areas where KMDP II realized significant development results, and those where less success results were achieved and therefore need improvement.

The end term evaluation targeted farmers' households (maize and other staple food farmers) in the project areas as below:

- ❖ Rift Valley- Uasin Gishu, Transzoia, Nakuru, Bomet, Laikipia
- ❖ Bungoma
- ❖ Central- Nyandarua
- ❖ Machakos, Makueni,
- ❖ Nyanza- Siaya, Kisii/Nyamira

The evaluation methodology use literature review, quantitative and qualitative research techniques. A total of 815 farmers were interviewed.

1.0. Achievement of Programme Objectives

1.1 Intermediate result 1 –Increased Productivity of staples crops in target areas.

One of the key indicators for the programme was the number of individuals who had received USG supported short term agricultural sector productivity training. The findings indicated that KMDP targets over the last year (2011) and in the first quota of 2012 in terms of the number of people to whom significant knowledge and skills were imparted either through training seminars, field days, demonstrations and technical assistance by KMDP itself or in collaboration with the partners were surpassed by big margins. 19,634 demonstrations were conducted and 3,024 field days conducted as well. In the second quarter of 2012, a total of 162 households (89 males, 73 females) from Nakuru and Laikipia benefited from improved maize and potato seeds provided for the establishment of demonstration plots as training tools for farmers and an additional 1400 households received training on post harvest handling, storage and mangement. The KMDP 2011 targets were 20,000 farmers. The programme managed to train a total of 23,177 farmers exceeding the target by 15.9%.

1.1.1 Extent to which the programme caused farmers to adopt new technology

A comparison of farmers' knowledge on the various technologies before and after the training shows there was a high level of impact of the training on farmers. Farmers' level of knowledge in post harvest handling increased by 39%, 28% in the use of improved seeds, 24% in fertilizer application, 42% in farm business management, 33% in improved tillage, 39% in processing innovations, 31% in crop protection measures, 31% in natural resource management, 32% in new crop types, 35% in market access, 40% in warehouse receipt system and 35% in crop insurance. It is worth noting that this increase in knowledge was for farmers who had received the specific trainings. Therefore, there was a high level of adoption of the various technologies in which farmers were trained with 95% of the farmers stating they had used the farming technologies trained on in their farms.

1.1.2 Contribution of the KMDP II project to the overall goal of Feed the Future program

The main benefit for the farmers of the new crops they had planted was that they were food for family consumption. This benefit was key to farmers as well as for the programmes' objective in creating food security for the farmers' households. These crop types were also drought resistant, profitable and had high yields. Majority of the farmers interviewed confidently stated that they could now feed their families and have surplus for sale. Farmers were also able to invest in other in some generating activities as well as provide for their families' needs. The inclusion of kitchen gardens in the farmers' farms served as food supplement for the households as well as a source of improved nutrition.

1.1.3 Yields per acre

The average acreage used for maize production was 2 acres (3.3 acres during baseline). This was higher for male headed households (3.3 acres compared to female headed households 2 acres). The average maize yields per acre were 11.6 90 kg bags per acre which was slightly lower than that recorded during the baseline (12.5 bags). There were generally increase in yields for most of the areas except Siaya. Maize crop yields increased for Bungoma whose

average yield was 911 Kgs per acre during the baseline and now recorded 1,329 Kgs, yield for Makueni increased from 357 Kgs per acre to 453 Kgs, 1,191 Kgs in Nakuru to 1,238, 1,508 Kgs in Transzoia to 1,491 and 1,572 in Uasin Gishu to 1,647. Acreage for other crops were 2.0 for beans (2 acres at baseline, 1.9 for green grams (0.5 at baseline) 1.4 for cow peas (1.6 at baseline) and 2.2 for pigeon peas (baseline 2.1). Yields were also higher for male and female households (1.154 tonnes for maize and 0.520 tonnes for beans) compared to female headed households (1.028 tonnes for maize and 0.415 tonnes for beans).

1.1.4 Gross Margins

An average of 12 90 kg bags of maize was harvested for farmers who sold their produce with the highest number being in Uasin Gishu and Transzoia. The average number of bags sold was 8.8 90 kg bags. Regions selling the highest number of bags were Uasin Gishu, Laikipia, Transzoia and Bungoma. The gross margin for maize farmers was Ksh 21,910 up from Ksh 10,373 during the baseline. This increase could mainly be attributed to higher prices at which farmers had sold their harvests in the last cropping year. The average price for a 90 kg bag of maize was 2,671 compared to 1,575 at the baseline. There were variations in price in the regions with Nakuru, Machakos and Kisii experiencing high prices. Lower prices were experienced in Makueni and Siaya which also recorded lower gross margin.

An average of 3.8 90 kg bags of beans were harvested by farmers who sold their produce the highest being in Kisii (11 90 kg bags) and the lowest in Makueni (1.1), Bomet and Laikipia. The average number of bags sold was 3, with farmers in Kisii selling the most (10 bags) and those in Bomet selling the least (0.7). Price variations for beans were recorded with regions such as Machakos and Kisii recording very high prices. The average price for a 90 kg bag of beans was 3,849 which was slightly higher than that recorded during the baseline (3,258). Gross margins for maize were also higher for male headed households (23,780 Ksh) compared to female headed households (19,871 Ksh)

1.1.5 Storage and Post Harvest Loss

The type of stores for different crop types varied with 40% of farmers under the producer group approach storing their maize harvest in an improved type of store while 58% of farmers under the village approach used a room in the house for storage. Beans were mostly stored in a room in the house and in improved stores. It was noted that most farmers under the village group approach had no proper storage facility, mainly using a room in the house for their storage.

The use of improved stores for maize was highest in Uasin Gishu (60%) and least in Nyamira. The use of traditional stores for maize storage was seen in Makueni (62%) while farmers in Siaya mainly used a room in the house for storage of both maize (84%) and beans (81%). It should be noted that Siaya recorded least ownership of improved stores and highest use of room in the house during the baseline indicating no change in store type over the period. The use of improved stores for beans was noted to be highest in Bomet (58%) while that of traditional stores was highest in Machakos (53%).

More than three quarters of the farmers stated they intended to continue with their current storage method. Of note is that farmers also using the traditional stores and a room in the house also intended to continue using them. Majority of the farmers storing their beans in an improved store intended to continue using this storage facility (91%) while 16% and 28% of those using traditional and rooms in the house had the intention to change.

Three quarters of the farmers stated they had gained knowledge on the use of good storage facilities with slightly more females than males stating this. There was also a higher proportion of farmers in Transzoia, Machakos and Makueni saying they had gained knowledge on the use of good storage facilities. Farmers had also gained knowledge on the control of diseases this being higher for males and farmers in Machakos, Makueni and Bungoma. Control of rodents was also by quoted 61% of farmers as knowledge gained on harvesting. The impact of this knowledge was seen more in Laikipia (91%) and Kisii (77%)

At least 47% of farmers indicated they had experienced some post harvest loss. This was slightly lower than that during the baseline (52%). Farmers who lost their maize harvest lost 21% of their produce. There was significant loss for beans produce where farmers lost 42% of their produce.

1.2 Intermediate result 2: Increased Trade and Market Access

1.2.1 Marketing Technology

Overall, the total number of beneficiaries who had received training on trade and market access as of June were 4,044. The target for individuals to be trained was 2000 (1200 male and 800 female beneficiaries). Towards this target, KMDP partners managed to successfully meet and surpass the target by 102%. The partners who facilitated the trade and market access trainings were KACE and CGA.

However from the quantitative data, only 10% of the farmers said they had used the new markets which had been introduced to them through the program. Among the farmers who had ventured into the new markets, the key benefit was better prices at the markets.

On usage of the market information systems by the farmers, quantitative data indicates that the SMS was the most used system at 53% followed by the radio programme Soko Hewani (38%). The farmers recorded very minimal usage of the other MIS systems such as the KACE website (2%), RECOTIS (2%) and Market Call Centre (6%). It is however important to note that Soko Hewani, which was a more effective MIS in terms of reaching the farmers was taken off air in September 2011 due to the high cost of airing the programme. It is probable that if the programme was still on air, the number of farmers who had accessed would have been much higher.

Generally the farmers recorded low levels of knowledge with the various MIS. Overall level of knowledge with use of SMS for market information was at 30%, use of KACE Market Call Centre was 21%, KACE website (19%), IVRS Kilimo Hotlines (18%) and RECOTIS was lowest at 17%. It therefore, suffice to say that low levels of knowledge on usage of the systems to source for market information was one of the factors influencing the slow rate of adoption of this technology by farmers. Other reasons cited by farmers who had not adopted the technology included limited or no access to internet, low yields thus they did not have much to trade, cost implications of the services and lack of education. Still, there was low intention by farmers to use these technologies to access market information (RECOTIS, IVRS and other technologies requiring internet use) in the future.

1.2.2 Market Access and Trade

From quantitative data, 63% of the all farmers interviewed said they had traded farm produce in the last cropping season while the remaining 37% had not. From the regions, Laikipia had the highest number of households which had traded farm produce (97%), followed by Uasin Gishu (87%), Trans Nzoia (87%), Nyandarua (86%), Nakuru (78%) and Bungoma (76%) respectively. In Kisii/Nyamira only 57% of the households had sold part of what they harvested while in Makueni (36%), Bomet (31%) and Machakos (27%) fewer households traded their produce. Siaya was the region with the least households which had sold farm produce from the last cropping season.

Quantitative data across the regions indicated that the main crops traded were maize (93%), Beans (48%) and Irish Potatoes (11%). The key avenues where maize produce was traded included brokers (37%), small traders (21%), large traders (12%), institutions (12%), direct consumers (12%) and village markets (11%). Beans produce was also mainly traded through brokers (33%), small traders (24%), institutions (17%) and the village market (17%). Brokers (64%) and large traders (23%) were the two key markets for Irish potatoes.

Key reasons cited by respondents who sold produce to brokers included poor road conditions which made it a bigger hustle for farmers to transport their produce, proximity of brokers to the farmers, emergencies which necessitated the farmers to source for money urgently and sale of produce for procurement inputs among other reasons.

A total of 6169 MT of assorted grains valued at 2,354,497 USD was traded facilitated by KACE and CGA against a target of 22,500 MT valued at 5,235,294 USD falling short by 55.2%. Various challenges experienced by farmers during the project implementation period and which contributed to reduced volumes traded included unfavourable weather conditions experienced in some of the project areas like Makueni, seed shortage experienced during the 2011 planting season as well as fertilizer shortage. The Maize Lethal Necrosis disease was also noted as a contributing factor to reduced yields particularly in Transnzoia. Late contracting and long procurement procedures by WFP were also cited to have lowered farmer's confidence with the structured market channels. As a result some farmers ended up selling their produce through unstructured channels.

1.3 Intermediate Result 3: Increased access to Business development Services

This indicator looked at four components namely: the number of business development services that were made available, the total number of SMEs accessing business development services, the total number of business service providers participating in the BDS program target areas and the number of SMEs receiving USG assistance to access credit. A total of 12 business development services were made available to farmers against a target of 8 (150%). The total number of Individual farmers who benefited from business development services like training on various modules in the Farming as a Family Business curriculum, market access, input supply, training and technical assistance, access to financing, infrastructure, new technology and product development were approximately 11,096. The total number of individuals in Small and Medium Enterprises (SMEs) who benefited from business development services either through training on Entrepreneurship and Business Planning, beneficiaries of VBAs advisory services , inputs and outputs, business links, loans records, ICT extension service users data, trained in new product development were approximately 2,219. Total number of business service providers participating in the BDS program in target areas was 165 against 100 targeted thus achieving 165%. The total number of SMEs receiving USG assistance to access credit (beneficiaries of bank loans, MFIs, youth enterprise funds, women enterprise fund, group revolving fund) was 14 against a KMDP target of 30 (thus achieving 47% of the target).

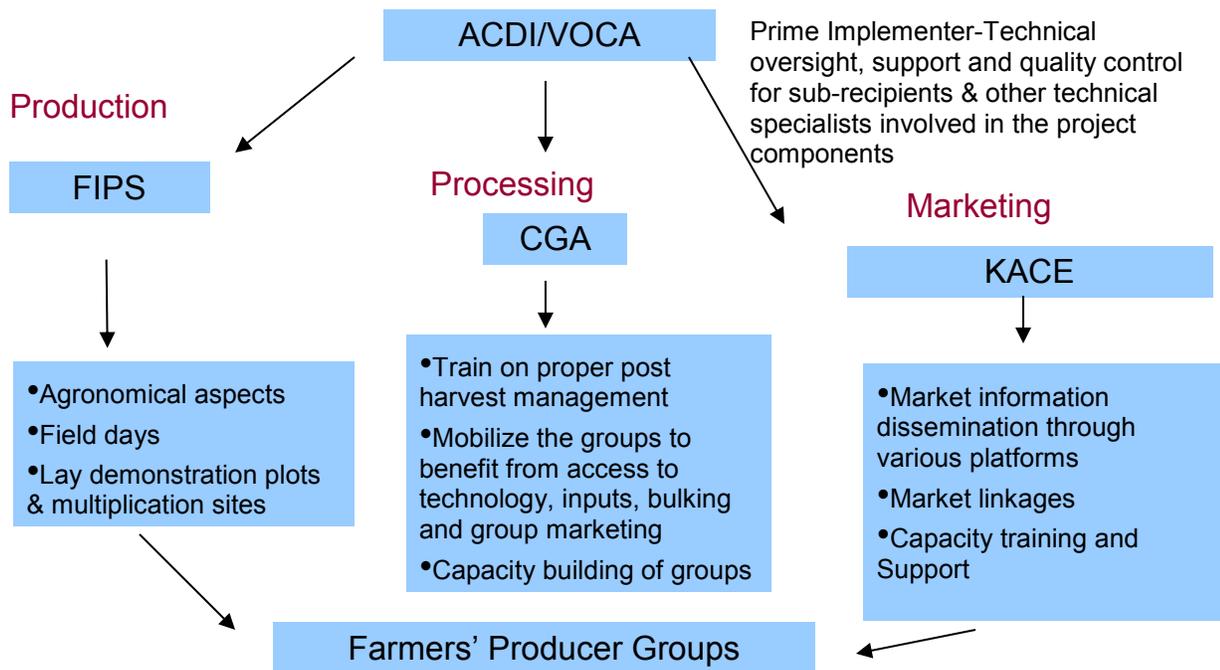
1.4 Intermediate Result 4: Increased Effectiveness of Farmer Organizations

A total of 231 producer groups were trained on various elements of leadership, management skills and organizational development against a target of 60 groups. Thus the programme managed to greatly surpass the set target by 285%. The number of women organization associations who received USG assistance was 17 against a target of 5 (achieving 340% of the target).

Overall the project benefits were largely felt in the farmers' households with farmers expressing increased income and investment in new economic activities, improved livelihood where farmers reported they were able to clear their debts, enrol their children in good school (even private ones), supplement their diet by incorporating new foods introduced (cassava, sweet potatoes and vegetables) and even investment in property where some farmers were able to purchase land and motor bikes for business.

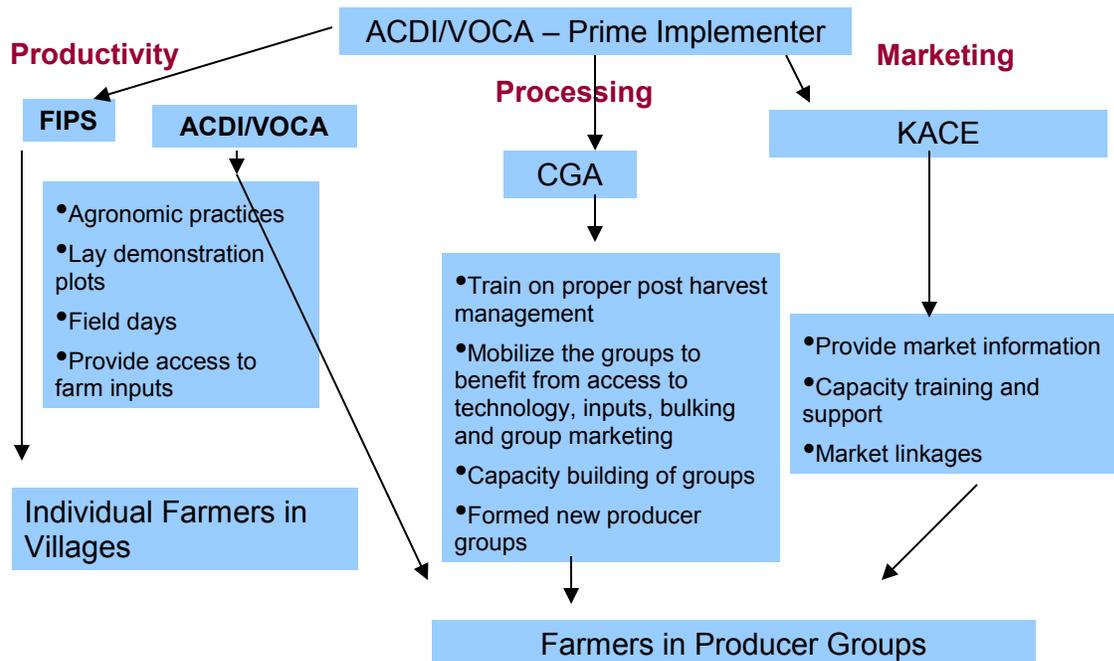
1.3 Design and Implementation of the Programme Intended Programme Design

The programme design was intended as a value chain project with ACDI/VOCA being the prime implementer offering technical support for sub-recipients and other stakeholders involved in the project components. FIPs would undertake the increased productivity element through field days, laying demonstration plots and generally providing agronomical elements of productivity. CGA would then undertake processing by mobilization of farmer groups, capacity building, and training on harvesting and post harvest handling. KACE would then deal with the marketing element by providing farmers with market information, market linkages and capacity training and support. All partners would target farmers through producer groups thus giving them the benefits of the value chain activities in a uniform manner.



Implemented programme design

However, there was deviation in the intended design with FIPs targeting farmers through a village approach where extension agents recruited from the villages (Village Based Advisors) were trained on productivity and were also supplied with small seed packs, vines and cuttings for demonstration to farmers. The rationale behind this approach was that it was more likely to reach a critical mass of farmers falling outside the producer groups and that the approach offered sustainability through the VBAs who would continue acting as resource persons even after the programme ended.



1.3.1 Extent to which the two approaches were complimentary in reaching a critical mass of small holder farmers

The village and producer groups were complimentary to a certain extent where synergies were experienced. This was evidenced through the strengths of each of the approaches and where partners using the different approaches were able to compliment efforts. In some cases there was involvement of each of the partners in activities targeting either the farmers through the village approach or through the producer group approach. This was achieved through earlier planning and where the partners were available in the locations where these groups/villages existed. The village approach had greater strength in reaching the masses while the producer groups approach had strength in organization. In some cases these levels of synergies were not achieved leaving the groups/farmers without the necessary knowledge.

1.3.2. Strong and weak points of the project partnership

Strong Points

- Partnerships formed provided sustainability elements- The use of VBAs, Promoters TOTs was positive as these would provide a point of reference for the farmers after the programme came to a close
- Over 20 private-public partnerships formed (formal and informal) leading to
 - Increased demand for inputs by farmers
 - Established linkages between the farmers and the stakeholders in production, processing & marketing- e.g EAGC, WFP, seed companies, Govt

Weak Points

- Challenges in communication between partners
- Uniformity in intended benefits of the value chain to farmers fragmented due to different approaches used

Challenges

- Challenges experienced during programme implementation were mainly budgetary

1.3.3 Extent and involvement and contribution of key stakeholders of the staples value chain

There were 5 value chain crops in the project- Maize, Beans, Cow Peas, Pigeon Peas & Tubers (Irish potatoes, Cassava, Sweet Potatoes). Overall the Maize & Beans value chain received input from all stakeholders in production, processing and marketing. There was less involvement in other value chains with either one or two of the partners involved but eventually missing out on one value chain process.

1.3.4 Efficiency and effectiveness of the implementation approaches

Although two different approaches (village and producer) were used during the program implementation, they can be said to be complementary since eventually they assisted to reach a critical mass of small holder farmers. However the difference in the approaches was in terms of the level of efficiency and effectiveness. The producer approach was more effective and efficient in procuring of inputs and marketing of produce since the group had bargaining power. Groups were also more effective in establishment of bulking points which helped to promote increased market access.

On the other hand, the village approach was more effective in providing knowledge since the farmer received individual attention from the VBA and therefore, his/her specific needs could be addressed. The approach also addressed the issue of sustainability since VBA are from the local community and therefore interested farmers can continue making consultation with the VBA even after the project cycle ends.

1.3.5 Extent to which gender and development was mainstreamed in project planning and implementation

Overall, the project was able to integrate gender in the project by creating a mechanism where women were given roles in decision making in the producer groups. It was also a requirement that a third of the beneficiaries were women. The project also prioritised the need to have representation of women during trainings; required gender disaggregating of information of benefits accrued to participants and sensitized the community in the importance of involvement of women in decision making. Youth were involved through recruitment as village based advisors/promoters and during training. The programme took on a deliberate approach to integrate the youth thereby empowering them with knowledge and skills. The youth were thus able to take advantage of the various opportunities within the value chain by becoming extension agents, middle men and also secured employment in agricultural sector organizations.

1.3.6 Sustainability of technologies

Farmers adopted most of the production technologies and were willing to use them in future. The farmers also indicated a high level of knowledge on the use of these technologies after training. In addition, farmers under the village approach have a reference mechanism under the VBA to seek assistance from on the technologies if need be. The VBA was already motivated to continue visiting the farmers on account of earning some form of income and was readily available in the village. On the other hand, farmers in producer group had also seen the benefit of use of these technologies and intended to use them. The only barrier to continued use was availability and price whose control was outside their reach.

There was low knowledge on the marketing technologies introduced. Further, there was also low intention to use the marketing technologies due to this lack of knowledge raising sustainability challenges. Further more, some of these technologies required internet use and penetration which was low in the target rural households and also required ICT knowledge which was also low. It is important to note that the more effective tool (Soko Hewani) went off air and would thus not benefit the farmer. In some counties (Transzoia) increased demand for the products led to low adoption since there was no need for market information. This was a factor outside the programme's control.

1.3.7 Farmers perception on technologies

Farmers were positive about the technologies introduced (mainly those in crop production) and intended to use them in future as they believed these technologies had increased their yields. They were however pessimistic about the use of fertilizer NPK, foliar feed and herbicides perceiving these inputs to be of no benefits and too expensive.

CHAPTER 1: BACKGROUND

CHAPTER ONE: BACKGROUND

1.1 Introduction

The Kenya Maize Development Programme acknowledged that Maize dominated the staple diet of rural and urban Kenyan households occupying in excess of 50% of smallholder farming lands and also doubled up as a cash crop in many households. The sub sector had over the years witnessed massive investment by both the public and private sectors which had resulted in consistent improvements in maize production. Despite this Kenya had increasingly become a maize deficit nation. Faced with frequent droughts in the face of a growing population, Kenya's continued over reliance on maize at the expense of other viable staple crops such as sorghum, millet, sweet potatoes, irish potatoes, cassava, beans, pigeon peas, and green grams presenting a strategic error in efforts aimed at improving food security, and incomes of farming households. (KMDP II Baseline Survey Report 2011, p15).

Despite maize being the main staple crop in Kenya, literature reviewed in the baseline report indicated a reduction in consumption from 90kg per person in 2003 to 88kg in 2009. This reduction was a pointer to changes in the staple food sub sector with maize giving way to alternative staple crops such as potatoes, pulses and sorghum. Compared to maize, these alternative staples were more drought resistant and did well in Kenya's depleted soils with little fertilizer and with relatively lesser skill and knowledge. It is under this context of changing dietary patterns and unpredictable weather that USAID invested in the KMDP II programme to address supply chain inconsistencies, facilitate the development of alternative value chains and improve the position of small holder farmers in the staple sub sector in line with its strategic objective on improving rural household incomes, (KMDP II Baseline Survey Report 2011, p19)

1.2 Survey Objectives

The objectives of the performance evaluation were:

- (iv) To measure the success (development effectiveness) of KMDP II project in reaching the desired objectives along the value chains (production, processing, marketing) given the design and implementation approach adopted by the project
- (v) To generate lessons from the design and implementation process with an aim of sharing best practices forming the basis for updating standards and practices within the industry
- (vi) To identify areas where KMDP II realized significant development results, and those where less success results were achieved and therefore need improvement.

The specific objectives of the evaluation were to:

- 1) Find out if the project design and implementation strategy were followed as expected and reasons for not following the design if any existed
- 2) Determine the extent to which the intended project benefits reached the households of producer organizations and changed lives.
- 3) Show the strong and weak points in the partnership of the project, and suggest the opportunities that exist to strengthen such partnership
- 4) Establish the extent of involvement and contribution of key stakeholders of each one of the staples value chain and suggest ways of making improvements.
- 5) Find out the extent to which gender and development was mainstreamed in project planning and implementation
- 6) Establish the efficiency and effectiveness of the implementation approaches used by the project
- 7) Determine if the technologies, marketing and management approaches promoted were sustainable and environmentally friendly

KENYA MAIZE DEVELOPMENT PROGRAMME II: PERFORMANCE EVALUATION

8) Establish farmers perception in relation to technologies promoted through KMDP II project

The end term evaluation targeted farmers' households (maize and other staple food farmers) in the project areas as below:

- ❖ Rift Valley- Uasin Gishu, Transnzoia, Nakuru, Bomet, Laikipia
- ❖ Bungoma
- ❖ Central- Nyandarua
- ❖ Machakos, Makueni,
- ❖ Nyanza- Siaya, Kisii/Nyamira

CHAPTER 2: METHODOLOGY

CHAPTER TWO: Methodology

2.1 Introduction

This study was a descriptive cross-sectional study that made use of pluralistic research. This is a combination of literature review, quantitative and qualitative research methods in order to gain the advantages of both¹. Quantitative data was collected using structured questionnaires. Qualitative interviews were conducted using semi-structured interview schedules and open ended ad hoc conversations and through the use of data collected through case studies. Literature review was conducted through a review of the KMDP II project documents.

2.11 Quantitative Research

Given the need to have a representative sample, a total of 853 interviews with targeted farmers and their households in the identified project areas was proposed based on calculations below taking care of the design effect (conventionally taken as 2) and a loss/ non response rate of 10%:

$$N = deff \times Z^2 p (100 - p) / e^2.$$

$$= (2 * (1.96^2) * 50(100-50)) / (5^2) = 768$$

After factoring a non-response of 10% the sample size;

$$N = 768 * 100 / (100 - 10\%) = 853$$

This sample would at 95% confidence level give a confidence interval of +5% (normally a sample of 385 at 95% confidence level offers a precision level of +5%). This was attributed to the sampling methodology for this survey which used clustering which normally provides less precision and thus the sample was doubled to provide a similar level of precision). The sample was distributed across farmers in both programme approaches i.e. village approach and producer group approach. This distribution would enable analysis that would bring out the strengths, weaknesses or synergy effects of each.

Sample Achieved by target area

Table 1: Sample Structure by target area

Target Area	Sample Achieved
Village Based Approach	
Bungoma	143
Makueni	76
Machakos	30
Siaya	68
Sub-Total	317
Producer Group Approach	
Nakuru	45
Bomet	51
Uasin Gishu	52

1 Hosany, S. 2008, Business Research Methods/Research Projects. Royal Holloway; University of London.

KENYA MAIZE DEVELOPMENT PROGRAMME II: PERFORMANCE EVALUATION

Transzoia	46
Bungoma	140
Laikipia	34
Nyandarua	59
Kisii	73
Sub-Total	500
Targeted sample (includes 10% non-response)	853
Achieved sample	817 (96%)

2.2.1 Sampling

Two stage sampling was used in the selection of the farmers' households to be interviewed in the quantitative phase of the survey exercise. This involved dividing the entire population of farmers (in groups or villages using information provided) into clusters and a random sample selection was made from the clusters. In the first stage, the producer groups and villages (based on VBA names provided) under the KMDP II program were recruited through random selection. In stage two, farmer's households were selected randomly and farmers within these households interviewed.

2.3.1 Data collection tools and approaches

Four data collection tools were used as described below:

(1) Farmers Household questionnaire- This questionnaire was administered to the farmers and their households through face to face interviews. Both open ended and closed questions were incorporated in the questionnaire.

(2) Collaborators questionnaire- This questionnaire was administered to collaborators involved in the upstream and downstream end of the value chain and incorporated open ended and closed questions. A list of 22 collaborators with whom the program had been working with was provided. However, based on the need to obtain a higher representation in this category, information was sought from the project staff and other value chain actors with whom the programme had worked with and these respondents were interviewed. Personnel used as village based advisors and promoters were also interviewed based on their interaction with farmers during the program. A total of 51 interviews were conducted with this target group.

The respondent categories included:

Respondent Category	No interviewed
Village Based Advisors/Promoters	28
Agrochemical companies (seeds, fertilizers and other chemicals)	26
Small scale bulkers and commercial traders	7
Millers	6
Financial Institutions	2
Total	51

(3) Key Informant Interviews- Key informant interviews were used to obtain in-depth information on various aspects of the programme implementation. A total of **15** key informant interviews (KII's) were conducted as follows:

Key informant interviews conducted

Table 2: Key informant interviews conducted

Area		Respondent
Bungoma	ACDI/VOCA	Regional Coordinator-ACDI/VOCA
	West FM	West FM
Makueni	Village Based Advisor	VBA
	FIPS	Regional Coordinator Eastern
Machakos	ACDI/VOCA	Regional Coordinator Eastern
Siaya	Village Based Advisor	VBA

KENYA MAIZE DEVELOPMENT PROGRAMME II: PERFORMANCE EVALUATION

Laikipia	Producer Group Representative	Producer Group Representative
Uasin Gishu	ACDI/VOCA	Regional Coordinator
Transnzoia	Kenya Seed	Kenya Seed Manager
Nakuru	ACDI/VOCA	Project Staff
	Producer Group Representative	Producer Group Representative
Nairobi	FIPS	Project Staff
	KACE	Project Staff
	ACDI/VOCA	Project Staff
	CGA	Project Staff

Using a key informant discussion guide, a moderator guided the discussions with key stakeholders involved with the farmers under KMDP II in the target survey areas.

(4) Focus Group Discussions (FGDs) – In this case focus groups were composed of farmers in producer groups/villages selected outside those participating in the quantitative survey participation. Particular care was taken to disaggregate the groups by gender thus discussions were conducted with groups composed of either gender to ensure cultural issues were taken care of and thus facilitate free discussions. A minor challenge was however encountered due to inaccessibility of some farmers who carry out activities together. Thus it was at times difficult to gather the farmers in a single male or female group and meet the required quorum for discussion as was the case in Machakos. A mixed group was thus the only option; however, no limitations due to the mixture were experienced. In Siaya, the farmers targeted for the discussions were out on a church activity for the week and were expected back after the survey period.

A total of **7 focus group discussions** were conducted with the various farmers under the KMDP II programme.

Focus Groups conducted

Table 3: Focus Groups conducted

Area	Gender	Number of Focus Groups Conducted
Bungoma	Female –Producer Group Approach	1
	Male- Village Based Approach	1
Makueni	Female- Village Based Approach	1
Machakos	Mixed –Producer Group Approach	1
Siaya	Female- Village Based Approach	1
Transnzoia	Female- Producer Group Approach	1
Bomet	Male –Producer Group Approach	1
Total		7

Eight case studies were undertaken in the survey areas targeting farmers under the different approaches.

Case Studies Conducted

Area	Gender	Number of Focus Groups Conducted
Makueni	Village Based Approach	1
Machakos	Village Based Approach	1
Bungoma	Producer Group Approach	1
Bungoma	Village Based Approach	1
Siaya	Village Based Approach	1
Kisii	Producer Group Approach	1
Laikipia	Producer Group Approach	1
Uasin Gishu	Producer Based Approach	1
Total		8

2.4 Survey Execution**Timing of the survey:**

The survey was conducted between 13th August and 24th August 2012. The survey was executed in four steps. The first step involved training of the field team where a two day training session was conducted with the interviewers. The second stage involved data collection in the project areas which were identified based on the producer group or VBA selected before the onset of the survey.

Data Collection Challenges

The process of data collection went on smoothly despite a few challenges. The main challenges encountered were due to the long distances where the producer groups and villages were found. Communication was also a challenge as most facilitators on the ground claimed not to be aware of the survey or had not had enough time to inform the farmers of the intended visits for questionnaire administration. Thus in some areas the expected quota was not met as was the case in Nakuru and Bomet. As mentioned earlier, because of this lack of information, some farmer groups had planned different activities during the survey period including church activities and other social setting meetings away from their villages. This led to delays in the completion of work planned for the defined period and in some cases as earlier mentioned a mixture of groups.

Data collection was followed by data entry. Double entry system was employed to ensure that the data entry was 100% verified, thoroughly checked and cleaned. This stage was then followed by data analysis which was done using QPS and SPSS software.

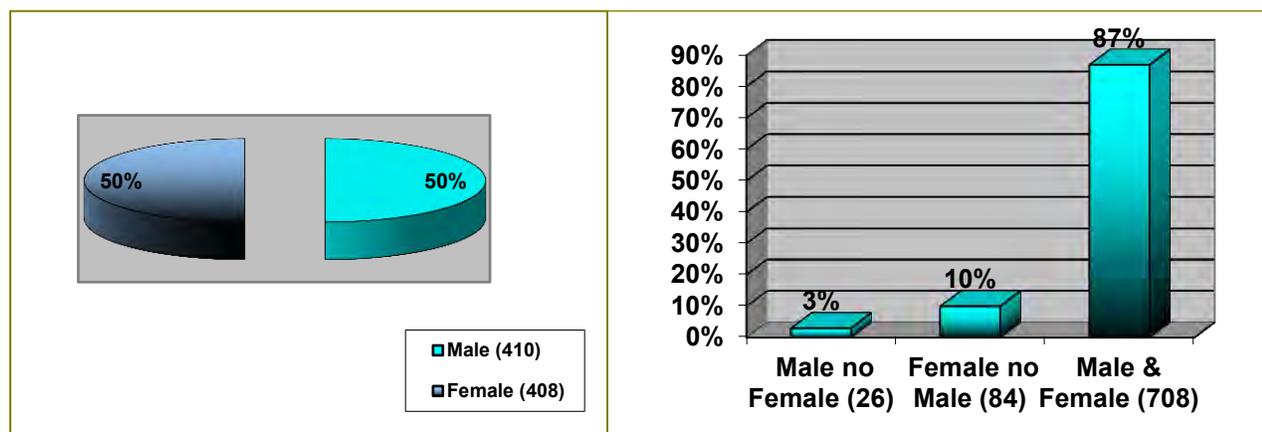
CHAPTER 3: SURVEY FINDINGS

CHAPTER THREE: SURVEY FINDINGS

3.1 Sample Profile

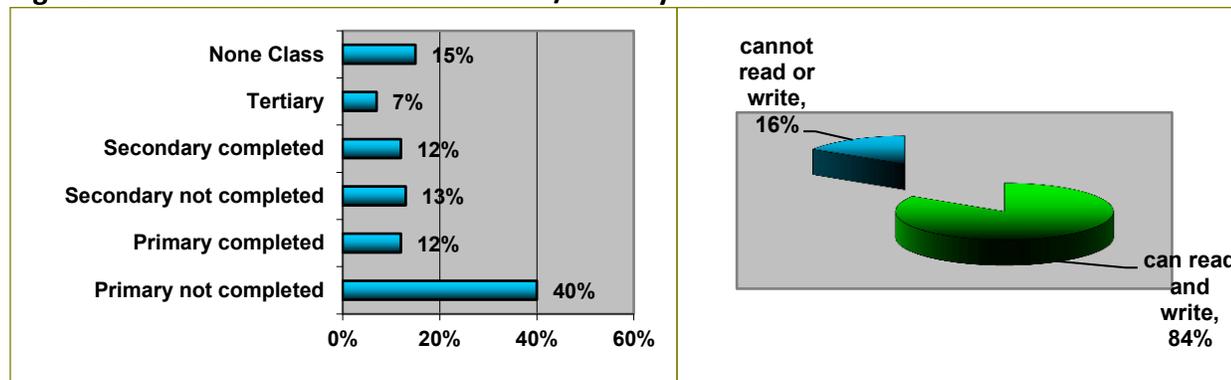
There was an equal proportion for males and females interviewed. The majority of households surveyed were Male and Female households (M&F) with only 10% being those with female no male (FNM) and 3% under male no female type (MNF). The proportion of male headed households was also found to be similarly higher during the baseline period (79.5%). No Child Headed Households were found during the survey.

Figure 1: Gender Split & Household Typology



The education level of household members surveyed was mainly primary level (not completed) with only 7% attaining tertiary education and a further 15% having no education (this was limited to members of household 6 years and above). The figure below shows the majority (84%) of household members being literate (i.e. could read and write).

Figure 2: Household Members Education /Literacy Levels



3.2 Programme Implementation & Design

The programme design was intended as a value chain project with ACDI/VOCA being the prime implementer offering technical support for sub-recipients and other stakeholders involved in the project components. FIPs would undertake the increased productivity element through field days, laying demonstration plots and generally providing agronomical elements of productivity. CGA would then undertake processing by mobilization of farmer groups, capacity building, and training on harvesting and post harvest handling. KACE would then deal with the marketing element by providing farmers with market information, market linkages and capacity training and support. All partners would target farmers through producer groups thus giving them the benefits of the value chain activities in a uniform manner. It was anticipated that by involving all the relevant stakeholders along the individual value chains, the project would achieve the four Intermediate Results of:

- 1) Increased Productivity,
- 2) Increased Trade and Market Access,
- 3) Increased Access to Business Development Services and
- 4) Increased Effectiveness of Producer Organizations.

This would in turn enable the project reach the higher goal of Increased Rural Household Incomes.

However, there was deviation in the intended design with FIPs targeting farmers through a village approach where extension agents recruited from the villages (Village Based Advisors) were trained on productivity and were also supplied with small seed packs, vines and cuttings for demonstration to farmers. The rationale behind this approach was that it was more likely to reach a critical mass of farmers falling outside the producer groups and that the approach offered sustainability through the VBAs who would continue acting as resource persons even after the programme ended.

Therefore KMDP II used two strategies to reach selected communities in the project areas.

The first was through producer organizations (existing or formed where none existed before) in which members of the organizations were involved in the project activities. The producer group approach was used by ACDI/VOCA, KACE and CGA.

The second approach was the village approach where farmers residing within selected villages participated in the project activities. This approach was majorly used by FIPS working at the production level in the value chain.

A number of collaborating agencies/organizations were also involved in upgrading the staple crop value chain.

At the upstream end of the chain, the notable agencies from the private sector involved include:

- i. Kenya Agricultural Research Institute (KARI),
- ii. Kenya Plant Health Inspectorate Services (KEPHIS),
- iii. Seed Companies,
- iv. Agro-chemical Companies,
- v. Fertilizer Distributors and Financial Institutions;
- vi. Warehousing/Storage area of the chain focused on commercial traders (Lesiolo Grain Handlers), National Cereals Board (NCPB) and small scale grain bulkers at the producer group level.

At the downstream ends of the chain were:

- i. Grain millers (Unga Millers, Mombasa Millers, Pembe, Kitale Millers and United Millers among others) and the
- ii. Consumers.

At the downstream end of the value chain, the project encouraged farmers to use electronic market systems for the grains, including use of mobile phones SMS services and radio programs (SokoHewani) as well as linking them to key agencies such as World Food Program P4P initiative.

3.2.3 Strengths and Weaknesses of Programme approaches

Producer Group Approach

Strengths	Weaknesses
Effective for value chain objectives	Limited in number thus may leave out farmers not able to access or be in groups but would benefit from the programme
Stronger in their ability to access various services as groups e.g. loans, farm inputs, collective sales thus better prices etc	Likely to disintegrate if not strongly grounded
Ease of flow of information	At times objectives of the groups don't link with the programme objectives raising sustainability challenges
Easy to follow up with groups	
Creates a forum for farmers to share experiences and learn from each other	Dominant individuals in the group e.g. the official may cause other member to feel left out and thus reduce their level of ownership and contribution

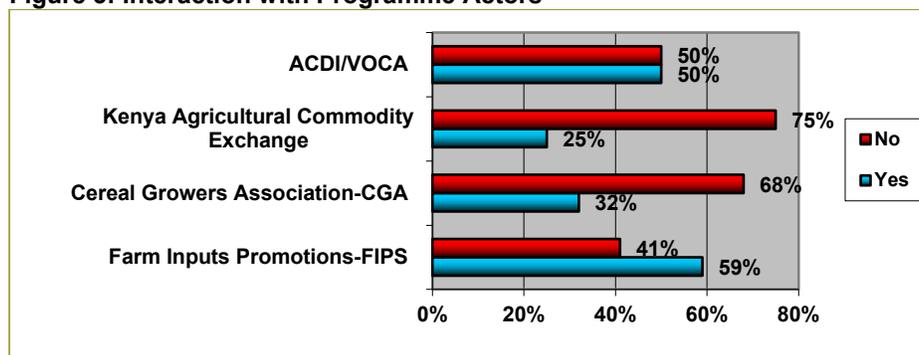
Village Group Approach

Strengths	Weaknesses
Able to reach the masses	Farmers not as cohesive as those in the producer groups
Better communication avenue for individual farmers	Farmers not able to enjoy the benefits of being in a group for accessibility of cheaper farm inputs, access to markets etc
Individual attention to farmers ensures their specific needs are met	Not easy to follow up on every individual and it would also require a lot of resources
Sustainability - The VBA is from the local community, therefore even after the program ends farmers can still make consultations with the VBA	

3.2.4 Complimentary Level of the Two Approaches

Qualitative and quantitative research showed that there was some level of collaboration between the actors using the two approaches such that those using the village approach were still able to reach farmers in producer groups while those using the producer group approach were also able to reach some farmers under the village approach. In such cases, the two approaches were able to complement each other in terms of the strengths of each of the partners. In some cases, this level of collaboration was not reached and the effect is seen in the level of interaction between the actors and farmers as well as the level of information under each value chain activity reaching the farmers. Some of the reasons attributed to the lack of collaboration included the duration of the project and the fact that there was deviation from the design thus a fragmentation in the value chain process affecting effective planning and communication.

Respondents were asked if they had interacted with the various actors under the KMDP II programme.

Figure 3: Interaction with Programme Actors

More than half of the farmers interviewed had interacted with FIPs, 50% with ACDI/VOCA, 32% with CGA and 25% with KACE.

3.2.5 Efficiency and effectiveness of the implementation approaches used by the project

Challenges faced during the implementation of the project were mainly budgetary. While some partners felt they were not consulted earlier on their budgetary needs, others also felt the budget releases were not timely and thus affected implementation of their roles in the project. Communication between partners was also cited as a challenge where information flowed horizontally (between partners) and failed to be properly disseminated vertically (i.e. to staff on the ground). The implementation process also failed at times to meet the needs of the farmers with some failing to attend meetings or trainings organised by the programme actors where the communication to the farmers was done late and the time organised was not convenient for the farmers.

Other Approaches used in the Programme

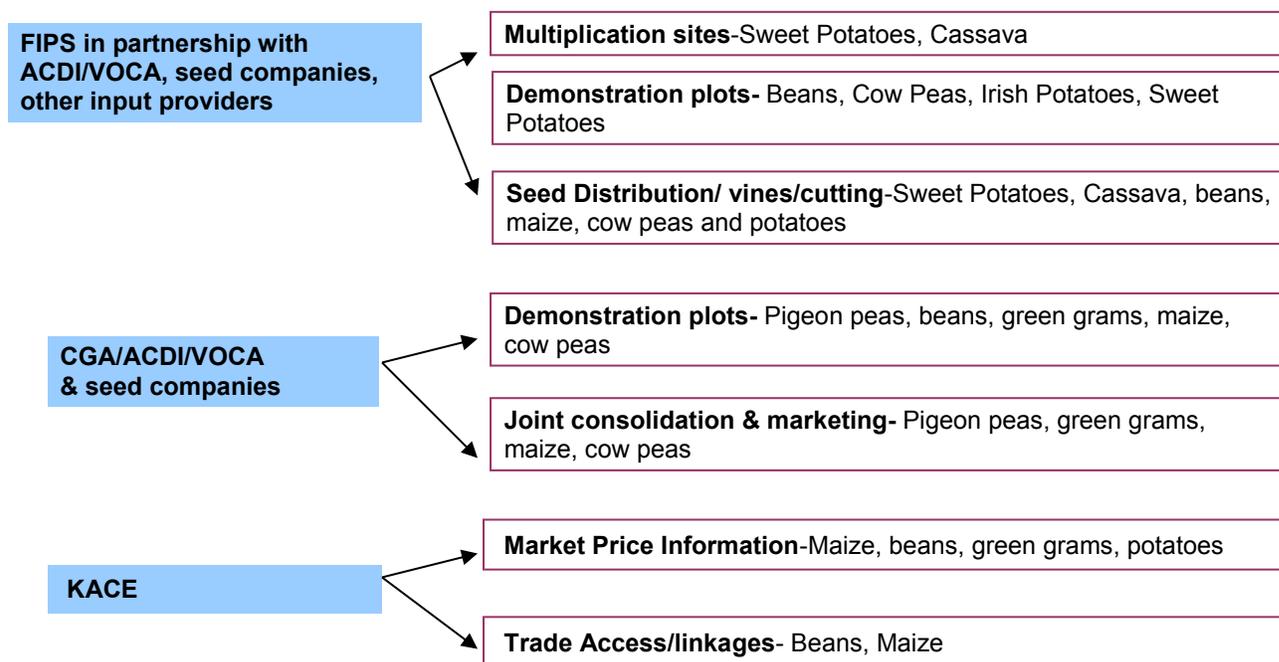
- Trainer of Trainer/VBA/Promoter Approach- This approach created efficiency in that the partners could reach more farmers while disseminating information and more economically through these actors. Once the TOTs, VBAs and Promoters were trained, they acted as extension agents providing knowledge and inputs to the farmers. They also became points of contact for the farmers creating demand for knowledge and inputs thus raising sustainability of the activities promoted.
- Value Chain – Efficiency of this approach was reduced due to fragmentation in the process of implementation of the value chain. Not all farmers were reached as envisioned through all value chain activities (production, processing and marketing). Also not all value chain crops benefited from the value chain activities (production, processing and marketing) as intended in the programme design.
- Electronic Marketing - Information dissemination of marketing technologies encountered challenges as farmers reported low levels of knowledge in the technologies (20%) and low future intention use (32%). Further, these technologies required access to the necessary infrastructure at times not available in the rural areas.
- Multi-technology Approach – The programme also used a multi-technology approach, not a single value chain approach by working with a wide range of different crops that were appropriate for the agro-ecological zone. This included grains, tubers, legumes, vegetables and fruit trees. The VBA were supported with small packs of seed of these crops (or cuttings). Farmers were then able to choose the crops that they were most interested in. Logic for the use of this technology was based on the understanding that:
 - Farmers had different interests and needs;
 - Men and women farmers tended to grow different crops;
 - Improved maize required a lot of inputs that poor farmers could not afford and that by helping them with other crops, they could raise the money to buy the inputs
 - Working with a range of inputs and services would give VBAs income throughout the year,
 - Finally, if farmers were successful with one technology, this would build their trust in the VBA and they were more likely to try a different technology (which they might not have considered earlier).

Extent of Involvements & Contribution of Key Stakeholders in Each of the Value Chains

There were 5 value chain crops in the project- Maize, Beans, Cow Peas, Pigeon Peas & Tubers (Irish potatoes, Cassava, Sweet Potatoes). Overall the Maize & Beans value chain received input from all stakeholders in production,

processing and marketing. There was less involvement in other value chains with either one or two of the partners involved but eventually missing out on one value chain process. Improvements could be made by:

- Incorporating all value chain crops especially in all value chain activities by partners
- Clear focus by all partners in the value chains intended for the project to avoid deviations and thus maximum input into the value chains
- Proper follow up from the onset to ensure this is incorporated in quarter plans



Extent to which KMDP II project integrated other sector players (Private Public Partnerships)

The programme was able to integrate various sector players through collaborations during trainings, demonstrations, field days and other activities carried out within the programme. In particular, organisations in the financial sector, farm inputs supply sector (seed companies, fertilizer companies, agrochemical companies), line ministries and various stakeholders were involved. A total of 4 formal partnerships and 20 informal partnerships were established. A full description is provided in Annex 5. These partnerships were extended to the farmers and have thus created sustainability of the programme activities through increased demand for the services and products offered by these organisations.

Contribution of KMDP II Project to Feed the Future Programme

The programme was able to support farmers in the production of different staple crops which have been adopted by farmers. These foods became a source of food for household consumption for the farmers who didn't have to rely on expensive and less nutritious food. Sweet potatoes and cassava were for instance incorporated in breakfast meals for the families. In case studies done (see Annex 6), farmers were also able to start kitchen gardens which provided additional foods for the family providing readily available food. The foods introduced in the kitchen gardens were mainly vegetables and also acted as a source of nutrition. The VBA approach supported farmers rearing livestock by providing vaccination and other services. Some of these farm animals provided a supplementary diet for the family. Farmers interviewed were able to cite the impact the project had in their lives through the incorporation of various crops and improved farming methods. One of the benefits felt was increased yields and thus incomes. These farmers cited they

were now able to pay off their debts, invest in other businesses as well as provide for their families through food, education and other amenities.

"We have found farmers who are hungry and never have enough to eat and now they have enough..."

"We have done impact assessments in other areas and I have been to KMDP areas and seen similar, within a year and a half to two years we normally find adoption to sweet potatoes and cassava so between sixty percent and a hundred percent of households in the target villages"

3.3 Success of the KMDP II programme in reaching the desired objectives along the value chains

3.3.1: Intermediate result 1: Increased productivity of staples crops in target areas

This component prioritized activities to improve per unit area production whilst reducing production costs. This was done through provision of technical assistance to small holder farmers, training to increase on-farm per unit productivity, reduce production costs, and improve the quality of maize and alternate staple crops which was done through collaboration with private sector partners.

Number of individuals who have received USG supported short-term agricultural sector productivity training

FIPS used various strategies to reach out to a large number of farmers. Village Based Advisors (VBAs) were recruited by FIPS Africa and equipped with training and inputs to ensure technology transfer reached the targeted farmers. Their goal was to promote the appropriate seeds, fertilizers and other inputs. They also generated income from their services to develop a sustainable private sector led extension service. VBAs recruited and trained sub VBAs to assist them. The sub-VBAs were offered the opportunity to generate income from sale of disease-free sweet potato vines harvested from farmer multiplication sites. In order to reach a large number of farmers, the seeds were repackaged and distributed in smaller packs which the farmers would use in their learning plots which were of relatively smaller size too. The VBAs also organized field days which they used to educate the farmers around the demonstrations. Through the VBAs, farmers were trained on agronomy, record keeping, and enterprise development. To encourage small scale vegetable production, seeds (butternut squash, grain amaranth, collards and cowpeas) were procured, repackaged and distributed to the VBAs. A total of 31,850 small packs were distributed to farmers, 6,073 sweet potato and 7,259 cassava bulking sites established and 4,474 sweet potato vines distributed. A total of 12,433 households were reached through small seed pack distribution.

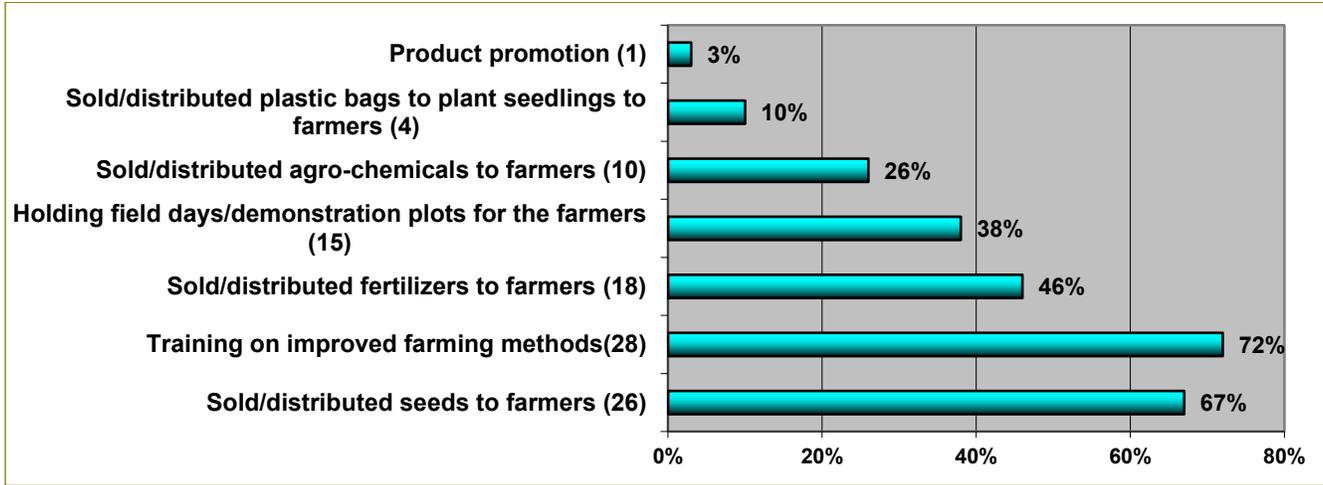
CGA conducted awareness training in all the three regions (Makueni, Transnzoia and Bungoma) to sensitize farmers on joint marketing and equip them with skills on post harvest handling. Farmers households also received training on post harvest handling, storage and mangement. Topics covered included pest control, store management, causes and management of aflatoxins. (See Annex 1)

KACE provided training to farmers which touched on markets and marketing, explaining KMDP and KACE to farmers, access and use of the KACE market information system through demonstration and distribution of promotional and training materials to farmers.

During the programme implementation period, FIPS held 13,902 field days, KACE held 2,500 CGA 4,887 and ACDI/VOCA 6,231 field days. Overall 27,520 field days were held by the consortium partners. Total number of farmers trained was 23,177 with 12,902 trained under FIPS, 1448 by CGA, KACE 2,596 and ACDI/VOCA 6,231. Demonstration plots established were 22,978 with FIPS establishing 22,969 and CGA 9. During the KMDP II programme implementation period a total of 123 VBA's were trained.

Quantitative research confirmed that the farmers were provided with an array of services by collaborators of the program in the value chain. The collaborators interviewed indicated that farmers had benefited most from training on improved farming methods; provision of seeds either through sale for use or supply of the seeds from promotion. Other services include the sale or distribution of fertiliser and demonstration plots and field days.

Figure 4: Services provided to farmers under the programme

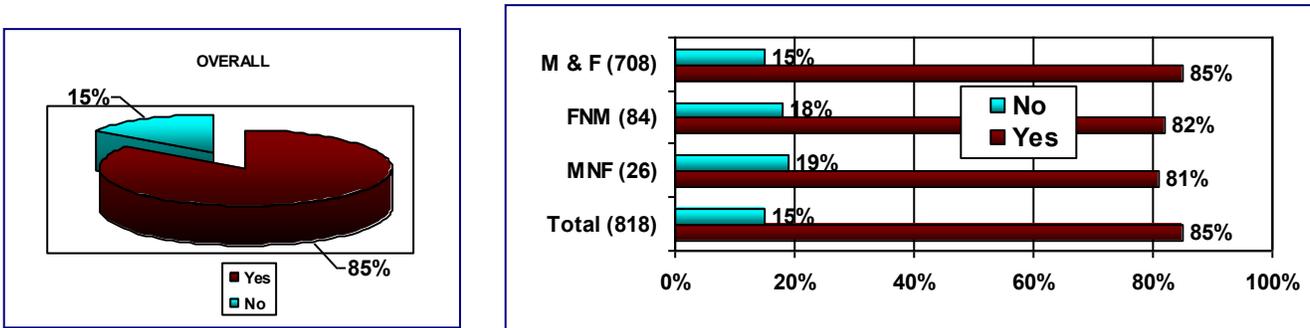


Prior to the KMDP II intervention, farmers indicated use of various farming technologies with majority making use of fertilizer application and improved seed varieties (stated by over 70% of the farmers). Use of other technologies was however low, falling below 50%. They included natural resource management, post harvest handling of farm produce, market access technologies amongst others as shown in the figure below. There was an almost equal gender balance in the use of these technologies.

Training Received by Farmers

Overall 85% of farmers surveyed had received some form of training under the programme. Slightly more farmers under male and female households had received training.

Figure 5: Proportion of farmers who received training



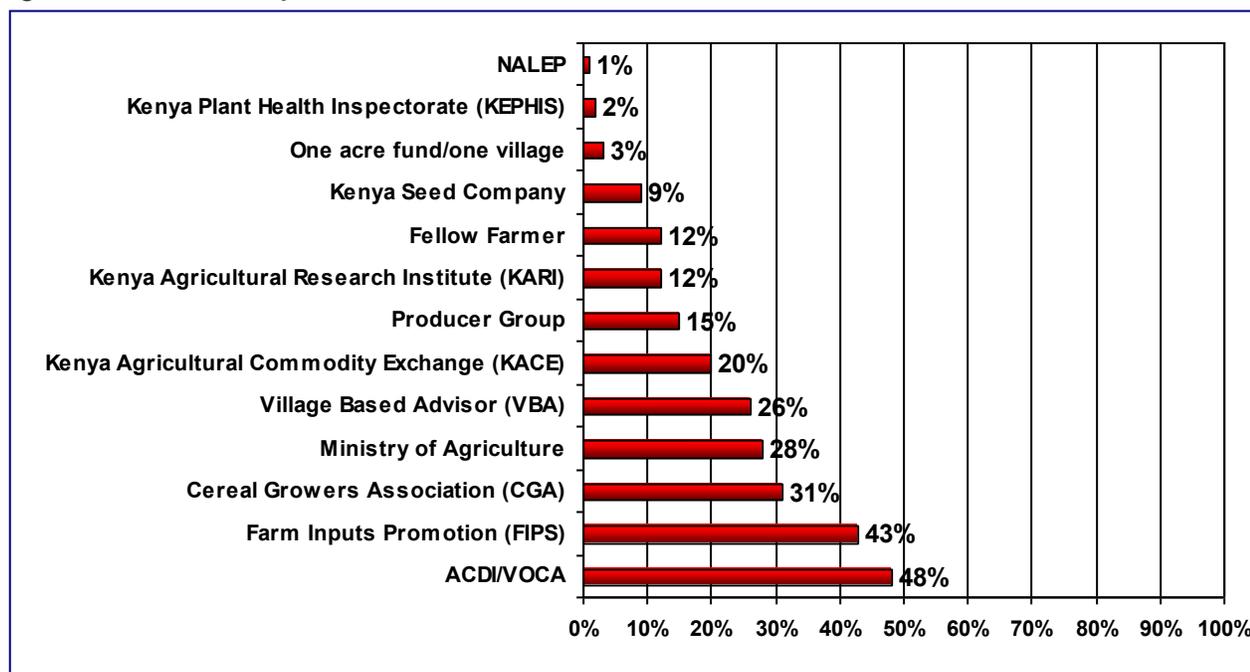
Household members receiving training were mainly the household heads (68%) and the wives of household heads 50%.

Table 4: Household members receiving training

	Total
Household head	68%
Wife of household head	50%
Husband of household head	2%
Son	5%
Daughter	4%

Training for the farmers was provided by a wide range of stakeholders showing a high level of involvement of various stakeholders including the private sector in the programme. The highest proportion of farmers however received their training from ACDI/VOCA and FIPs. Other trainers included CGA, Ministry of Agriculture, VBAs, KACE, among others.

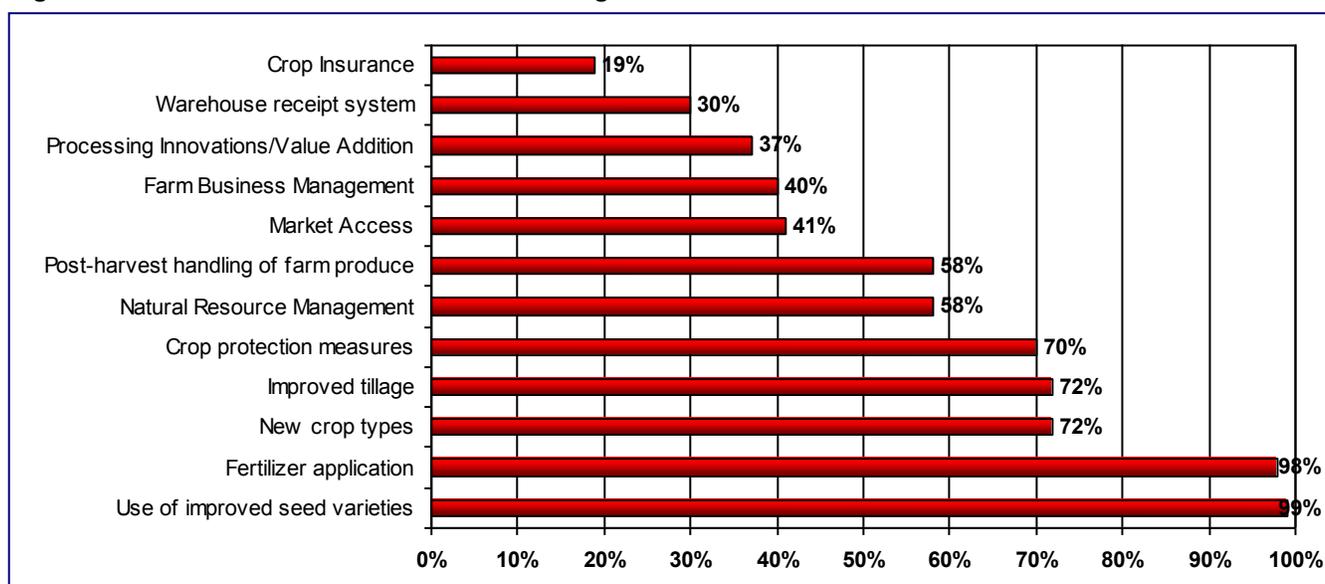
Figure 6: Trainer Description



Areas of training

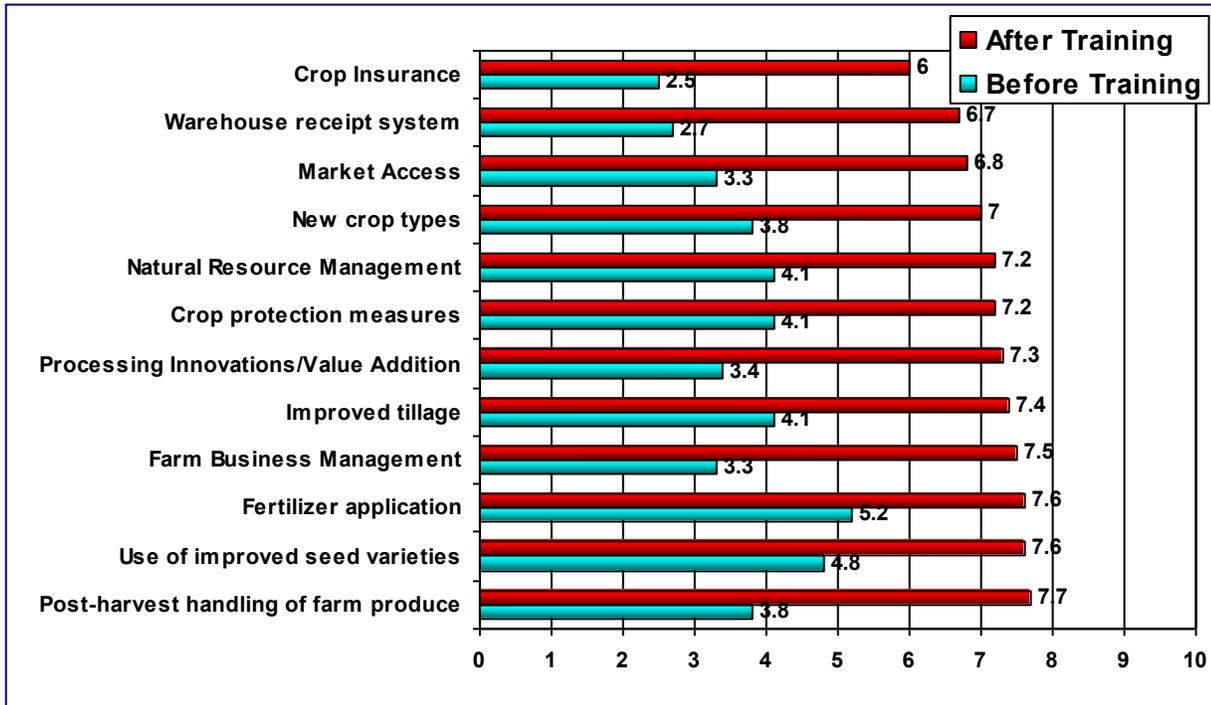
Farmers received training on various items; the majority however received training on the use of improved seed varieties, fertilizer application, new crop types, improved tillage, crop protection measures, natural resource management and post harvest handling. Training in market access, farm business management, processing innovations, warehouse receipt system and crop insurance fell below 50%.

Figure 7: Areas in which farmers received training



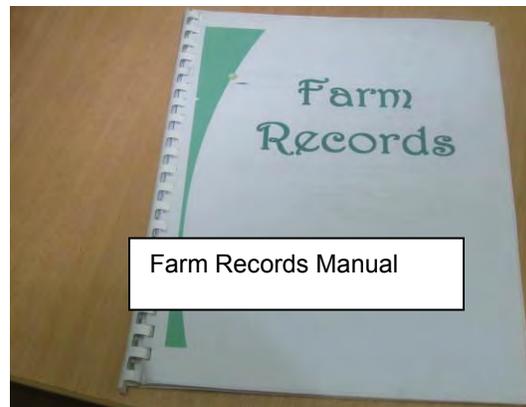
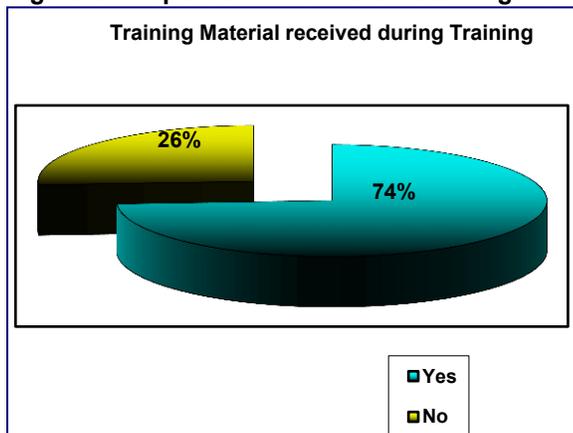
A comparison of farmers' knowledge on the various technologies before and after the training shows there was a high level of impact of the training on farmers. Farmers' level of knowledge in post harvest handling increased by 39%, 28% in the use of improved seeds, 24% in fertilizer application, 42% in farm business management, 33% in improved tillage, 39% in processing innovations, 31% in crop protection measures, 31% in natural resource management, 32% in new crop types, 35% in market access, 40% in warehouse receipt system and 35% in crop insurance. It is worth noting that this increase in knowledge was for farmers who had received the specific trainings. Increase in knowledge in market access, warehouse receipt system and crop insurance was lower than that in other farming aspects.

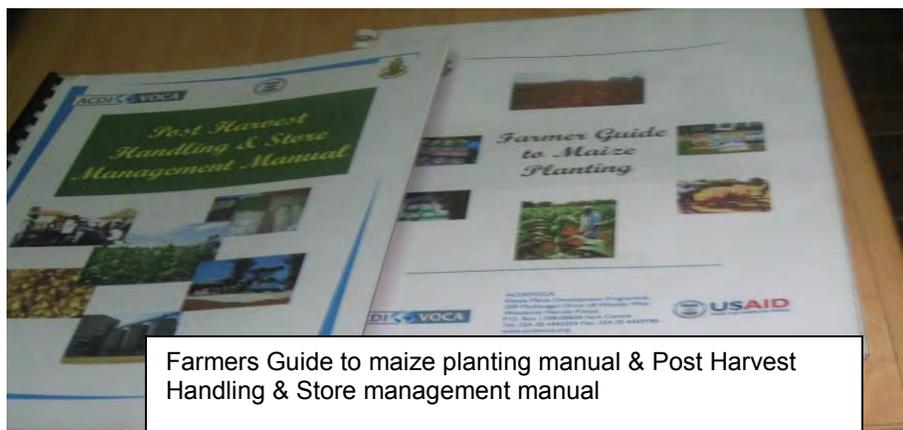
Figure 8: Level of knowledge gained on technologies after training



In terms of training materials, 74% of the farmers indicated they had received education materials. This was higher for farmers in Kisii, Laikipia and Bomet and lowest for farmers in Makeni. Handbooks, brochures and magazines were received by the farmers.

Figure 9: Proportion of Farmers Receiving Training Material





Farmers Guide to maize planting manual & Post Harvest Handling & Store management manual

3.3.1.2 Crop Production

The overall acreage for maize and pigeon peas was highest at 2.2 acres followed by beans 2 acres and green grams and cassava 1.9 acres. Crop production area for maize was highest in Uasin Gishu (4.7 acres) while the least was in Siaya (0.8 acres). Highest crop production area for beans was in Laikipia and the least in Siaya and Kisii while that for green grams was highest in Makueni (3.2 acres). Makueni also had the highest acreage for cow peas (2.8) while Machakos had the highest for pigeon peas (3.3). Laikipia also had the highest acreage under Irish potato production. MNF households had a higher area under maize production (3.3 acres) compared to FNF households (see table below).

Table 5: Acreage under each crop

	Maize	Base	Beans	Base	Green Grams	Base	Cow Peas	Base
Machakos	2	30	2.9	13	0.5	1	1.7	6
Makueni	2.1	69	2.1	32	3.2	13	2.8	2.8
Bungoma	1.3	277	1.4	210	-	-	-	-
Siaya	0.8	60	0.8	43	-	-	1	1
Kisii	2.3	72	0.9	31	-	-	-	-
Nyandarua	1.6	57	2.4	18	2	2	-	-
Uasin Gishu	4.7	48	2.2	9	-	-	-	-
Transzoia	2.6	45	2.4	24	-	-	-	-
Nakuru	1.6	39	1.7	32	-	-	1.4	2
Bomet	1.1	45	1.2	29	-	-	0.3	1
Laikipia	4	33	4.3	18	-	-	-	-
Male No Female Household	3.3	26	1.7	19	-	-	-	-
Female No Male Household	1.6	77	1.6	59	-	-	-	-
Male & Female Household	1.9	665	1.6	459	-	-	-	-
Average Acreage	2.2		2		1.9		1.4	

	Pigeon Peas	Sample	Sweet Potatoes	Sample	Irish Potatoes	Sample	Cassava	Sample
Machakos	3.3	5	2.5	2	-	-	4.7	3
Makueni	2.3	16	2.9	5	2	1	2.2	8
Bungoma	2	1	1	4	-	-	0.9	3
Siaya	-	-	0.8	7	0.5	1	0.8	11
Kisii	-	-	0.8	2	-	-	1	1
Nyandarua	1.2	8	-	-	0.8	5	-	-
Uasin Gishu	-	-	-	-	0.1	1	-	-
Transzoia	-	-	1.5	1	-	-	-	-
Nakuru	-	-	-	-	1.8	6	-	-
Bomet	-	-	1.3	2	1.5	2	-	-
Laikipia	10	1	-	-	4.8	3	-	-
Average Acreage	2.2		1.5		1.6		1.9	

The main benefit for the farmers of the crops they had incorporated was that they were food for family consumption. This benefit was key to farmers as well as for the programmes' objective in creating food security for the farmers' households. These crop types were also drought resistant, profitable and had high yields.

Table 6: Benefit of crops to farmers

	Benefit of crops to farmers	Cassava	Sweet Potatoes	Irish Potatoes
1	Food for family consumption	29%	33%	45%
2	Drought Resistant	23%	10%	-
3	High Yields	22%	14%	27%
4	Ready Market	8%	9%	6%
5	Profitable/less inputs required	9%	13%	12%

3.3.1.3 Adoption of Technologies

Perceptions on production technologies

Discussions with the farmers revealed that the farmers felt they were now well trained on how to prepare their farms before planting their crops, during planting, cultivation, harvesting, storage and marketing. They had also learnt the proper application of manure and fertilizer on their crops. This had been done collectively by MOA, KMDP II and other collaborating organizations. ***"Helped open our eyes and now we are able to produce enough for our families and have surplus for selling."*** The farmers had also been empowered to maximize their yields by having two seasons in a year. They had also been trained on what to plant during the short rains and what to plant during the long rains. ***"We are now having two seasons..... We used to plant maize for only one season and the rest of the time the farm stays idle as we wait for the next year to plant maize again."***

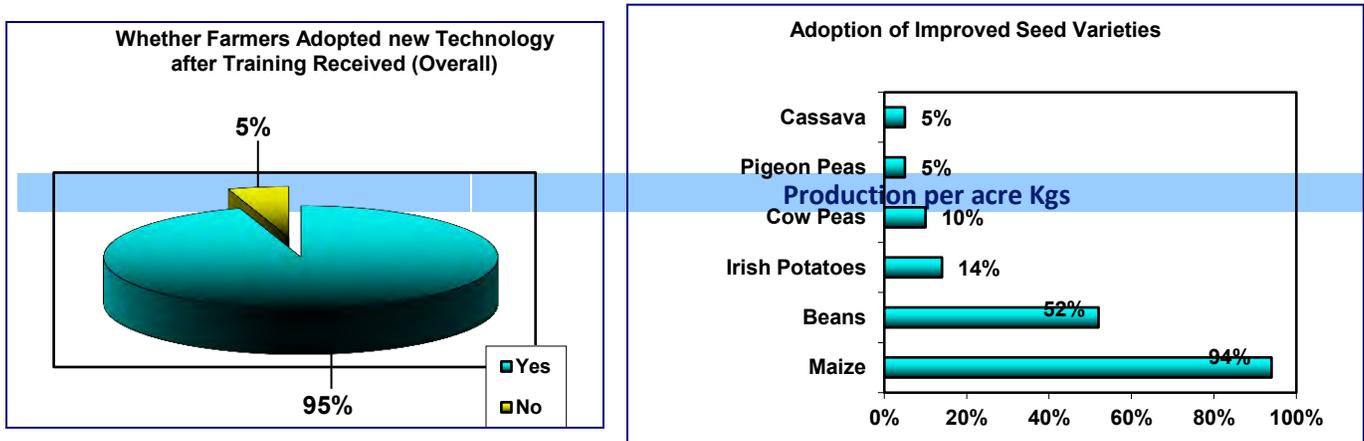
The farmers had also benefited because they had become busy and even the farms were not lying idle. They had also fought off starvation due to diversification of farming. ***"If you fail to benefit from your maize harvest you can still benefit from your tomatoes, vegetables, bananas or coffee as all these crops are contributing a little money for you to meet your needs.."***

There was a high level of adoption of the various technologies in which farmers were trained with 95% of the farmers stating they had used the farming technologies trained on in their farms.

Figure 8 below shows high adoption on the use of improved seeds on the maize crop by farmers.

Use of Improved seed varieties

Figure 10: Adoption of Improved Seed Varieties by crop types



Crop Yields for the last Main Cropping Season

The average maize yields per acre were 11.6 90 kg bags per acre which was slightly lower than that recorded during the baseline (12.5 bags). There were generally increase in yields for most of the areas except Siaya. Maize crop yields increased for Bungoma whose average yield was 911 kgs per acre during the baseline and now recorded 1,329 kgs, yield for Makueni increased from 357 kgs per acre to 453 kgs, 1,191 kgs in Nakuru to 1,238, 1,508 kgs in Transnzoia to 1,491 and 1,572 in Uasin Gishu to 1,647. It should be noted that some of the districts covered during this evaluation were not covered during the baseline (Nyandarua, Laikipia, Bomet, Machakos and Kisii).

Table 7: Crop Yields for the last main cropping season

KENYA MAIZE DEVELOPMENT PROGRAMME II: PERFORMANCE EVALUATION

Main Crop	Beans	Maize
Machakos	381	377
Makueni	445	453
Siaya	231	476
Kisii	615	1150
Nyandarua	428	1193
Uasin Gishu	356	1647
Transnzoia	478	1491
Nakuru	496	1238
Bomet	138	648
Laikipia	194	1409
Bungoma	693	1329
90 kg bag /acre	4.5	11
Kgs/per acre	405	1046
Tonnes	0.405	1.046
Baseline	0.232	1.124

Production Per Acre in Tonnes by Household Typology						
	Male No Female	Base	Female No Male	Base	Male & Female	Base
Maize	0.914 tonnes	26	1.028	77	1.154	665
Beans	0.295 tonnes	19	0.415	59	0.520	459

NB: It was not possible to calculate yields for some of the crops due to the small samples of farmers giving full information on these crops

Table 8: Yields By Household Typology

Yields for both maize and beans was higher for Male & Female households at 1.154 tonnes per acre for maize and 0.520 tonnes per acre for beans. This is in comparison to the Female No Male households with yields of 1.028 tonnes for maize and 0.415 tonnes per acre for beans. The Male no Female households showed much lower yields. However, there was a significantly smaller number of Male No Female households sampled. In this case a sample of less than 30 may not provide the actual yields representing these type of households.

An average of 12 bags was harvested for farmers who sold their produce with the highest number being in Uasin Gishu and Transnzoia. The average number of bags sold was 8.8; where post harvest loss was not incurred; it can be assumed farmers' households were able to consume produce not sold. Regions selling the highest number of bags were Uasin Gishu, Laikipia, Transnzoia and Bungoma. The gross margin for maize farmers was Ksh 21,910 up from Ksh 10,373 during the baseline. This increase could mainly be attributed to higher prices at which farmers had sold their harvests in the last cropping year. The average price for a 90 kg bag of maize was 2,671 compared to 1,575 at the baseline. There were variations in price in the regions with Nakuru, Machakos and Kisii experiencing high prices. It should be noted that Kisii has the third highest gross margin. Lower prices were experienced in Makueni and Siaya which also recorded lower gross margin.

Table 9: Gross Margins for Maize by Region

KENYA MAIZE DEVELOPMENT PROGRAMME II: PERFORMANCE EVALUATION

Maize gross Margins						
	Harvest per Acre	Sale Per Acre	Price per 90 kg bag(Ksh)	Gross margin (Ksh/Acre)	Gross Margin Baseline	Price at Baseline
Machakos	5.1	3.2	3,429	10,356	-	
Makueni	5	2.7	1,490	3284	1,374	1,251
Bungoma	15	15	3,043	42,385	7,077	1,809
Siaya	4.8	4.4	1,660	6,464	5,280	1,719
Kisii	13	10.3	3,308	31,379	-	-
Nyandarua	13	10	2,379	21,102	-	-
Uasin Gishu	18	17	2,669	39,853	14,623	1,449
Transnzoia	17	11	2,566	24,676	12,644	1,404
Nakuru	14	9	3,509	28,744	11,691	1,818
Bomet	8.4	2.7	2,848	6,826	-	-
Laikipia	16	12	2,479	25,950	-	-
Average	12	8.8	2,671	21,910	10,373	1,575

An average of 3.8 90 kg bags of beans were harvested by farmers who sold their produce the highest being in Kisii (11 90 kg bags) and the lowest in Makueni (1.1), Bomet and Laikipia. The average number of bags sold was 3, with farmers in Kisii selling the most (10 bags) and those in Bomet selling the least (0.7). Price variations for beans were recorded with regions such as Machakos and Kisii recording very high prices. The average price for a 90 kg bag of beans was 3,849 which was slightly higher than that recorded during the baseline (3,258).

Table 10: Gross Margin for Beans by regions

Beans Gross Margin							
	Harvest	Sale	Price per 90 kg bag	Cost per 90Kg	Gross margin per acre	Baseline Gross Margin	Baseline Price
Machakos	2	1.7	6,223.3	118	10,379	-	-
Makueni	1.1	1	2,275.5	84	2,191	2,570	2,826
Bungoma	4	2.9	4,285.9	137	12,032	8,365	3,348
Siaya	6.3	5	1,387.5	155	6,161	2,084	3,618
Kisii	11	10	5,652	319	53,331	-	-
Nyandarua	3.8	2.8	4,233	108	11,549	-	-
Uasin Gishu	5.2	3.6	3,509.3	200	11,915	13,309	4,158
Transnzoia	2.6	2	4,523.7	207	8,633	4,614	3,231
Bomet	1.3	0.7	2,041.7	205	1,286	-	-
Laikipia	1.5	0.9	4,088.2	164	3,532	-	-
Average	3.8	3	3,849	174	11,854		3,258

13,750

Table 11: Gross Margins by Household Typology

Maize Gross Margins Ksh							
	Harvest per Acre	Sales per acre	Price per 90 kg bag	Costs per acre	Cost per bag		Gross Margin
MNF	8	1.8	2,733	20,695	230	2,503	4,505
FNM	20	8.8	2,554	26,635	296	2,258	19,870
M & F	16	8.4	3,177	31,149	346	2,831	23,780
Beans gross Margins							
	Harvest per Acre	Sale Per Acre	Price per 90 kg bag	Costs per acre	Cost Per 90 kg bag	Margin	Gross Margin
MNF	3.5	2.9	3,946	13,507	150	3,795	11,007
FNM	3.8	2.5	2,875	14,415	160	2,715	6,787
M & F	3.8	2.5	4,586	17,550	195	4,391	10,978

There was a high intention of farmers to continue using the various farm inputs as shown in the table below. Of note was that farmers were less willing to use NPK fertilizer, foliar feed and herbicides in future cropping years.

Table 12: Future intention to use various farm inputs

Type of farm inputs/services used	Yes	No	Type of farm inputs/services used	Yes	No
Ploughing	98%	2%	Fertilizer Manure	63%	37%
Harrowing	64%	36%	Foliar Feed	42%	58%
Improved seed	98%	2%	Weeding	96%	4%
Saved seed	55%	45%	Pesticides	66%	34%
Planting	99%	1%	Soil conservation structures	69%	31%
Fertilizer DAP	87%	13%	Herbicides	40%	60%
Fertilizer NPK	22%	78%	Gunny Bags	71%	29%
Fertilizer CAN	58%	42%	Post-Harvest Chemical e.g. Actellic Super	67%	33%
Fertilizer Urea	29%	71%	Harvesting Costs	84%	16%

The farmers had encountered various challenges with regard to the use of inputs. Their main challenge was lack of income to purchase the good seeds or even to purchase the farm inputs. Some also lacked knowledge on the proper use of some of the inputs. The farmers also experienced challenges in obtaining quality seeds. Some had purchased low quality seeds from the shops and lost the crop thus experiencing food shortage.

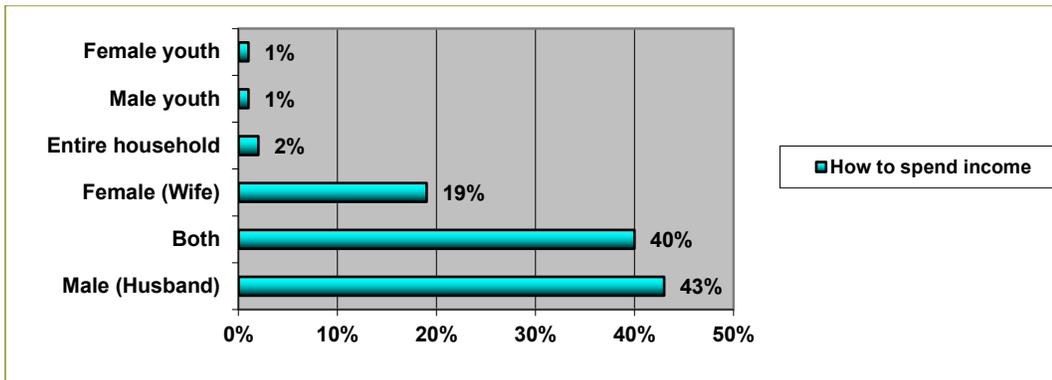
3.3.2.2 Decision Making in Crop Production in the Household

Discussions with the farmers (both qualitative and quantitative) revealed that men made major decisions in the family like where to cultivate and what to plant and they were mainly the ones who purchased the farm inputs. Women on the other hand helped in the farm cultivation, did commercial tilling so that they are able to supplement for household income and would also be involved in making some of the decisions related to the household.

Decision Making in the Household

Figure 11: Decision Making on How to Spend Income

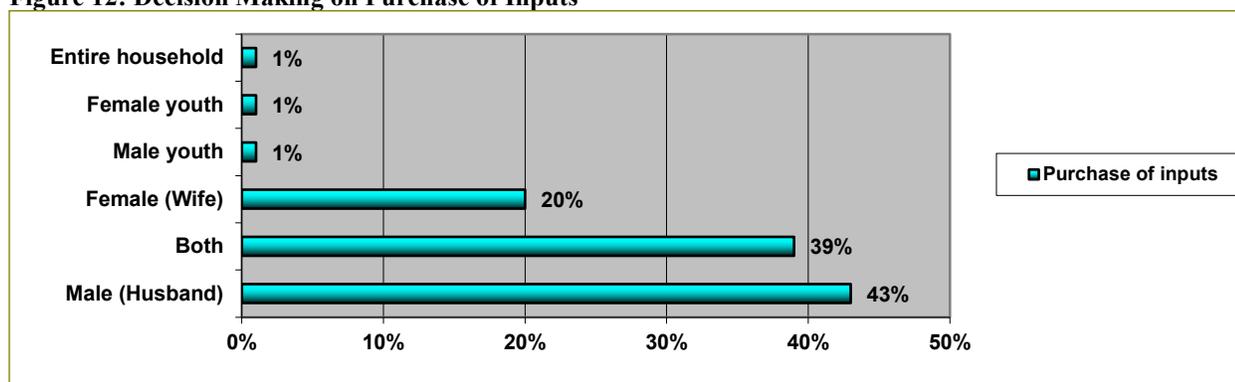
KENYA MAIZE DEVELOPMENT PROGRAMME II: PERFORMANCE EVALUATION



Though both the husband and wife were involved in making decisions on how to spend income in 40% of the households, the male was more involved in 43% of households

Decisions on the purchase of inputs were also mainly done by the male. As reported in the earlier section, the male (husband) mainly purchased farm inputs (seeds, fertilisers).

Figure 12: Decision Making on Purchase of Inputs



Decisions on the sale of outputs were largely done by both the husband and wife by 44% of the households and by the male (husband) in 35% of the households.

Figure 13: Decision Making- Sale of Outputs

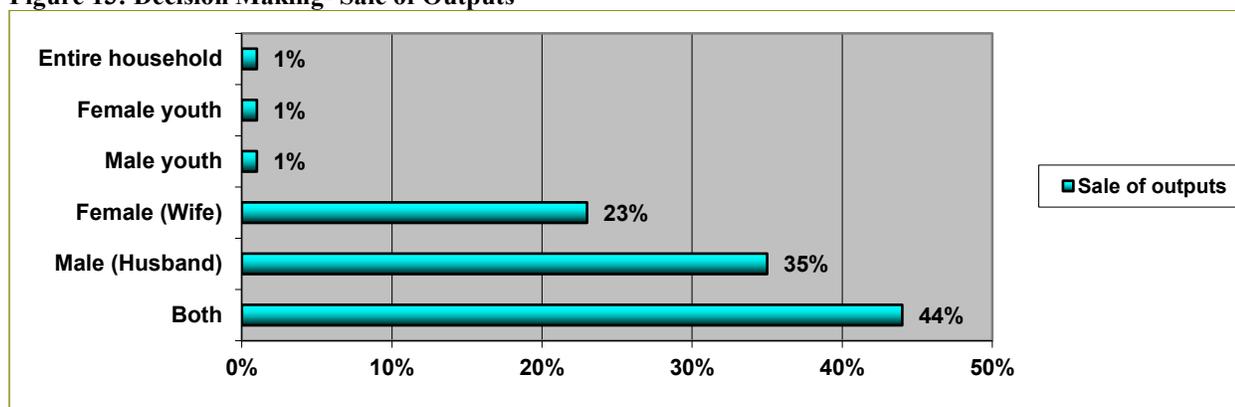
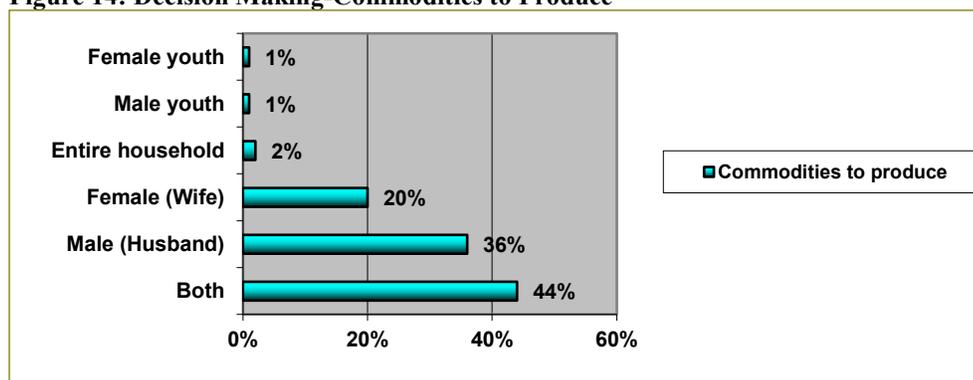


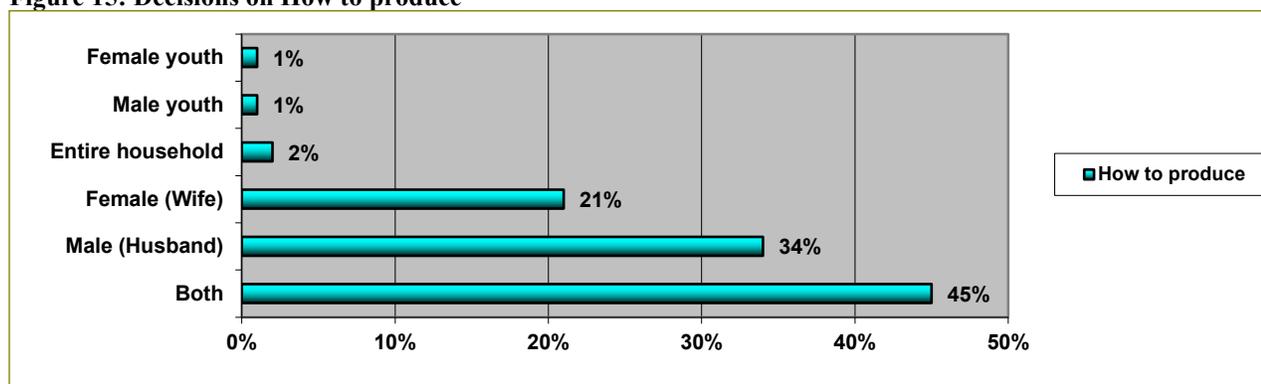
Figure 14: Decision Making-Commodities to Produce



Decisions on which commodities to produce on the farm were also largely made by both the male and female (44% of households). More males (36%) than females (20%) also made this decision.

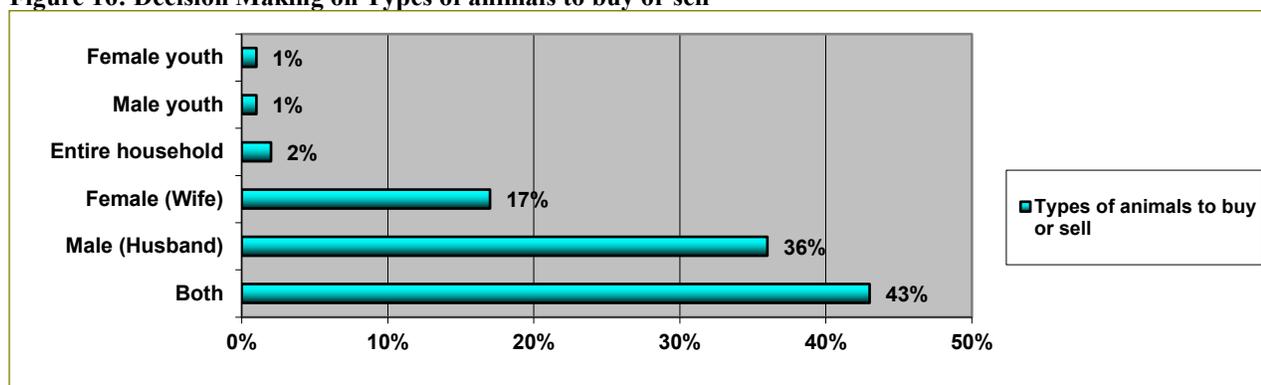
Both the male and females in the household (husband and wife) decided on how to produce in their farm (45% of households)

Figure 15: Decisions on How to produce



Decisions on the types of animals to buy or sell were made by both the male (husband) and female (wife). In more than a third of the households however, this decision was made by the male (husband).

Figure 16: Decision Making on Types of animals to buy or sell

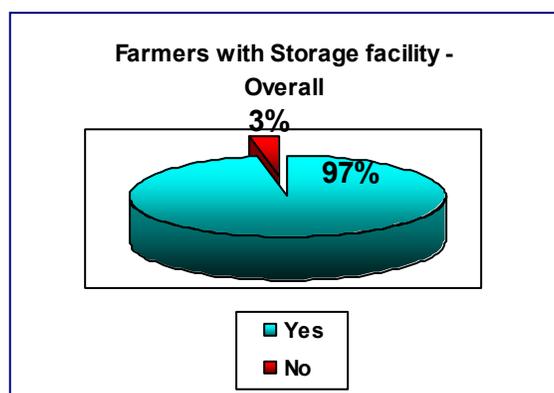


3.3.1.4 Storage & Post Harvest Loss

Almost all the farmers indicated they had a store for their harvests. The most used form of storage was a room in the house (23%) followed by traditional stores (11%).

Table 13: Type of Storage used

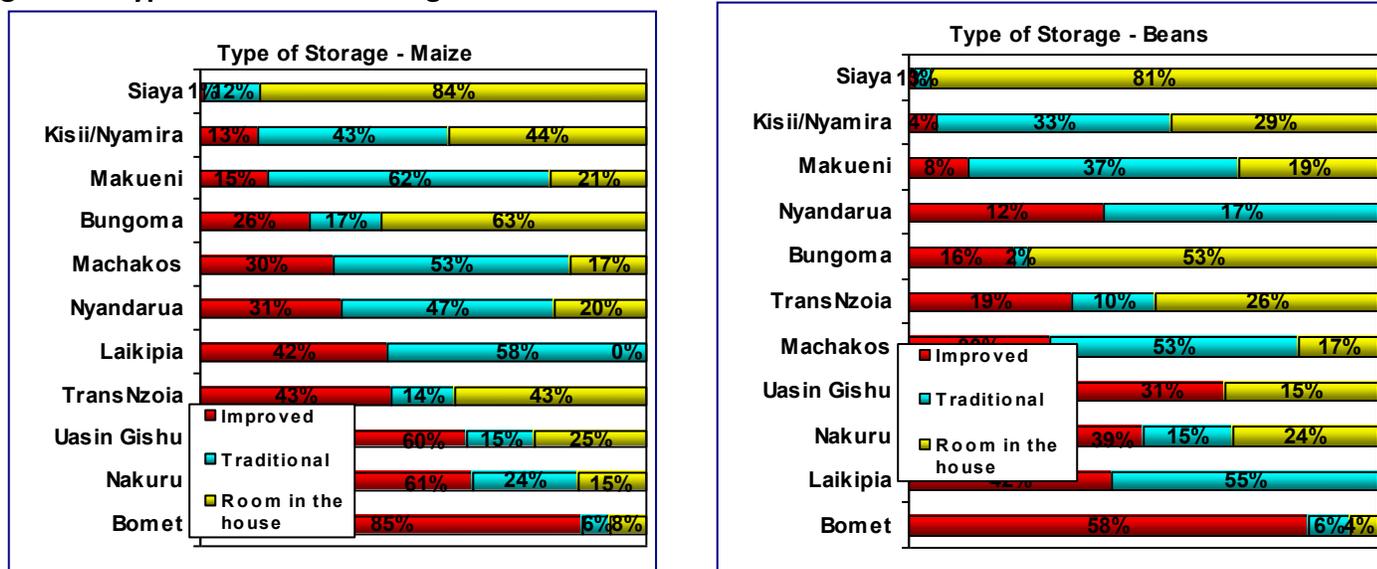
Figure 17: Proportion of Farmers with stores



	Improved	Traditional	Room in the house
Maize	29%	27%	46%
Beans	18%	14%	37%
Green grams	1%	3%	0%
Cow peas	2%	6%	4%
Pigeon Peas	2%	5%	3%
Overall Usage	10	11	23

Beans were mostly stored in a room in the house and in improved stores. The use of improved stores for maize was highest in Uasin Gishu (60%) and least in Nyamira. The use of traditional stores for maize storage was seen in Makueni (62%) while farmers in Siaya mainly used a room in the house for storage of both maize (84%) and beans (81%). It should be noted that Siaya recorded least ownership of improved stores and highest use of room in the house during the baseline indicating no change in store type over the period. The use of improved stores for beans was noted to be highest in Bomet (58%) while that of traditional stores was highest in Machakos (53%).

Figure 18: Type of store used in regions



There was a higher proportion of Female headed households using a room in the house for maize storage while a higher proportion of male and female households used improved stores.

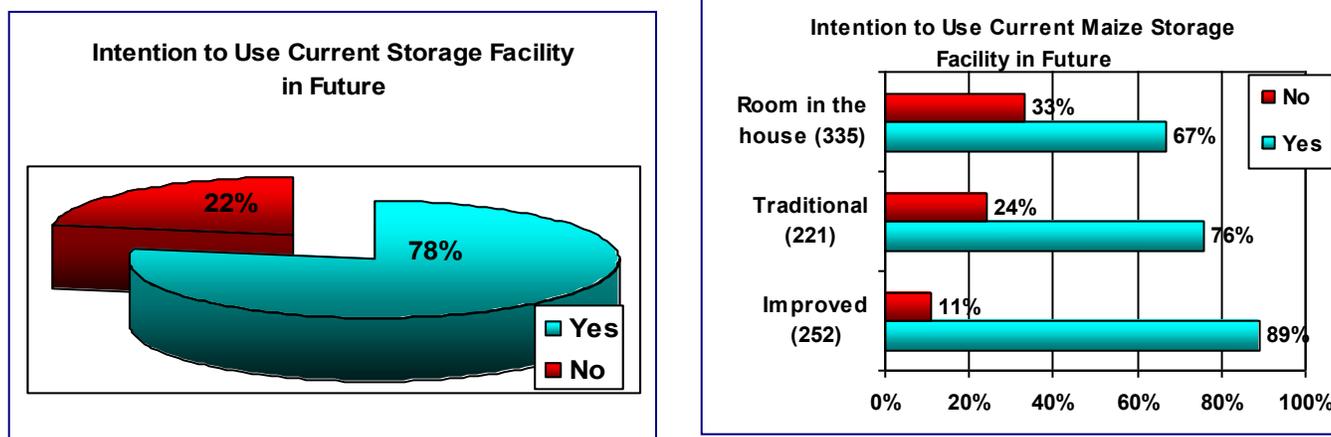
Figure 19: Storage Methods by Household Type

		MNF	FNM	M & F
Maize	Improved		27%	28%
	Traditional		35%	23%
	Room in the house		38%	49%
Beans	Improved		19%	18%
	Traditional		15%	14%
	Room in the house		42%	40%

Intention to Continue Using Current Storage Facility

Farmers were asked if they intended to continue using the storage method they had. More than three quarters of the farmers stated they intended to continue with their current storage method. Figure 36 below shows that maize farmers using improved store intended to continue using it. Of note is that farmers also using the traditional stores and a room in the house also intended to continue using them.

Figure 20: Intention to use current storage



Reasons given for those intending to continue using the current storage method for their crops included security reasons where farmers felt the store they had would keep the produce safe from theft and rodents. Others felt the current storage facility they had was cheap, spacious, highly ventilated and accessible or was still in good condition and thus no need to change it.

Table 14: Reason for intention to use current storage facility

Reasons for Intention to continue using current Storage Facility	Percentage
Secures from food rodents /free from pest / to protect the harvest from theft.	38%
The farm store ensures food and other tools secure/ it stores my farm produce /better storage facilities.	23%
It is cheap.	10%
It is big / spacious.	9%
The only storage device I have / the only store we have.	9%
Highly ventilated.	7%
Its accessible.	5%
Its modern /still in good condition	3%
The harvest is minimal.	2%
Its within in the homestead.	2%
Because buyers buy them in whole.	1%
Because of many commitment /too busy.	1%

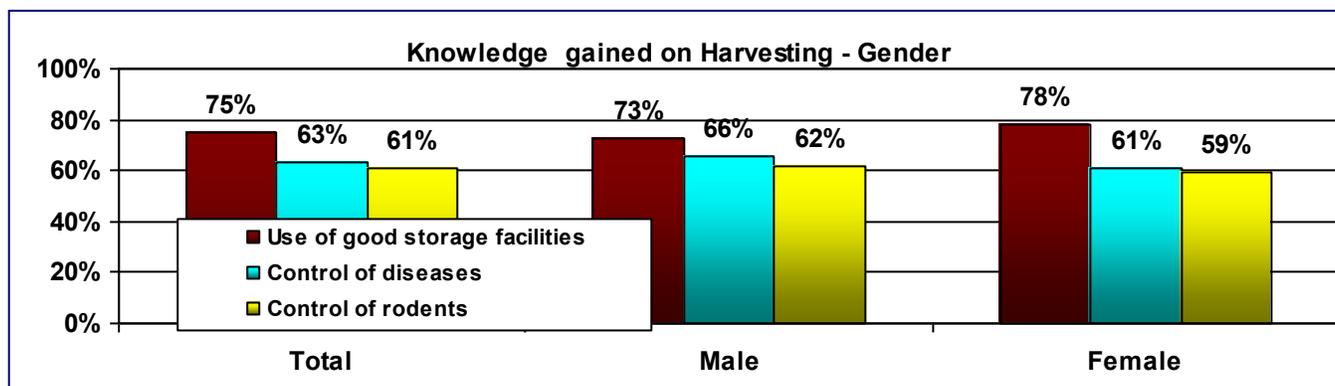
Farmers who felt they needed to change their current storage facility had the intention of building a modern store, also felt the current store was not big enough for the farm requirements, was not strong enough or not secure enough to prevent theft and rodents among other reasons as tabulated below.

Table 15: Reasons for intention to change storage facility

Reasons for Intention to Discontinue using current Storage Facility	
I want to build a modern store.	36%
Its small and next season am expecting high yield hence I have to build a large one/ for storage purpose/ not spacious/ increase in farm inputs/ increase in produce/ productivity.	21%
It's not strong enough	13%
To avoid theft / due to insecurity in the region /because of theft.	8%
Want to take the warehouse where we as community keep our products so that we can get ready market.	7%
Not well ventilated.	6%
Rodents keep on destroying my harvest/ Attack by diseases	6%
Its not comfortable staying with maize in the house.	3%
Are easy to construct and manage.	2%

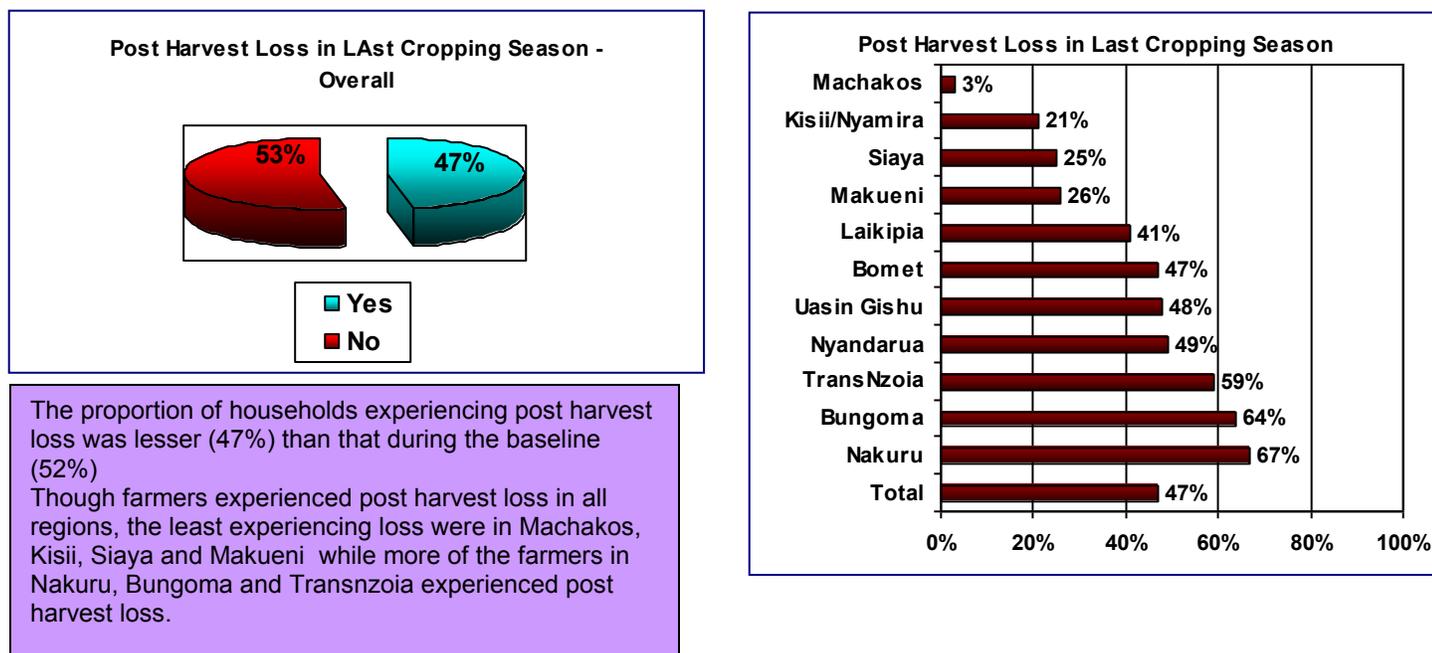
Knowledge Gained on Harvesting

Farmers were asked what knowledge they had gained on harvesting from the programme. Three quarters of the farmers stated they had gained knowledge on the use of good storage facilities with slightly more females than males stating this. There was also a higher proportion of farmers in Transnzoia, Machakos and Makueni saying they had gained knowledge on the use of good storage facilities. Farmers had also gained knowledge on the control of diseases this being higher for males and farmers in Machakos, Makueni and Bungoma. Control of rodents was also by quoted 61% of farmers as knowledge gained on harvesting. The impact of this knowledge was seen more in Laikipia (91%) and Kisii (77%)

Figure 21: Knowledge gained on harvesting

Post- Harvest loss refers to crops that were harvested but never consumed up or sold by the house due to spoilage arising from aflatoxin, rotting, rodent destruction or destruction by larger grain borers and/or weevils.

Figure 22: Proportion of farmers experiencing post harvest loss

**Post Harvest Loss incurred - Overall**

Farmers who lost their maize harvest lost 21% of their produce. There was significant loss for beans produce as shown in the table below where farmers lost 42% of their produce.

Table 16: Post Harvest Loss by Crop

	Sample	KGs Harvested	Tonnes Harvested	KGs Lost	Tonnes Lost	% lost
Maize	358	810390	810.39	172290.6	172.3	21%
Beans	118	41992	41.992	17722.4	17.7	42%
Green Grams	2	65	0.065	24	0.024	40%
Cow Peas	2	300	0.3	252	0.252	84%
Pigeon Peas	2	240	0.24	160	0.16	67%
Sorghum	2	270	0.27	4	0.004	1.5%
Irish Potatoes	23	36746.4	36.7464	8562	8.6	23%
Sweet Potatoes	8	5252	5.252	2792	2.8	53%
Cassava	3	690	0.69	264	0.264	38%

NB: Post harvest losses incurred where samples are less than 30 may not indicate the actual figures. This information was also not tabulated by regions due to the small sample sizes

Post harvest loss by household typology showed a loss of 12.4 MT of maize for female headed households while 156 MT were lost for male and female households.

Table 17: Post Harvest Loss by Household Typology

	MNF (Male no Female)				FNM (Female no Male)			
	Harvested (MT)	Base	Lost (MT)	Base	Harvested (MT)	Base	Lost (MT)	Base
Maize	23.409	9	1.89	9	48.47	30	12.4438	30
Beans	0.81	2	0.27	2	4.5212	14	1.7318	14
Irish Potatoes	-	-	-	-	2.16	4	0.574	4
S/potatoes	-	-	-	-	-	-	-	-

NB: Post harvest losses incurred where samples are less than 30 may not indicate the actual figures. This information was also not tabulated by regions due to the small sample sizes

M & F (Male & Female)				
	Harvested (MT)	Base	Lost (MT)	Base
Maize	738.338	319	156.8248	319
Beans	36.9358	102	15.6716	102
Irish Potatoes	34.505	19	7.9762	19
S/potatoes	2.388	7	2.432	7

The reasons for post harvest loss varied with 43% of the maize loss being attributed to natural disasters, 23% due to dampness, 12 % due to poor storage facility, 17% due to theft, 15% due to rodents and 12% due to aflatoxin. Other contributors to post harvest loss were late harvesting and insects. Of note is that farmers who lost their harvest in Siaya blamed it on poor storage facilities. It was noted earlier in this report that Siaya farmers were the highest users of rooms in their houses as stores.

Table 18: Reasons for Maize Post Harvest Loss

	Total	Machakos	Makueni	Bungoma	Siaya	Kisii/ Nyamira	Nyandarua	Uasin Gishu	Trans Nzoia	Nakuru	Bomet	Laikipia
Natural disasters	43%	0%	20%	46%	31%	43%	50%	64%	77%	27%	5%	31%
Dampness	23%	0%	0%	23%	0%	0%	21%	4%	23%	36%	86%	15%
Poor storage facility	21%	0%	30%	24%	38%	7%	21%	24%	23%	14%	0%	8%
Theft	17%	0%	20%	25%	25%	29%	4%	8%	0%	0%	9%	0%
Rodents	15%	100%	35%	14%	31%	29%	21%	4%	4%	23%	0%	8%
Aflatoxin	12%	0%	35%	1%	0%	0%	33%	24%	31%	14%	9%	69%
Late harvesting	11%	0%	10%	10%	13%	14%	4%	20%	4%	32%	0%	15%
Insects	9%	0%	5%	11%	25%	21%	0%	12%	8%	9%	0%	0%

Post harvest loss for beans was also largely due to natural disasters (53%) and dampness (28%). Poor storage facilities, insects, theft, rodents and late harvesting were also contributors to loss. Natural disasters were main

contributors to post harvest loss in Uasin Gishu, Transnzoia and Nyandarua while dampness was largely experienced in Bomet.

Table 19: Reasons for Beans Post Harvest Loss

	Total	Makueni	Bungoma	Siaya	Kisil/ Nyamira	Nyandarua	Uasin Gishu	Trans Nzoia	Nakuru	Bomet	Laikipia
Natural disasters	53%	22%	59%	40%	0%	80%	100%	88%	42%	17%	60%
Dampness	28%	0%	36%	0%	25%	20%	0%	25%	25%	50%	20%
Poor storage facility	16%	33%	18%	0%	25%	0%	0%	13%	8%	33%	0%
Insects	14%	44%	11%	20%	25%	0%	0%	0%	17%	0%	20%
Theft	14%	11%	21%	20%	0%	20%	0%	0%	0%	0%	0%
Rodents	13%	22%	18%	20%	25%	0%	0%	0%	0%	0%	0%
Late harvesting	10%	11%	10%	60%	0%	0%	0%	0%	17%	0%	0%

3.3.2 Intermediate result 2: Increased trade and market access

While the introduction of new crop varieties led to better food security, there was also evidence of increased trade activities, better income and diversification of economic activities as well as accrued savings to the farmers' households. A few challenges were also experienced which included heavy rains in the harvest period which slowed down the bulking process. Farmers were therefore unable to meet their contractual obligations with the WFP in the fourth quarter of 2011. However, the consolidated grain in Bungoma and Makueni attracted higher prices than farm gate sales on account of higher quality and sale to larger more discerning buyers. Sensitisation meetings on bulking were held in Makueni aimed at sensitising farmer organisations, the community and other stakeholders on the operations of the village bulking centres and how each could play a role in making them self sustainable.

The KMDP II also introduced to beneficiaries six (6) Market Information Systems MIS to promote increased trade and market access. This initiative was mainly championed by KMDP II partner, KACE. The MIS included information exchange platforms such as SMS service, Interactive Voice Response Service (IVRS), Internet based electronic database RECOTIS, Market Call Centre (MCC), KACE website and Soko Hewani radio programme.

KACE set up an SMS service on commodity prices with Safaricom which it promoted to traders and farmers. In the first quarter the service was scaled up through a partnership with Airtel to set up a similar SMS information dissemination service on its network. The service covered 20 commodities which were **cereals**: maize, rice, sorghum, millet, **pulses**: beans, soy beans, red grounds, green grams, **fresh produce**: cabbages, potatoes, tomatoes, bananas **and livestock**: steer, goat, chicken-broilers, eggs, **farm input**: DAP fertilizer, urea fertilizer and maize seeds, (KACE, 2011a). From KACE reports, the average number of SMS hits in 2011 was 13,158 for maize and 12,056 for other crops. The overall monthly average hits for all the crops were 25,214. In 2012, the average number of hits for maize was 16,035 and 16,572 for other crops. The overall monthly average hits were 32,607.

Soko Hewani, was one of the MIS which helped to reach a much wider audience (estimated at 5 million) but went off air in September 2011 due to the high cost of airing the programme. Market information for the 20 commodities was also availed through the IVRS service. In this service, KACE submitted updated market information to Adtel Phone Company which then translated the information into voicemail. The IVRS service, branded *Kilimo Hotline* was provided in two languages, English and Kiswahili. A number was provided which a client would dial at a fee then follow a simple pre-recorded voice prompt to access the information. The overall monthly average number of hits for IVRS in 2011 was 1,351 and 2,206 in 2012.

Furthermore, KACE ran an electronic information system through its website www.kacekenya.co.ke and the Regional Commodity Trade and Information System (RECOTIS). The organisation updated data on commodity prices, bids and offers on a daily basis. Information accessed through the website was only available to subscribed clients who paid a small fee to KACE, (KACE, 2011c). RECOTIS client base was dominated by agriculture related sectors with the top five slots being taken up by farmer groups, agricultural research centres and universities, commodity traders, processors and donor/relief/development agencies. The monthly average of hits for the KACE website in 2011 was 669 and 1,666 in 2012. The number of subscribers for RECOTIS remained constant at 600 subscribers in 2011 and 2012.

In order to facilitate bulk marketing, the concept of developing village bulking centres was adopted. Five market resource centres were also established by KACE. KACE facilitated the trade of 3,605 MT valued at 106,154,000 Ksh in 2011 and 2,032MT valued at 71,114,400 Ksh in 2012. Volumes traded through CGA were 532 MT valued at 20,753,515 KSH during the project period. Overall a total of 6,169 MT of assorted grains valued at 198,021,915 KSH were traded over the project implementation period.

Markets where farmers sold their last harvest

Farmers who sold their produce from their last harvest did so to mainly brokers (37%) and small traders on foot or bicycle (21%). The information tabulated below show minimal use of structured markets for the farmers for maize, beans and Irish potatoes.

Table 20: Markets used for sale of produce

	Maize	Beans	I. Potatoes
Total	482	247	56
Broker	37%	33%	64%
Small trader (on foot/bicycle)	21%	24%	7%
Large trader (Lorry)	12%	8%	23%
Institutions (hospitals, schools, hotels)	12%	17%	0%
Direct Consumer	12%	9%	2%
Village market	11%	17%	9%
NCPB	4%	2%	0%
Coop/Group	3%	1%	0%
Small (posho) Millers	2%	0%	0%
WFP	2%	1%	0%
large miller	1%	0%	0%
Food processors	1%	1%	2%

Market Drivers

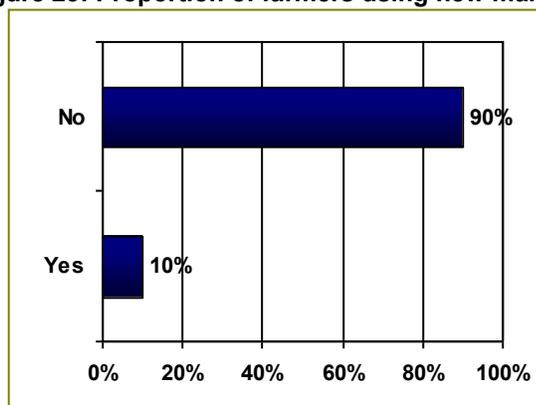
The main reasons for decisions to use certain markets for maize and beans produce were mainly due to the closeness of the market, better price offering, to repay credit, poor road conditions, for inputs procurement and emergencies (see tables below). The small traders were seen to offer a closer market and facilitated the farmer in obtaining quick money to procure inputs. Brokers were in addition perceived to offer better prices and as a result of emergencies faced by the farmers that required a close market but were also mainly used due to the poor road conditions that would require the farmer to spend more money in transporting their produce to the market. While there was minimal use of the NCPB, farmers who sold their produce felt the price offered was better. Institutions which included hospitals, schools and hotels were mainly used in order to repay credit.

Table 21: Reasons for markets used to sell maize

Used Maize Market	Closest market	Better price	Repaying credit	poor road conditions	Inputs procurement	Emergencies
	234	110	36	15	11	59
Small trader (on foot/bicycle)	26%	11%	8%	20%	64%	22%
Large trader (Lorry)	10%	14%	8%	13%	0%	10%
NCPB	1%	13%	0%	0%	0%	0%
Coop/Group	1%	7%	3%	0%	0%	0%
Small (posho) Millers	2%	1%	0%	0%	0%	0%
Large miller	0%	2%	0%	0%	0%	0%
Institutions (hospitals, schools, hotels)	4%	15%	42%	0%	0%	17%
Broker	39%	25%	19%	67%	27%	27%
Village market	8%	3%	17%	0%	0%	8%
WFP	0%	5%	0%	0%	0%	2%
Food processors	6%	5%	0%	0%	9%	0%
Direct Consumer	7%	5%	3%	0%	0%	14%

New Markets Introduced

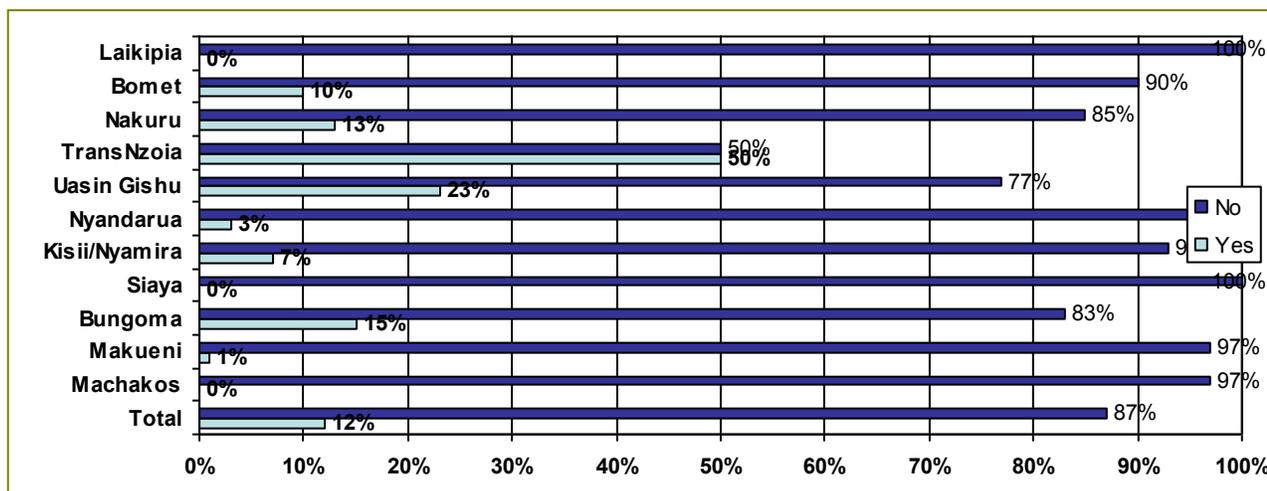
Figure 23: Proportion of farmers using new markets



Farmers were asked if they had been introduced to any of the markets they had sold their produce. Only 10% of the farmers claimed to have used markets they had been introduced to.

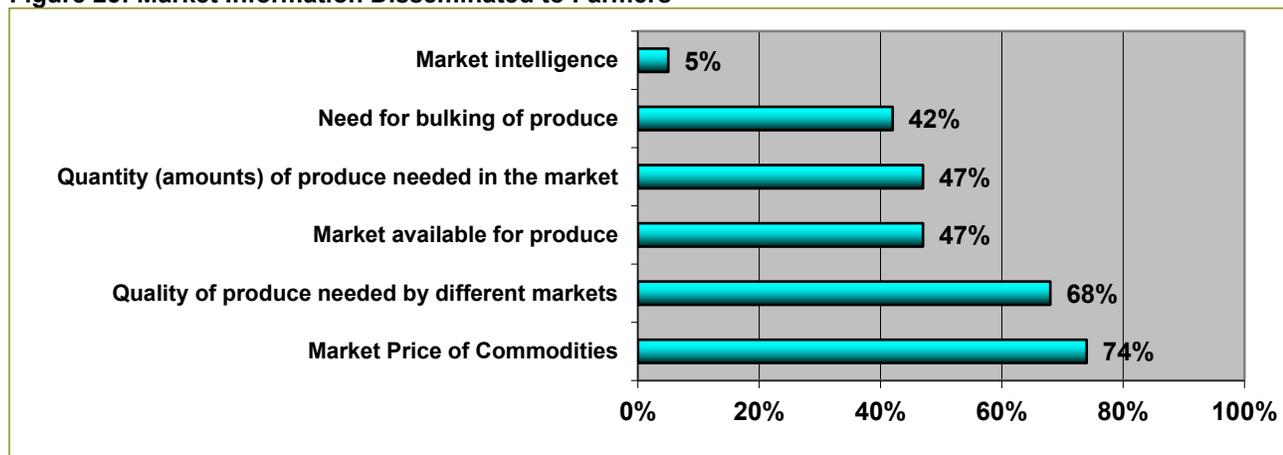
The use of new markets introduced under the programme was highest in Transnzoia with at least 50% of those selling their produce stating so. There was least use of new markets in Laikipia, Machakos, Makueni and Siaya.

Figure 24: Use of new markets by regions



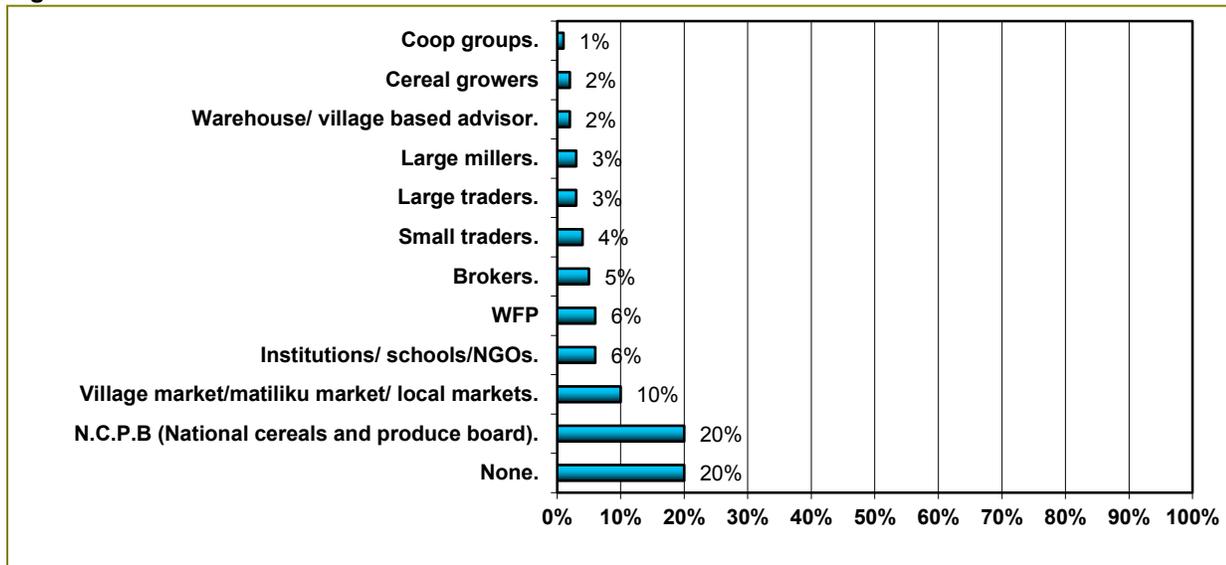
The market information offered to farmers included the market price of commodities, quality of produce needed by different markets, market available for produce, quantity of produce needed in the market, need for bulking of produce and general market intelligence.

Figure 25: Market Information Disseminated to Farmers



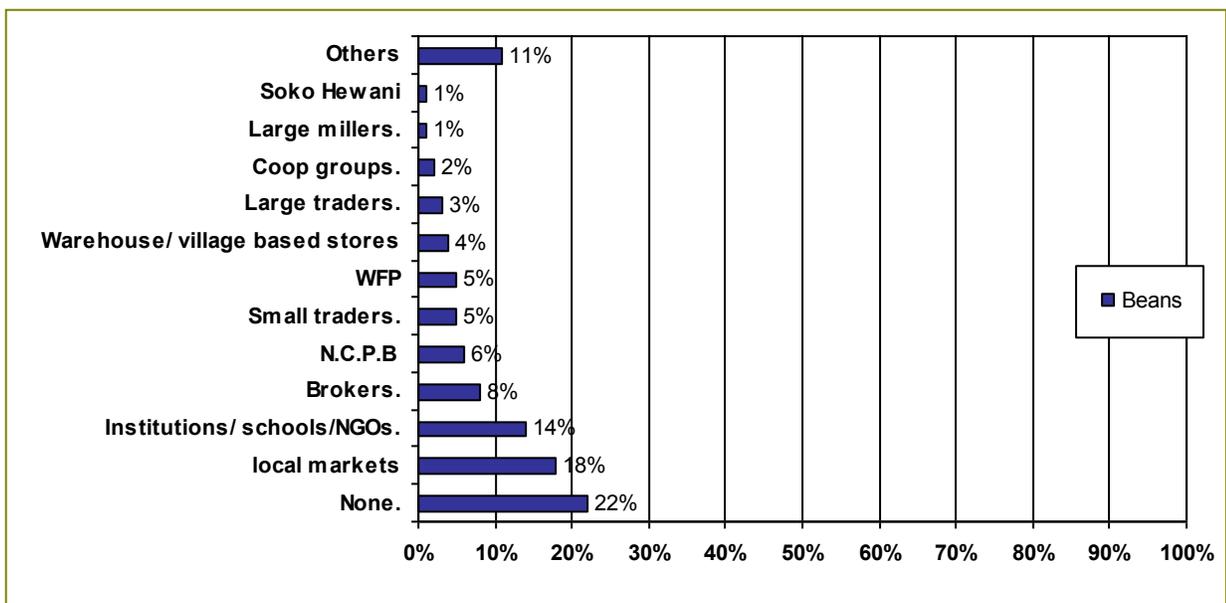
Farmers were asked where they intended to sell their produce in future. While 20% of the farmers did not to sell their produce to any new markets in the future, a further 20% intended to sell to the National Cereals and Produce Board.

Figure 26: Intention to use new maize markets in future



Farmers who intended to sell their beans to new markets indicated they would use the local market and institutions.

Figure 27: Intention to sell to new bean markets in future



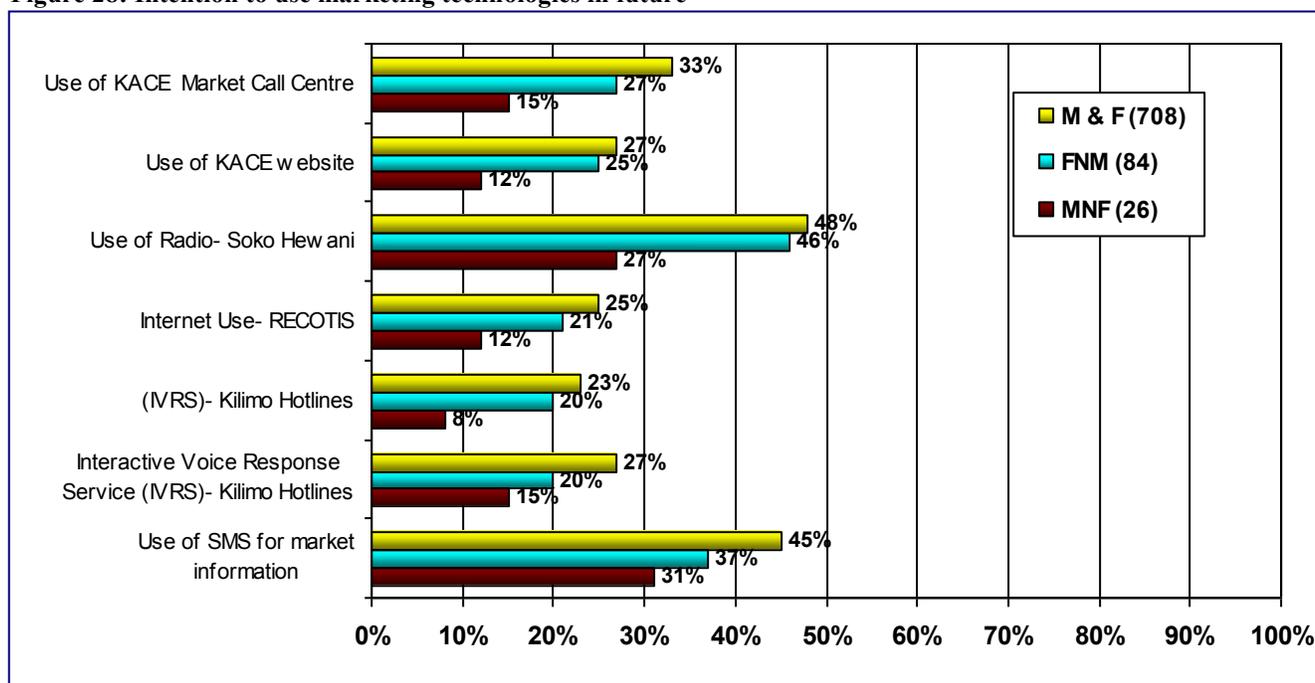
Use of Technologies in Marketing

The most used technology to obtain market information by farmers were radio (Soko Hewani) and SMS at 12% and 11% respectively. Of note is that 77% of the farmers indicated they had not used the technology, this being slightly higher for female headed households (80%).

Table 22: Proportion of farmers using marketing technology

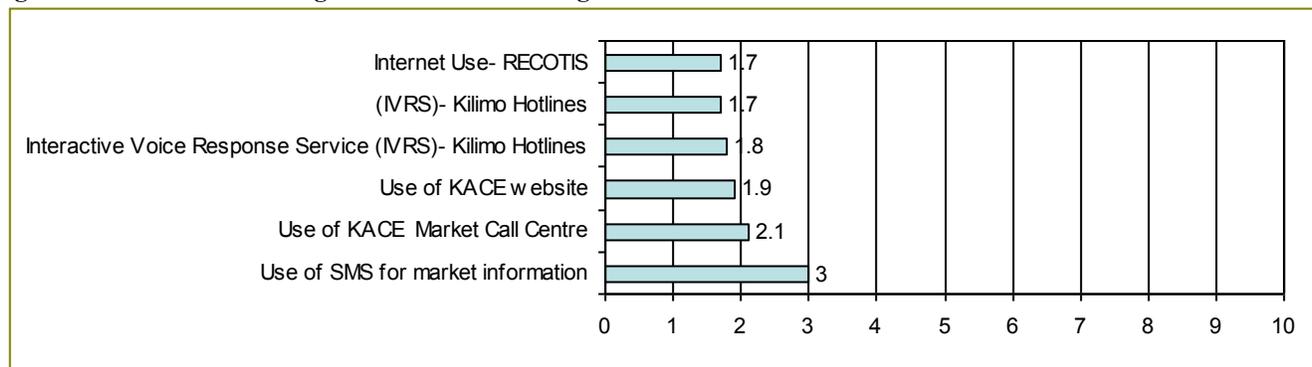
	Total	MNF	FNM	M & F
Total	818	26	84	708
Use of SMS for market information	11%	15%	10%	12%
Interactive Voice Response Service (IVRS)- Kilimo Hotlines	2%	0%	0%	2%
Internet Use- RECOTIS	0%	0%	0%	0%
Use of Radio- Soko Hewani	12%	12%	10%	12%
Use of KACE website	0%	0%	0%	0%
Use of KACE Market Call Centre	2%	4%	2%	2%
None	77%	77%	80%	76%

The marketing technology farmers felt they had benefited from most was the use of SMS and Radio (Soko Hewani) at 49% and 36% respectively. This can be attributed to these farmers having used the technology unlike those based on the internet system which had very little trial among the farmers as shown earlier on. Male and female households reported a higher intention to use radio (Soko Hewani-48%), SMS (45%) and in use of the market call centre (33%).

Figure 28: Intention to use marketing technologies in future

Farmers were asked to rate their level of knowledge on the various marketing technologies on a scale of 1-10 where 1 was very low and 10 very high. Farmers rated themselves below average on the use of all technologies indicating need for more information. However, the lowest levels of knowledge were recorded for RECOTIS and IVRS. It should also be noted that farmers had least intention for the use of these technologies in future which can be attributed to their low level of knowledge.

Figure 29: Level of Knowledge on Market Technologies



Intention to use marketing technology in future- Those NOT intending to use

Farmers **not** intending to use the various technologies in future cited various limitations with majority citing their lack of knowledge on the various technologies. Other limitations included accessibility of the technology, level of education and low yields.

Table 23: Reasons for non intent to use technology

Reasons	Use of SMS for market information	Interactive Voice Response Service	(IVRS)- Kilimo Hotlines	Internet Use- RECOTIS	Use of Radio-Soko Hewani	Use of KACE website	Market Call Centre
I don't have the knowledge	60%	79%	75%	71%	58%	69%	68%
Not accessible	10%	6%	6%	7%	9%	8%	7%
My yields are low.	4%	3%	3%	3%	4%	4%	3%
Not cheap / expensive.	2%	2%	2%	2%	3%	2%	2%
Am not educated.	2%	1%	2%	2%	3%	1%	2%
Others	22%	9%	12%	15%	23%	16%	18%

From qualitative research, the main challenges in marketing were in corruption, poor government policies on inputs and market prices, middle men who exploited the farmers, proper sorting and grading of produce and limited knowledge and access to ICT services.

3.3.3 Intermediate Result 3: Increased Access to Business Development Services

This indicator looked at four components namely: the number of business development services that were made available, the total number of SMEs accessing business development services, the total number of business service providers participating in the BDS program target areas and the number of SMEs receiving USG assistance to access credit. A total of 12 business development services were made available to farmers against a target of 8.

The total number of Individual farmers who benefited from business development services like training on various modules in the Farming as a Family Business curriculum, market access, input supply, training and technical assistance, access to financing, infrastructure, new technology and product development were approximately 11,096. The total number of individuals in Small and Medium Enterprises (SMEs) who benefited from business development services either through training on Entrepreneurship and Business Planning, beneficiaries of VBAs advisory services, inputs and outputs, business links, loans records, ICT extension service users data, trained in new product development were approximately 2,219. Total number of business service providers participating in the BDS program in target areas was 165 against 100. The total number of SMEs receiving USG assistance to access credit (beneficiaries of bank loans, MFIs, youth enterprise funds, women enterprise fund, group revolving fund) was 14 against a KMDP target of 30.

The two cases below show how farming has helped increase food security and household incomes. Farmers were able to produce surplus and through increased incomes educate their children and become debt free.

“Last year I took a loan of ten thousand which I used to farm beans after harvesting and selling the beans I planted tomatoes. I got about thirty thousand shillings from the beans and a hundred thousand from tomatoes. Then I bought two dairy cows and sold them for seventy thousand. With that money I bought that quarter an acre of land.... and the money that remained from the profits is what I have used to farm maize, beans and tomatoes and now I am waiting for December. .”

“for me when my husband left he left me with a very big burden. He left me with debts amounting to almost two hundred thousand shillings. So I started with a loan of five thousand shillings and revived our coffee farming, he had a number, I paid for that and finished. Then I went back and took a loan of fifteen thousand, I bought fertilizers and put on the coffee and then I took them to my number I have a number as a planter of coffee and that brought me about sixty thousand. I used that money to pay off my loan and to take my children to school. I then farmed my land, I used to farm about three or four acres and this time I have farmed six acres and that has helped me a lot because I have paid off all my husband’s debts. I have been trying and the coffee from last year brought me one hundred and forty thousand shillings and now the children are continuing in school well and there is food in the home. I have also bought two dairy cows and I am doing well, and there is still produce in the farm that will be harvested and that has really helped me.

Kilongekey Women’s group members

3.3.4 Intermediate Result 4: Increased Effectiveness of Farmer Organization

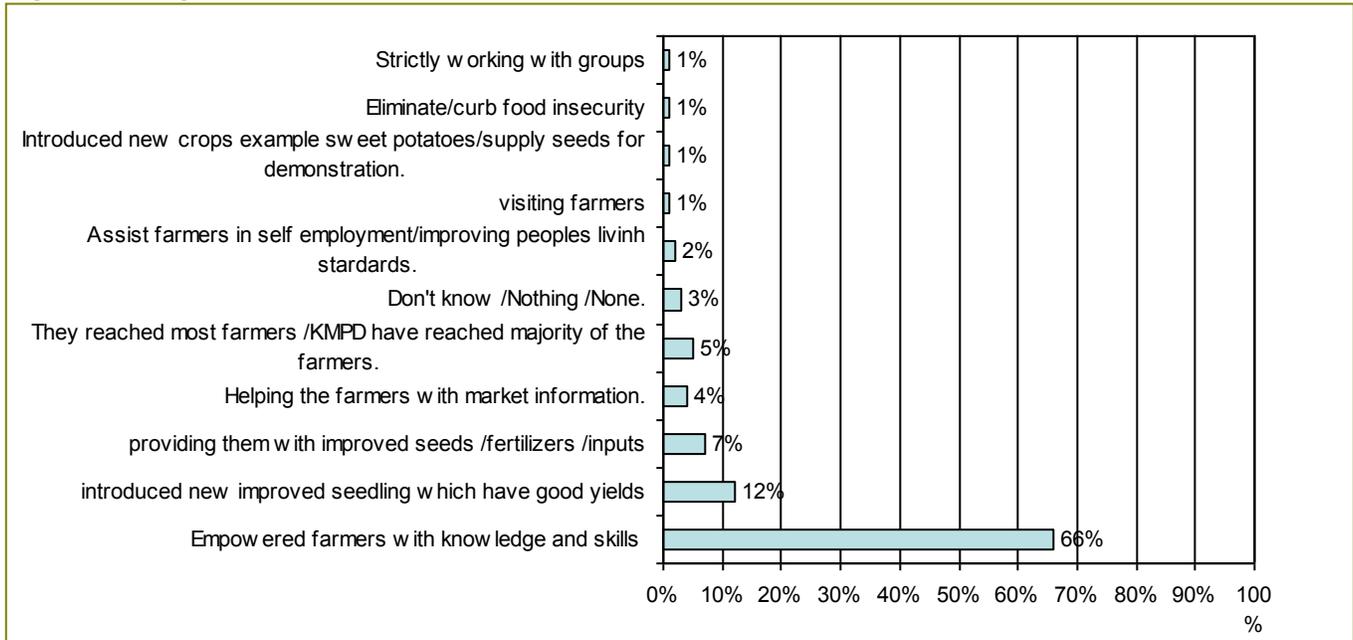
Beginning February 2011, ACDI/VOCA carried out Organisation Capacity Assessment Tests (OCATs) on target producer organisations. The aim was to assess the organizations’ business capacity and training needs. The OCATs benefited 242 producer groups between January and September 2011 with a total membership of 13201 members (5358 males and 7843 females). This was against a target of 60 groups. Of the 61 groups selected, the KMDP team visited 41 to present their findings. The groups were found to be weak particularly in financial management and record keeping, (ACDI/VOCA, 2011b). Workshops which aimed to address shortfall in leadership and management skills, record keeping and market share and to seek ways of ensuring the groups were self sustaining were held. A total of 14 training sessions were held by CGA; two targeting Trainer of Trainers and 12 grassroots level trainings benefiting 1,448 individuals benefited.

A group of 22 farmers from the North Rift visited their counterparts in Central Rift and Central Kenya in the first quarter of 2012. During these visits, they were able to see for themselves dairy farming on zero grazing and on very small land units. In 2012, the CGA led a group of farmers’ representatives at a meeting with the permanent secretary, Ministry of Agriculture on the challenges facing the agricultural sector. Among the issues touched on included government fertilizer subsidy, importation duty on maize and wheat, financing through credit guarantees and the 2012/2013 government budget estimates, (ACDI/VOCA, 2011a).

Successes of the KMDP II Programme

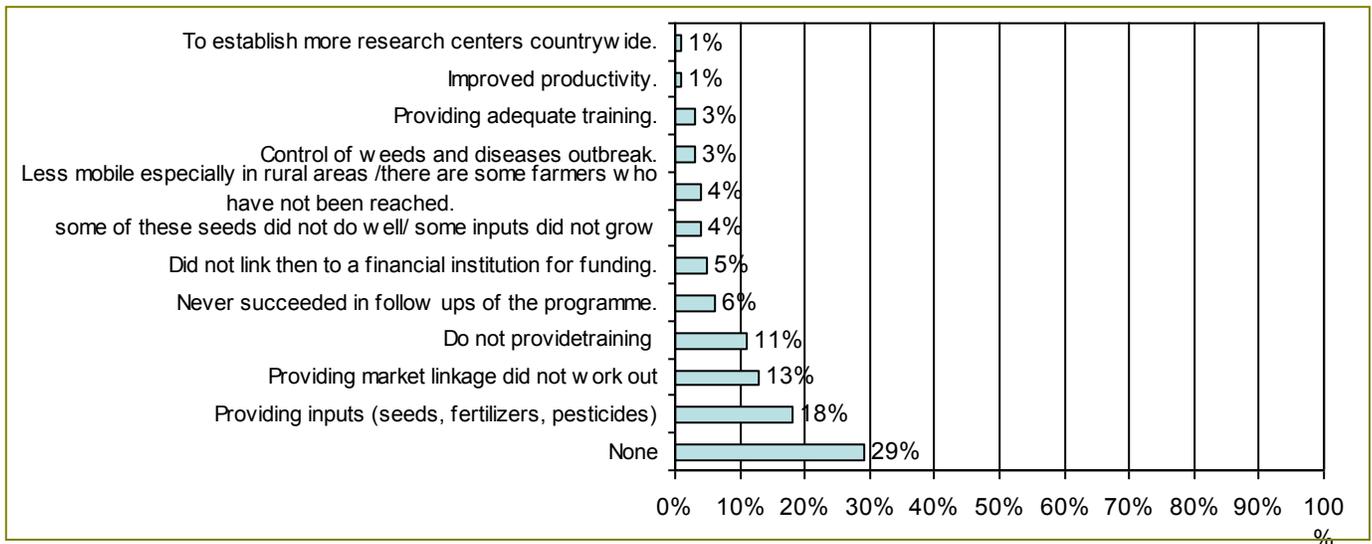
Farmers felt the main success of the programme was in imparting knowledge and skills (66%). Other successes included the introduction of improved seeds which provided good yields.

Figure 30: Programme Success-Farmers Perception



Areas where the programme did NOT succeed

Though 29% of the farmers were not aware of any areas which the programme had not succeeded in, 18% stated that the programme had not succeeded in providing farm inputs, providing market linkages (13%) and in providing training (11%) amongst others as shown in the figure below.



CHAPTER 4: CONCLUSIONS & RECOMMENDATIONS

4.0 CHAPTER FOUR: CONCLUSIONS & RECOMMENDATIONS

Overall the project was able to meet most of its objectives as set out in the indicators with the exception of the volume and value (falling short of 55.2%) and number of organizations accessing BDS (achieving 47%).

Adoption of production technology was high. The level of interest by farmers in this technology was also very high as well as the intention to use this technology in future. Farmers however were pessimistic on the use of foliar fee, herbicides and NPK fertilizer as they felt they were too expensive and not necessary.

Marketing technology introduced for the farmers was not readily accessible to farmers who also had little knowledge in it leading to low adoption and low future intention use.

Despite knowledge gained in proper harvest storage, farmers did not readily adopt new storage methods due to security fears.

The use of different approaches in the programme increased the efficiency of the project. The use of VBAs/promoters/TOTs and linkages established during the project with various sector players created a sustainability element within the programme as these persons would act as resource agents in the villages even after the end of the programme.

The different partnerships (both formal and informal) established during the programme implementation had also extended to partnerships between the private sector and the farmers. The interaction had created awareness to the farmer on where they could obtain information as well as inputs. The process had also created demand for products and services offered by the private partners. These linkages increased the sustainability element of the programme.

The intended programme implementation design was not fully followed leading to fragmentation of the intended value chain activities. This meant that the programme benefits were not uniformly received by the farmers as intended thus some farmers did not benefit from the entire value chain. The fragmentation also created communication challenges.

RECOMMENDATIONS

1. Future programmes should follow the original design as much as possible in order to achieve intended benefits
2. Extensive consultations should be carried out between implementing partners before the onset of project activities to ensure collaboration in all programme activities. This would entail synergised planning and communication between project partners and their staff and would ensure that the project design phase takes into account the strengths and weaknesses of each partner and creates synergies where need be for the success of the programme

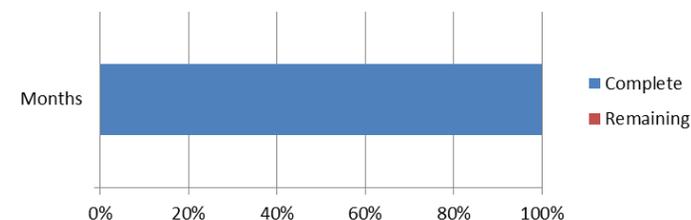
KENYA MAIZE DEVELOPMENT PROGRAMME II: PERFORMANCE EVALUATION

3. Budgetary needs and timely releases should be considered and effected to meet both the farmers and partners needs
4. There is need to review technologies introduced to farmers. Consultations should be held with project beneficiaries to understand which technologies would be suitable. This also follows for any intended technology including storage methods
5. Communication was mentioned as a weakness during the project implementation, effective channels of communication should thus be considered during programme design
6. Farmers cited follow-up as one of the areas requiring improvement. Mechanisms should therefore be placed in future to ensure there is easy and continuous follow up on the project beneficiaries. This would ensure increase in knowledge and high adoption rates.
7. Improvements in increasing the effectiveness of multiple value chains can be achieved through incorporating all value chain crops especially in all value chain activities by partners, a clear focus by all partners in the value chains intended for the project to avoid deviations and thus maximum input into the value chains and through proper follow up from the onset to ensure this is incorporated in quarter plans

Annex II: KMDP II Abbreviated PMP

Kenya Maize Development Program Follow on

Data Reporting Period:	Cumulative
Project duration:	Dec 2010 – Sep 2012
Percent within annual target (5% below target or above):	63%
Percent below annual target (5-19% below target):	16%
Percent significantly below annual target (>20%):	21%
Indicators with missing values:	14%
Indicators with gender disaggregates:	0 of 22



Achievement of reach/beneficiary targets

Annual (FY 2012):

- **341%** of Annual Household Target Met (Actual: 23,177 Goal: 6,799)
 - To date we have no data reported by region
 - To date we have no data reported by farming type
 - To date we no gender disaggregated data reported
- Annual Individual Farmers Target Met (N/A)
- Women's Organizations Assisted Target (Actual: 0 Goal: 0)

Cumulative

- **182%** of Cumulative Beneficiary Household Target currently met as of 100% of project timeline completed (Actual: 36,378 Goal: 19,901)
- Cumulative Beneficiary Individuals Target currently met as of 100% of project timeline completed (N/A)

Increase rural household incomes under USAID Strategic Objective 7

Name	Type	Goal	Actual Value	Performance
(IM1) % change in household income	Indicator	24%	22.8%	
(IM2) Average HH dietary diversity score	Indicator			
(IM3) Change in average score on Household Hunger index	Indicator			
(OP1) # of rural households benefiting directly from USG interventions	Indicator	19,901	19,600	

IR 1: Increased productivity of staples crops in target areas

Name	Type	Goal	Actual Value	Performance
(OC1) Percent change in production per unit area	Indicator	6.18%	5.48%	
(OC2) Gross margin per unit of land of selected products	Indicator	701	650	
(OC3) # of farmers who have applied new technologies or management practices as a result of USG assistance	Indicator	19,800	19,600	
(OP2) # of individuals who have received USG supported short-term agricultural sector productivity or food security training	Indicator	21,038	23,177	
(OP3) # of technologies or management made available as a result of a result of USG assistance	Indicator	5	6	

IR 2: Increased trade and market access



Name	Type	Goal	Actual Value	Performance
(OC7) Value of incremental sales (collected at farm/firm level) attributed to FtF implementation	Indicator	5,055,556	5,170,846	
(OC8) Volume of targeted agricultural commodities traded from project beneficiaries	Indicator	22,500	12,637	
(OC9) Post harvest losses as a % of overall harvest	Indicator	14%	15%	
(OP4) # of market information systems developed and made available to users	Indicator	2	1	
(OP5) # of users accessing market information system	Indicator	41,200	32,607	

IR 3: Increased access to business development services



Name	Type	Goal	Actual Value	Performance
(OP6) # of public -private partnership formed as a result of USG assistance	Indicator	5	4	
(OP7) # of MSMEs receiving business development services from USG assisted sources	Indicator	50	242	
(OP8) Total number of business service providers participating in the BDS program target areas	Indicator	100	100	

IR 4: Increased effectiveness of farmer organizations



Name	Type	Goal	Actual Value	Performance
(OC11) OCAT Score	Indicator	60%	50%	
(OP9) # of producer organizations, water user's associations, trade and business associations and CBOs receiving USG assistance	Indicator	60	231	
(OP10) # of women's organizations/ associations that received USG assistance in this reporting year	Indicator	5	21	
(OP11) #of youth's organizations / associations that received USG assistance in this reporting year	Indicator	5	9	
(OP12) # of members of producer organizations and community based organizations(CBOs) receiving USG assistance	Indicator	20,000	23,177	

Annex III: Gender Report and Action Plan



KENYA MAIZE DEVELOPMENT PROGRAMME PHASE 2

RAPID GENDER ASSESSMENT REPORT AND ACTION PLAN

Charity Kabutha
Gender Consultant

AUGUST 2011

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Abbreviations

ACDI/VOCA	Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance
CGA	Cereal Growers Association
EAGC	East Africa Grain Council
FaaFB	Farming as a Family Business
FIPS	Farm Input Promotions Africa Limited
KACE	Kenya Agricultural Commodity Exchange
KMDP	Kenya Maize Development Program
NCPB	National Cereals and Produce Board
PMP	Performance Monitoring Plan
SO 7	Strategic Objective 7
USAID	United States Agency for International Development

Gender Concepts

Gender	The socially constructed roles and responsibilities assigned to men and women in a given culture, location and societal structures that support it. Gender is culture specific, learned, dynamic and changes over time.
Gender Relations	Gender relations refer to a complex system of personal and social relations of domination and power through which women and men are socially created and maintained. The relations determine access to power and material resources or allocated status within society.
Gender Analysis	The systematic gathering and examination of information on gender differences and social relations, in households and organizations in order to identify, understand and redress inequities based on gender.
Gender Issues/Concerns	Specific inequalities between men and women associated with their defined roles and positioning in society.
Gender Mainstreaming	A development strategy which ensures that needs, <i>entitlements and experiences of men and women</i> are taken into account in every project, program and within institutions. It is a strategy for making the concerns and experiences of women as well as men an integral part of the design, implementation, monitoring and evaluation of policies and programs in all political, economic and societal spheres. This ensures that women and men benefit equally,

and inequality is not perpetuated. The ultimate goal of mainstreaming is to achieve gender equality.

Gender Equity

Is about fairness and justice, about people receiving their worth in terms of input and contribution. Equity measures, such as the affirmative action are used to correct historical imbalances in development.

Empowerment

The ability of women and men to control their destinies. Both are equipped for life and are able to make their respective choices without hindrances.

EXECUTIVE SUMMARY

ACDI/VOCA and its consortium; the Cereal Growers Association (CGA), the Farm Inputs Promotions Africa (FIPS), the Kenya Agricultural Commodity Exchange (KACE) and incorporating the Eastern Africa Grain Council (EAGC) implemented the Kenya Maize Development Programme (KMDP) between 2002-2010, funded by the United States Agency for International Development (USAID). The team has now been awarded an 18-month follow-on grant by the same agency to implement a second phase of the same programme (KMDPII). For both programs, the objective is to contribute towards USAID/Kenya's Strategic Objective 7: *Increased Rural Household Incomes through sustained economic growth* derived from improved production and marketing efficiency in maize and other selected alternative staple crops among small holder farmers. The program's geographical focus is the high/mid potential areas in Kenya's Rift Valley (Uasin Gishu, Trans Nzoia, Nakuru, and Bomet), medium potential productivity areas (Bungoma, Kakamega-Lugari), marginal potential areas in Eastern Kenya (Machakos, Makueni counties) and Nyanza Province (Siaya and parts of Kisii). The target crops are maize, beans, green grams, cow peas, pigeon peas, sorghum, sweet potatoes and Irish potatoes. Under this new program, integration of gender and youth has been explicitly emphasized and this Rapid Gender Assessment and resulting Gender Integration Action Plan, are meant to inform the integration in the entire "Follow-on Program Monitoring and Evaluation Design and Management Plan of the ACDI/VOCA Kenya Maize Development Program".

The gender assessment was undertaken between 24th March 2011 through to 10th April 2011. It combined both qualitative and quantitative assessments, covering Uasin Gishu, Trans Nzoia, Bungoma, Siaya, Makueni, and Nakuru/Nyandarua counties/districts. The household baseline survey, which used a comprehensively engendered questionnaire, was undertaken in 244 households while the qualitative assessment was based on six focus discussion discussions with six groups in six counties. This report utilized the two information sources.

FINDINGS

1. The main primary occupation for majority of household members was farming (44.2%). Under farming, female-headed households had the highest proportion of their members involved in farming (47.9%) compared to their male counterparts (40.9%). It also emerged that majority of household members not involved in farming were students (40%). The much higher dependency of female-headed households on farming was because of their much narrower range of income sources, compared to male-headed households.
2. Household headship in the study area was predominantly male (79.5%). Female-headed headship, comprising of 20.5%, was associated with widowhood, divorce or the never married women who had land that provided them with an assured source of livelihood.
3. Women and men were found to be major actors in farming, contributing to different roles in production, storage and marketing. From the household survey, 74% of women and 66% of men were in groups. All the KMDP producer groups had a total membership of 6778 members, and of these 4531, were women constituting 66.85%.
4. All the regions, albeit much less in Makueni district, had strong cultural attitudes and practices which discriminated against women in a range of areas critical to farming and livelihoods, including access to resources, benefits and overall decision-making. Recognizing this, the ACDI/VOCA consortium very early developed a manual on "Farming as a Business" (FaaB) to address these social constraints and thus improve equity and later developed into "Farming as a Family Business" (FaaFB) after a gender assessment in 2004. To work effectively, the FaaFB model would mean family members plan, train and work together and eventually equitably share the resulting benefits. This argument is based on the knowledge that, intra-

household communication is known to be poor, where knowledge and skills gained by a member of a household are not widely shared with other members. Since training data reveals limited joint training for husband and wife (6.7%), wife and husband alone at 47.9% and 38.9% respectively and only 4.9% of female heads of households, this is an area that requires attention. One strategy to consider is to train together a minimum of two members of a household who have decision-making powers. This way, FaaFB has greater chance of success.

5. Female-headed households, more than their male counterparts, were more constrained with regard to access to and control over factors of production, such as land, finance and farm inputs. These households had smaller parcels of land and less disposable income, resulting in lower farm input use and consequent low yields. As an illustration, in maize production, female-headed households spent KES 21,753 compared to KES 71,514 per acre in male-headed households. Consequent yields for major crops like maize were 1,162 kg per acre in male-headed households compared to 968 kg per acre in female-headed households.
6. Female-headed households were much poorer than their male counterparts, with a mean income of KES 31,604 compared to KES 107,955 in male-headed households, amounting to over three times that in female-headed households.
7. Women had extremely heavy workloads, often reaching 18 hours per day compared to 6-11 hours for men. Because heavy workloads often introduce inefficiencies and reduce effectiveness in farming operations, this inequality might also have contributed to reduced yields in female-headed households.
8. Women in male-headed households had limited decision-making power despite their very significant contribution to farming activities. Since current global evidence shows that when those who work are not adequately compensated for their

input they reduce their subsequent contribution, this might be a factor holding back productivity in male-headed households.

9. Full integration of gender in the Performance Monitoring Plan (PMP) is critical to full integration of gender in the entire programme. Currently, gender integration is very minimal in the PMP. A number of areas that need to be further developed include full integration of gender in the actual Indicators, data collection instruments and adoption of a gender sensitive project development cycle that will ensure that gender is integrated in the baselines, project design, particularly the objectives, outputs and outcomes, implementation and monitoring and overall reporting
10. Organizations that form the ACIDI/VOCA consortium hold the key to full integration of gender in the entire programme through transformation of cultural attitudes and practices in organizations and households they work with. To effectively do this, they need the commitment, capacity, resources and mechanisms to address gender-based constraints. However, the current status of respective institutional preparedness to take on this responsibility is currently not fully understood as no institutional gender assessment was undertaken during this exercise.

RECOMMENDATIONS

1. For the KMDP II to effectively address gender inequalities and constraints identified through this gender assessment, the ACIDI/VOCA consortium needs to develop targeted gender integration mechanisms, systems and adequate gender capacity. To build this foundation, the study recommends a quick institutional gender assessment of the consortium members to establish capacity needs as a basis for capacity building. Building gender awareness and appreciation will need to cover all levels, top management, technical levels, producer organizations and the wider community. This way, attitudes and practices will begin to change.

2. Transforming social attitudes and practices that foment and sustain gender inequalities needs to be a priority for this programme. It is proposed that this be done through training sessions that bring families together, not women and men separately. To scale-up the effort, local level teams of gender trainers could be developed, ensuring participation of men who need to understand and support the effort. Men hold the key to social change as they command resources and make most family decisions. The FaaFB manual being a key resource for this purpose.
3. Women form a significant majority of members in producer organizations. What was however not captured is their effective representation in these organizations and how as a majority they have been able to influence the direction and agenda of these organizations. It is therefore recommended that data on male-female representation and leadership capacity needs be established and supported to ensure equity in participation. Producer organizations could also be used as basis for information sharing on some of the new rights in the new Kenya Constitution.
4. Some limited work on integration of gender into the Performance Monitoring Plan (PMP) is evident but this is clearly insufficient. This study recommends that all partners get involved in the gender integration exercise. To be effective, the exercise should be preceded by a gender training of staff from these organizations who then review the PMP, identify gaps and fill in the gaps. It is important that this be seen as a continuing exercise as new insights emerge due to improved skills.
5. To scale up gender mainstreaming in programme regions, it is recommended that some forms of sharing and learning forums be developed and supported. This might mean some selected study tours or biennially meeting of producer groups from different regions to share how they have addressed gender constraints, sharing approaches and success stories. Success stories emerging from this approach would then be documented and widely shared.

6. Currently, the 20.5 percent female-headed households are holding agricultural productivity down. In order for them to adequately benefit from this programme and help the realization of Strategic Objective 7, some interventions that target this group might be necessary. Some of the areas that could initially be targeted include credit, post-harvest handling to reduce loss due to aflatoxin and pest infestation and special attention to women-managed crops such as sorghum and Irish potatoes in Siaya and Nakuru respectively.

INTEGRATED GENDER ACTION PLAN

Strategic Areas of Focus

1. Enhancement of institutional capacity, systems and commitment to gender integration in organizations and programming.
2. Building institutional gender capacity necessary to transform social attitudes and practices that sustain gender inequalities in families and institutions.
3. Transformation of local social attitudes and practices which perpetuate gender-based discrimination. Gender awareness for household members, using the FaaFB manual, is one of the recommended strategies.
4. Comprehensive integration of gender into the Performance Monitoring Plan and programming.
5. Development of local level sharing forums to help communities learn and benefit from progress and success of others.

CHAPTER 1: INTRODUCTION

1.1 Background

ACDI/VOCA and its consortium; the Cereal Growers Association (CGA), the Farm Inputs Promotions Africa (FIPS), the Kenya Agricultural Commodity Exchange (KACE) and incorporating the Eastern Africa Grain Council (EAGC), have been awarded an 18-month follow-on grant by the United States Agency for International Development (USAID) to implement the Kenya Maize Development Programme II(KMDPII). The follow-on Programme, under the title “Monitoring and & Evaluation Design and Management Plan of the ACDI/VOCA Kenya Maize Development Program” is a follow-on initiative to KMDP I, implemented between 2002 to 2010. The programme’s objective is to contribute towards USAID/Kenya’s Strategic Objective 7: *Increased Rural Household Incomes through sustained economic growth*, gained from improved production and marketing efficiency in maize and other selected alternative staple crops among small holder farmers. The programme’s geographical focus is the high/mid potential areas in Kenya’s Rift Valley (Uasin Gishu, Trans Nzoia, Nakuru, and Bomet), medium potential productivity areas (Bungoma, Kakamega-Lugari), marginal potential areas in Eastern Kenya (Machakos, Makueni counties) and Nyanza Province (Siaya and parts of Kisii). The target crops are maize, beans, green grams, cow peas, pigeon peas, sweet potatoes and Irish potatoes.

Under this new programme, integration of gender and youth has been emphasized and this Rapid Gender Assessment is meant to inform development of a Gender Integration Action Plan (GIAP) to address gender-based concerns and constraints. The programme’s objectives are organized around four intermediate results (IR) of the SO7:

- IR 7.1. Increased productivity,
- IR 7.2. Increased trade and market access,
- IR 7.3. Increased access to business development services and,
- IR 7.4. Increased effectiveness of producer organizations.

The vision for the KMDP II programme is to increase incomes accruing to an additional 10,000 households producing and consuming not only maize but legumes, and tubers in selected geographical areas in Kenya. Underlying objectives relate to gender and youth mainstreaming along the value chains of target crops, and in addition, providing impetus for improved nutrition of the targeted households. Intensifying smallholder business engagement capacity is a key priority. Programme results are all directed towards this effort and deliverables are tied around the intermediate results as defined under the SO7 performance plan.

1.2 Purpose

The purpose of this assignment was twofold: (1) conduct a rapid gender analysis on which to base recommendations for specific activities and interventions for integrating gender into the KMDP II project and addressing gender-based constraints in the targeted value chains, and (2) train the KMDP II gender and youth development associate on how to conduct gender analysis/focus group discussions and how to develop, monitor and evaluate gender interventions.

1.3 Tasks and Activities

- Development of a qualitative gender assessment tool to help gather data on differences between men and women in terms of roles they play in the target staple value chains, decision making power, and control of resources.
- Gender awareness and gender analysis techniques training for the assessment team.
- Recommendations on how KMDP II will adequately address the differences between men and women in the programme planning, implementation, monitoring and evaluation, including strategies to ensure gender equity.

- Development of a measurable and actionable Gender Integration Action Plan (GIAP) based on the gender constraints, risks and opportunities identified in the gender analysis.
- Identification of indicators for monitoring the Gender Integration Action Plan and measuring impacts on women and gender dynamics.

1.4 **Outputs**

- A completed gender mainstreamed assessment tool
- A duly completed assessment of target regions and crops
- A completed report and gender action plan with indicators

CHAPTER 2: CONTEXT: WHY GENDER MATTERS

2.1 The Social Context

The social complexities found in households that provide labor and resources for agricultural production, processing and marketing are the basis for gender-based inequalities and constraints. Households are characterized by differing interests, preferences and power dynamics, all of which have significance in outcome of development investments. This new knowledge challenges the traditional view that households are homogeneous, with unitary decision-making arrangements which lead to pooling of resources and benefits that are easily accessible to all members of households. Culture, reflected in attitudes and practices, anchor and perpetuate major gender inequalities in households and organizations and programmes have to address this to ensure that all family members participate and benefit from the resulting outcomes.

2.2 Empirical evidence

Micro-economic empirical evidence and emerging macroeconomic analysis show that **gender inequality directly and indirectly limits economic growth** in Africa. Consequently, reducing gender-inequality in access to and control of key productive resources necessary for growth is a concrete means of accelerating and diversifying growth, making growth more sustainable, and ensuring that the poor both contribute to, and benefit from, that growth, i.e., that growth is “pro-poor.” Growing evidence now supports this finding.

The 1998, the World Bank’s Special Program of Assistance for Africa (SPA) Status Report on Poverty in Sub-Saharan Africa (SSA) examined whether gender-based asset inequality limits economic growth in SSA (Blackden and Bhanu 1999). It compiled micro-level case studies addressing gender inequality in access to agricultural resources and productive inputs and the impact on productivity and growth. The report argued that gender

differences in access to assets limit the options of women farmers in the sector; that gender differences in labor remuneration lead to conflict and affect labor allocation at the household level; and that gender differences in labor and other factors of productivity limit economic efficiency and output. The huge results demonstrated the huge economic value of reducing gender inequalities as demonstrated here.

Gender and Growth: Missed Potential

Burkina Faso: Shifting existing resources between men's and women's plots within the same household could increase output by 10-20 percent.

Kenya: Giving women farmers the same level of agricultural inputs and education as men could increase yields obtained by women by more than 20 percent.

Tanzania. Reducing time burdens of women could increase household cash incomes for smallholder coffee and banana growers by 10 percent, labor productivity by 15 percent and capital productivity by 44 percent.

Zambia. If women enjoyed the same overall level of capital investment in agricultural inputs, including land, as their male counterparts, output in Zambia could increase by up to 15 percent.

Source: Various, in Blackden and Bhanu, 1999.

Similarly, comparative evidence from Kenya and elsewhere suggests that men's gross value of output per hectare is 8 percent higher than that of women. However, if women had the same human capital endowments and used the same amounts of factors of production and inputs as men, the value of their output would **increase by an estimated 22 percent**. They argue that if these results held true in the Sub-Saharan Africa (SSA) as a whole, simply raising the productivity of women to the same level as men could increase total production by 10 to 15 percent (Saito et al. 1994).

Most recently, the United Nations Food and Agriculture Organization (FAO), in its 2010-2011 State of Food and Agriculture report, identifies gender as one of the major factors holding back agricultural productivity and perpetuating poverty and hunger in

many regions, particularly the Sub-Saharan Africa¹. The report acknowledges that women are farmers, workers and entrepreneurs, but almost everywhere, they face more severe constraints than men in accessing productive resources, markets and services. The report argues that this “gender gap” hinders their productivity and reduces their contribution to the agriculture sector and to the achievement of broader economic and social development goals. It shows that women lack the resources and opportunities they need to make the most productive use of their time and that closing the gender gap in agriculture would produce significant gains for society, through increased agricultural productivity, reducing poverty and hunger and promoting economic growth.

2.3 Kenya’s Gender Mainstreaming Environment

Kenya has, through policies and strategic affirmative actions, established an environment that supports gender responsive development. This is reflected in its compliance with international and regional gender equality conventions and instruments and establishment of national policies and structures that support gender mainstreaming. The country has a functional gender and development policy, and appropriate gender mainstreaming mechanisms and structures that fully support all relevant efforts. To institutionalize this further, Kenya’s new Constitution (2010) has included a strong Bill of Rights to sustainably anchor the commitment (Annex 2).

¹FAO. 2010-2011. The State of Food and Agriculture. Women in Agriculture: Closing the Gender Gap for Development.

CHAPTER 3: GENDER ASSESSMENT METHODOLOGY

This gender assessment adopted two approaches; (1) a qualitative gender assessment that consulted with six Focus Group Discussions (FGDs) spread through six counties/districts that included Uasin Gishu, Trans Nzoia, Bungoma, Makueni, Siaya and Nyandarua, and (2) a household baseline survey covering 244 households, out of which 79.5% were male-headed and 20.5 % female-headed. The six Focus Group Discussions worked with mixed groups of 121 farmers, comprising 63 women and 58 men. Group sizes varied from 40 in Bungoma to 9 in Trans Nzoia counties. The two sources complimented each other while providing a basis for validation.

The quantitative household questionnaire gathered data on respondent characteristics (sex, age, education etc); roles of men and women along the value chains of target crops; gender inequalities and constraints in areas of access to and control over factors of production (land, credit, training, incomes, access to training and Business Development Services) decision-making; household incomes and membership in producer organizations.

The qualitative assessment tool gathered fairly similar data sets, including roles of men and women in agricultural crops in general and maize in particular; effects of commercialization of crops on men and women's access and control, ownership and decision-making, access to and control over factors of production and benefits and overall participation in producer organizations. This coverage is summarized in Tables 1 and 2.

Table 1: Focus Group Discussions Sample

County	District	Division	Location	Village	Total	Participants-mixed Groups	
						Male	Female
Uasin Gishu	Uasin Gishu	Kesses	Cheptiret	Nandet	10	2	8
Trans Nzoia	Cherangany	Cherangany	Kachibora	Seum	9	4	5
Bungoma	Bungoma West	Namwela	Namwela	Namwela	40	25	15
Siaya	Siaya	Ugunja	East Uholo	Bar Atheng Runjra	18	7	11
Makueni	Nziu		Kithumba	Kwambiti	11	7	4
Nyandarua	Mirangine	Ngorika	Nyaituga	Nyaituga	33	13	20
Total					121	58	63 (52.07%)

Table 2: Household Survey: Distribution of households by district and sex of head

District	Male			Female			District total		
	No.	of	%	No.	of	%	No.	of	%
	households			households			households		
Bungoma West	31		77.5	9		22.5	40		100.0
Makueni	34		94.4	2		5.6	36		100.0
Nakuru	35		81.4	8		18.6	43		100.0
Trans Nzoia East	31		72.1	12		27.9	43		100.0
Uasin Gishu	32		80.0	8		20.0	40		100.0
Siaya	31		73.8	11		26.2	42		100.0
Overall sample	194		79.5	50		20.5	244		100.0

CHAPTER 4: FINDINGS

The results of this gender assessment highlight gender inequalities and constraints in men and women's roles along the value chains of target crops; access to and control over factors of production and benefits, decision-making and participation in relevant structures and institutions. The target crops were maize, beans, green grams, cow peas, sorghum, pigeon peas, sweet potatoes and Irish potatoes. These results were derived from both a household survey and a qualitative assessment that used Focus Group Discussions (FGDs). The study areas were Uasin Gishu, Trans Nzoia, Bungoma, Makueni, Siaya, Nakuru and Nyandarua districts/counties.

4.1 Importance of Agriculture in the Study Areas

Farming emerged as the primary occupation and source of livelihood for a large proportion of households covered by the study (44.2%), and was of greater significance in female-headed households (47.9%), compared to their male counterparts (40.6%). The highest proportions of female-headed households with agriculture as core business were found in Makueni (58.4%) and Trans Nzoia (53.1%) districts. Other household income sources included regular employment/salaried at 16.9% in male-headed households compared to only 6.4% in female-headed households. Self employment/business was an important source of livelihood, contributing 16.6% and 10.1% in male and female-headed households respectively. On the whole, women had a much narrower range of income sources compared to men.

4.2 Time use in Farming Activities by men and women

Women had longer working hours than men, in fact more than double in most areas; with a range of 15-18 hours for women and 6-8.5 hours for men. While a large part of women's time was used on domestic/reproductive roles which help to keep households running, a substantial amount was spent on productive activities, including farming, small businesses and casual work.

4.3 Differences in Male and Female Roles in Target Crop Value Chains

Within households, men, women and workers made the greatest contribution to smallholder farming activities. The youth, both male and female had very limited input, in large part because a significant proportion was inschool (41.6% and 40.1% respectively).Variation in roles along the value chain was noted. Men were most involved in buying fertilizer (54.4%), harrowing (50.4%), spraying (48.3%) and buying seed (45.0%). Women also purchased seed and fertilizer (37.6% and 29.4% respectively), they also participated in top dressing (10.9%). Some of the distinct roles for women included threshing (25.9%), shelling (22.5%), harvesting (19.7%) and storage (30.0%).

In regions where agriculture was undertaken as a business, farm workersplayed key roles in soil conservation (32.9%), spraying (19.6%), shelling (22.5%), threshing (15.4%), ploughing (18.4%) and weeding (15%).Their contribution in ploughing was notably high in Trans Nzoia (32.2%), Uasin Gishu (26.2%),and Bungoma West (21.0%) as well as in Siaya (28.4%) despite the fact that agriculture is more traditional.In addition, theworkers made significant contribution in soil conservation in Trans Nzoia (70%), Siaya (60%), Bungoma West (53.8%) and Uasin Gishu (45.5%). Contribution by the youth was low across the board. In ploughing in Trans Nzoia, Uasin Gishu and Siaya, they contributed only 2.6%, 3.1%, and 2.5% respectively. In soil conservation in Bungoma West and Makueni, their input amounted to 7.7%, and 3.7% respectively. Details of levels of this contribution aresummarized in Table 3.

Table 3: Roles of Household Members (%) in Farm Activities

Activity	Labor Distribution								
	<i>M</i>	<i>F</i>	<i>M&F</i>	<i>MY</i>	<i>FY</i>	<i>Household</i>	<i>Worker</i>	<i>M& worker</i>	<i>Female & Worker</i>
Ploughing	23.6	21.4	17.3	1.1		13.7	18.4	3.0	1.5
Harrowing	50.4	10.2	7.1	1.6		9.4	18.9	0.8	1.6
Buying seed	45.0	37.6	12.5	1.5	0.4	2.8		0.2	
Buying fertilizer	54.4	29.4	13.3	0.4	0.4	1.1	0.6	0.2	
Planting	7.9	21.6	21.4	0.2	0.2	31.4	12.4	2.3	2.6
Weeding	3.6	19.0	22.4	0.2		33.1	15.7	2.3	3.6
Top dressing ²	19.3	10.9	19.3			34.4	10.5	1.8	3.9
Spraying	48.3	12.6	5.7	4.3	0.9	5.7	19.6	2.2	0.9
Soil conservation	38.2	9.2	9.2	2.6		7.2	32.9	0.7	
Harvesting	2.3	19.7	20.1	0.4		35.3	16.5	2.8	2.8
Threshing	4.6	25.9	19.7			28.3	15.4	3.8	2.4
Shelling	10.5	22.5	14.7	0.4		20.5	22.5	7.4	1.6
Storage	8.0	30.0	23.7			21.9	12.4	2.1	1.9

Gender Roles in Maize Production

Maize was an important crop in all the study regions, hence its attention in the Focus Group Discussions (FGDs). Discussions revealed that where crops were produced mainly for sale, men took greater attention but with support from women. In crops of interest to men, production was characterized by overall higher production costs and high productivity as in Trans Nzoia, Uasin Gishu and Bungoma West. Where maize was produced for food such as in Makueni and Siaya districts, men had limited

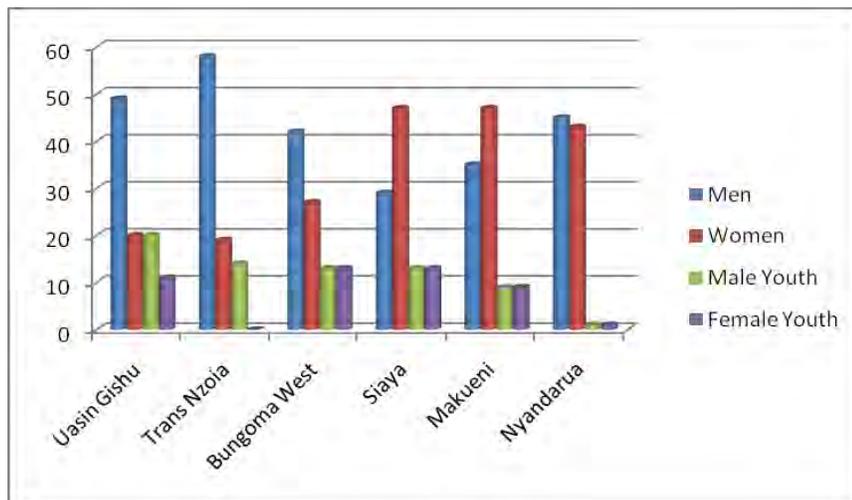
² Top Dressing is application of a layer of fertilizer spread on the soil without being ploughed in

involvement. In Nyandarua both men and women were quite involved in production of maize as illustrated in Table 4.

Table 4: Levels of involvement of Household members in Maize Production (Scores)

District	Men	Women	Male Youth	Female Youth	Total
Uasin Gishu	49 (49%)	20 (20%)	20	11	100
Trans Nzoia	58 (63.7%)	19 (20.88%)	14	0	91
Bungoma West	42	27	13	13	95
Siaya	29	47 (46%)	13	13	102
Makueni	35	47 (47%)	9	9	100
Nyandarua	45	43	1	1	90
Total score	258 (44.64%)	203 (35.1%)	70 (12.1%)	47 (8.1%)	578

Source: Focus Group Discussions



4.3.1 Ploughing

This was a shared role between men, women, household members and workers. Labor contribution by men and women was fairly equal, at 23.6% and 21.3% respectively. There were however notable regional and crop-specific differentials, variations largely explained by the purpose for which the crop was being produced. Where the crops were produced for food, women were more involved than men while where the same crops produced for sale, they became a preserve for men. For maize, men played significant roles in Uasin Gishu (40%), Trans Nzoia (39%) and Bungoma West (30.9%) and were more involved in Makueni (34.5%), Nakuru (23.3%) and Siaya (28.4%) where the same crop was produced mainly for food.

4.3.2 Harrowing

In all the regions, harrowing was distinctly a male responsibility (50.4%), with women playing a more supportive role (10.2%). In Makueni, Nakuru, Uasin Gishu and Trans Nzoia, men took responsibility for 76.5%, 72.7%, 48.9% and 47.6% of the work respectively. Only in Bungoma West were women a lot more involved in harrowing (21.1%).

4.3.3 Buying Seed

Both men and women were involved in buying of seeds but men played a much bigger role (45%) compared to women (37.6%). Men's role in this activity was highest in Uasin Gishu (61.5%), Bungoma West (54.4%) and Nakuru (50%) where the crops are mainly for sale. The role was more shared in Makueni and Trans Nzoia districts. Only in Siaya did women play a much higher role (51.9%) compared to men (33.3%).

4.3.4 Buying Fertilizer

Overall, men took a much bigger role in buying of fertilizer (54.4%) compared to women (29.4%). Regional variations reflected more than average involvement of men in Bungoma West (63.5%), Uasin Gishu (60.3%), Nakuru (59.1%) and Makueni

(56.8%). Involvement of women was more significant in Siaya (36.2%) and Trans Nzoia (34.7%) compared to other districts.

4.3.5 Planting

Planting emerged as largely a female responsibility although other family members and workers provided some support. Women were responsible for 21.6%, compared to only 7.9% for men. Highest contribution by women was in Makueni (36.8%) and lowest in Bungoma West (5%).

4.3.6 Weeding

Women and farm workers, male and female combined, made the greatest contribution to weeding at 19% and 17% respectively. Participation of men in weeding was quite minimal (3.6%). Combined, household members contributed 33.1% but with limited input from male youth (0.2%) and no participation from the female youth.

4.3.7 Top Dressing

Top dressing, which refers to application of a layer of fertilizer to growing crops spread on the soil without being ploughed in, was widely shared among household members and farm workers. Men, women and farm workers' contribution to top dressing was at 19.3% and 10.9% (10.5%) respectively. Contribution by entire households amounted to 34.4%.

4.3.8 Spraying

This was essentially a role for men (48.3%) and farm workers (19.6%) but with support from women (12.6%).

4.3.9 Soil Conservation

In soil conservation, men were found to play a much bigger role than women, contributing 38.2% compared to women (9.2%).

4.3.10 Threshing and Shelling

Compared to men, women played a much bigger role in threshing (25.9%) and shelling (22.5%), with men contributing 4.6% and 10.5% respectively.

4.3.11 Storage and Post-Harvest Handling

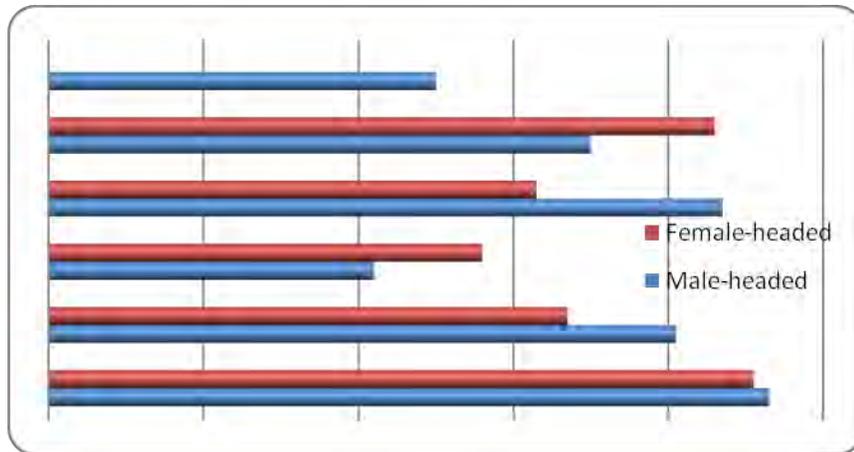
Storage and post-harvest handling is traditionally a women role and in the study areas, they contributed 30% of the work compared to men's contribution at 8%.

4.3.12 Marketing

In all the districts, the majority of male and female-headed households sold some of their farm produce (70%), with Trans Nzoia East recording the highest proportion of households selling produce (93%) and Siaya the lowest proportion (43%).

Table5: Proportion Selling Farm Produce from harvest of the last cropping year (Kg)

Region	Male-Headed		Female-Headed	
	N	%	N	%
Trans Nzoia	31	93	12	91
Bungoma West	31	81	9	67
Siaya	31	42	11	56
<u>Uasin Gishu</u>	32	87	8	63
Nakuru	35	70	8	86
Makueni	34	50	2	0
Overall Sample	194	70	50	70



a) Quantity sold

Maize, beans, sweet potatoes and Irish potatoes were the most traded commodities at following levels-2325kg, 490kg, 265kg and 2154kg respectively. On the whole, female-headed households sold much lower volumes than their male counterparts. For maize mean sales by men and women were 2601kg. and 1188kg respectively; beans 501 kg. and 444 kg respectively; and Irish potatoes 2630kg and 450kg respectively. The lower volumes sold by female-headed households largely reflected the lower volumes produced by this category of farmers.

b) Market Outlets

While proximity to the market and emergencies were a major reason for choice of market outlets by male and female-heads of households, the actual outlets chosen by men and women had notable differences. In non-emergency situations, male-headed households sold large proportions of their produce at the farm gate (48.1%), the village market (38.5%), to direct consumers (33.3%) and to small traders on foot or bicycle (28.6%). On their part, women in Nakuru sold to the National Cereals and Produce Board (100%) and in the other areas to small-traders (46.2%), large traders (33.3%), and the broker (37.5%) and at the farm-gate (27.3%). Despite varied market outlets, the reasons for choice of outlets remained same-proximity to the market.

In emergency situations, most male-headed households sold their produce to large millers (50%), brokers (47.8%) and institutions such as hospitals and schools (34.2%) while female-headed households sold to institutions, including schools and hospitals (75%), farm gate (45.5%) and the village market (33.3%). This is summarized in Table 6.

Table 6: Proportions Selling to Different Market Outlets

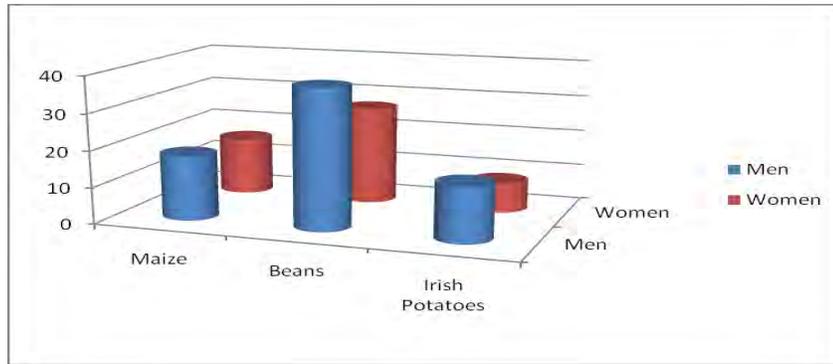
Market Outlet	Male	Female
Farm gate	48.1	27.3
Village market	38.5	0
Direct consumer	33.3	0
Small traders	28.6	46.2
NCPB (Nakuru)	0	100
Large traders	0	33.3
Brokers	0	37.5

C: Mean Prices Fetched by Male and Female Farmers: KES/Kg

Overall, men fetched much better prices than women as reflected in Table 7.

Table 7: Mean Prices for Men and Women Farmers

Crop	Mean KES/Kg	
	Men	Women
Maize	17.8	16.0
Beans	38.2	27.0
Irish Potatoes	15.2	8.3



Reasons for price differentials were not analyzed but one area that could have contributed to the lower prices fetched by women might have included the poor quality of their produce. Female-headed households were found to have experienced higher post-harvest crop loss (59%) compared to male-headed households (49%) and this could have affected the quality of the remaining produce. In Makueni and Siaya districts, post-harvest losses were associated with non-use of insecticides and aflotoxins respectively.

4.3.13 Participation in Producer Organizations

Men and women were members of producer organizations but with higher representation of women; with women representation making 74% against 66%. Overall, Bungoma West had the highest level of participation (85%) while Makueni recorded the lowest (31%). With the exception of Trans Nzoia, women formed the majority of members. The study however did not gather data on representation and participation in the leadership of the organizations, an area that needs to be addressed during the programme period.

Table8: Producer organization membership by sex of household head

District	Male	Female
Trans Nzoia	77	64
Bungoma	84	89
Siaya	55	67
Uasin Gishu	81	88
Nakuru	70	71
Makueni	30	50
Overall sample	66	74

Benefits from Group Membership for Men and Women

Some of the cited benefits of membership included training in commodity production (including appropriate inputs), market access, Business Development Advisory (BDA), training in new product development, financial support and post-harvest handling and grain care. Overall, participation of both male and female heads of households was fairly close, but with notable differences in specific areas, including financial support (male 56.8%, female 67.7%), market access (male 49.2%, female 35.5%), training in commodity production (male 67.8%, female 74.2%). Adoption of technologies by women as a result of these sets of training was much higher than that of men, at 86% against 82% in female and male-headed households respectively.

Despite their participation in these organizations and benefiting from a variety of services, female-headed households remained more economically deprived than their male counterparts, in large part because they started from a disadvantaged position with regard to limited access to land, finance and skills. This notwithstanding, results indicated that women had in fact benefited through loans, skills, market information, among others. On loans, a higher proportion of female household heads had received agricultural loans (male 56%, female 66%) and with amounts that were fairly comparable (men KES 70,824, women KES 68,000).

4.4 Gender Inequalities in Farming Households

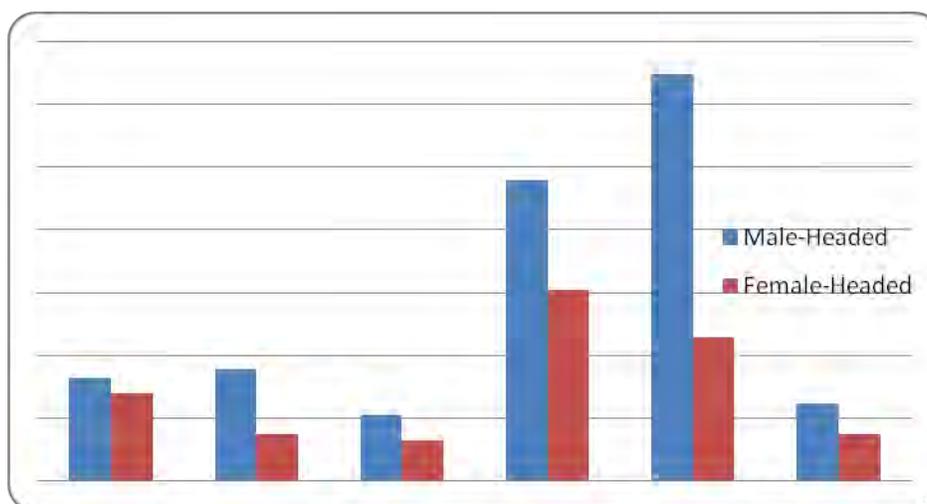
The gender assessment revealed fairly major gender inequalities between men and women and between male and female-headed households. These inequalities are explained by the patrilineal system which prevails in all the study regions. The system accords men and their sons' power over resources, benefits and overall decision-making. Because these cultural settings are not very significantly different between the study areas, visible differences in equity could in part be explained by differing levels of education, religion and external advocacy. The inequalities emerging from this study include differential workloads; access and control over factors of production, decision-making, participation in farmer groups, farming practices and overall socio-economic status. These are discussed in some detail below.

4.4.1 Women's unequal Access to and Control over Land

The overall mean land size in the study areas was 5.1 acres. There were however important differentials between male and female-headed households, with the mean for male and female-headed households standing at 5.6 acres and 3.3 acres respectively. For both male and female-headed households, land sizes were largest in Trans Nzoia and Uasin Gishu and lowest in Makueni and Siaya districts.

Table9: Mean land owned by sex of household head

District	Male-Headed	Female-Headed
Bungoma West	3.3	2.8
Makueni	3.6	1.5
Nakuru	2.1	1.3
Trans Nzoia	9.6	6.1
Uasin Gishu	13.0	4.6
Siaya	2.5	1.5
Overall sample	5.6	3.3



In male-headed households, men controlled land as socially expected, a practice that came out strongly through the Focus Group Discussions, revealing strong cultural attitudes and practices that greatly disadvantage women and girls. In fact, the very idea of women and girls inheriting land, with exception of areas such as Nyandarua and Siaya, was widely frowned upon and in total disregard of Kenya's new Constitution whose Bill of Rights accords men and women equal rights. The departure was however noted in households headed by women as take charge of family resources and assets.

Land-related attitudes and practices generated through these discussions are summarized in Table 10.

Table 10: Women and Land Ownership-Socio Cultural Environment

County/District	Land-inheritance: Attitudes and Practices
Uasin Gishu	<ul style="list-style-type: none"> • In male-headed households, men decide who inherits • Girls can only inherit if not married, but even then, they would only hold a user right-not in their name • Girls who return home after divorce also get land to farm
Trans Nzoia	<ul style="list-style-type: none"> • Male children inherit land. If no son is born by the first wife, the

	<ul style="list-style-type: none"> man gets a second wife Because of a strong patriarchal culture, the idea of girls inheriting land is frowned upon, even by the youth
Bungoma West	<ul style="list-style-type: none"> Women inherit on death of a spouse Occasionally, an administrator is appointed to ensure that children are not disinherited
Siaya	<ul style="list-style-type: none"> In families without sons, girls can inherit In the event of divorce, the woman returns to her birth place and is taken care of by brothers
County/District	<ul style="list-style-type: none"> Land-inheritance: Attitudes and Practices
Makueni	<ul style="list-style-type: none"> Male children inherit but cannot sell family land Unmarried women inherit when the father dies The current Kenya Constitution which demands that sons and daughters be treated equally is not adhered to
Nyandarua	<ul style="list-style-type: none"> Man and wife decide on who will inherit Some families leave free small part of the land in case married girls return home on divorce Husband cannot sell land unless entire family is in agreement, an indication of a much higher level of awareness of rights as stipulated in Land Boards

4.4.2 Women's unequal Access to Finance

Finance is discussed here under two streams, (1) own income and (2) credit from formal institutions.

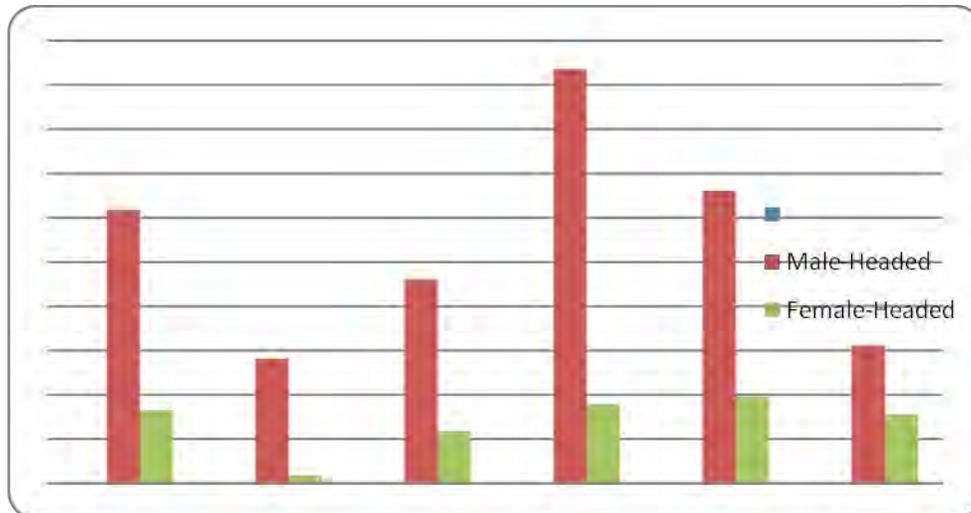
a) Own income

This was income from household sources rather than borrowed money. Average income for all study households was KES 92,000 during the previous one year. Regional differences were noted. Trans Nzoia had the highest household mean income (KES

144,945) while Makueni (KES 53,527) and Siaya (KES 54,219) had the lowest. Also noted was the huge disparity in incomes between male and female-headed households, with male heads commanding a mean of KES 107,955 against KES 31,604 for female heads. This shortfall was in part explained by low yields on women's plots, their relatively smaller plots of land, lower proportions in regular salaried jobs (6.4%) compared to men (16.9%), women's lower mean prices for sold farm produce and high post-harvest losses.

Table 11: Household mean income (KES) by gender of household head by district

	Male		Female		Total	
	N	Ksh	N	Ksh	N	Ksh
Bungoma West	31	123,670	9	33,122	40	103,297
Makueni	34	56,464	2	3,600	36	53,527
Nakuru	35	92,166	8	23,492	43	79,389
Trans Nzoia East	31	187,197	12	35,795	43	144,945
Uasin Gishu	32	132,110	8	39,188	40	113,526
Siaya	31	62,365	11	31,264	42	54,219
Overall sample	194	107,955	50	31,604	244	92,309



b) Credit

Access to agricultural loans in both male and female-headed households was low, at 21.1% and 18% respectively. Mean loans for male and female-headed households were fairly close, at KES 70,824 and KES 68,000 respectively. Of those who received loans, 54% were female and 46% male. Nakuru, Trans Nzoia and Uasin Gishu districts recorded highest number of beneficiaries in male and female-headed households, but only in Uasin Gishu district did female-headed households record higher access (37.5%) compared to 15.6% in male-headed households. In Bungoma West and Siaya, female-headed households received no agricultural credit. Also significant was the fact that most women accessed their loans from SACCOs while men obtained from Commercial Banks, in part because women lack collateral required by Commercial Banks which provide larger amounts, and for longer periods compared to SACCOs. Credit from SACCOs and Micro-Finance institutions has also been shown to be quite inefficient and costly because of time-consuming processes and procedures.

How Men and Women used Credit

Since productivity is linked to high level of inputs such as fertilizer and seeds, analysis of how families utilized credit was considered important. Results showed that although both male and female-headed households used part of the loans for non-farming

activities, a very significant proportion of families committed the finance to farm inputs in both male and female-headed households, 50% and 36.7% respectively. More female-headed households spent part of the credit to purchase agricultural tools (13.3%), purchase of other productive assets (6.7%), and payment for treatment (3.3%), starting business (6.7%) and loan repayment (3.3%). More male-headed households (7.7%) purchased livestock, compared to female-headed households (3.3%).

Table 12: Use of Credit in Male and Female-Headed Households

Purpose	% of borrowers	
	Male	Female
Purchase agricultural tools	3.8	13.3
Purchase agricultural inputs	50	36.7
Land purchase	3.8	3.3
Livestock purchase	7.7	3.3
Purchase of other productive assets	0.0	6.7
Pay for treatment/medicine	0.0	3.3
Loan repayment	0.0	3.3
Starting small business	3.8	6.7

4.4.3 Training Services

a) Technology-Based Training

Access and use of technology in agricultural production are essential for raising agricultural productivity and incomes. Overall participation by men and women in training both agricultural and natural resource management and Business Advisory Services was low. For example, only 47% of men and 46% of women took part in the agriculture and natural resources training. Business Advisory Services training benefited 37% and 41% of men and women respectively. Overall, highest levels of participation were in Bungoma West (68% men and 56% women) and Uasin Gishu (55% men and 88% women). In Makueni, participation by women stood at 50% against 33%

for men. Despite the rather low levels of participation, adoption levels by those who had benefited from training were exceptionally impressive, standing at 82% and 86% for men and women respectively. The message here was that access to information is critical to adoption of technologies and understanding why participation in training was low is critical to achievement of the Strategic Objective 7.

Table 13: Access to training and use of improved technologies

District	% received agricultural and natural resource management training			% adopted improved technologies or management practices due to training			% who received business advisory or financial services		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Trans Nzoia									
East	50	45	49	73	80	76	45	55	50
Bungoma									
West	68	56	65	86	100	88	45	56	48
Siaya	23	22	21	75	100	80	10	11	12
Uasin Gishu	55	88	63	89	86	89	48	63	53
Nakuru	52	14	44	82	100	84	55	29	49
Makueni	33	50	39	80		79	20		25
Overall sample	47	46	47	82	86³	84	37	41	40

b) Approach to Training on Farming as a Family Business

ACDI/VOCA, and in particular KMDP, recognizes the importance of addressing household level social attitudes and practices that undermine productivity and incomes. Development of the Farming as a Family Business (FaaFB) training manual was a

³ Statistical significance to be checked with the Data Analyst

response to this conviction. The training aims at addressing household level social relations through improvements in communication, collective decision-making, mobilization of family resources and effective and coordinated participation of family members. To be effective the training would have to include key members together, particularly spouses and children. However, a review of participation of family members in this training however revealed that only 5.5% of couples participated while 43.6% of men and 47.3% women attended training separately. . The youth were hardly involved, with only 1.8% of male youth having participated and no female youth.

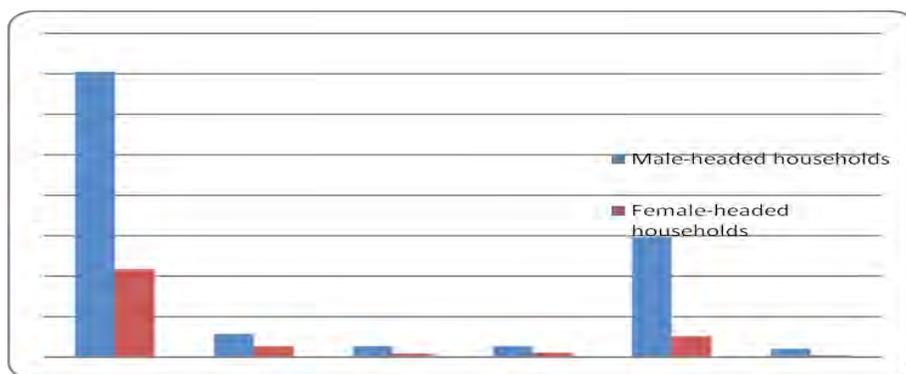
4.4.5 Women’s low investment in production inputs

As a consequence of low household incomes in female-headed households and competing household needs, these households invested much less in production inputs compared to male-headed households. With the exception of sorghum in Siaya and Irish potatoes in Nakuru, female-headed households consequently recorded comparatively much lower yields than men. For example, maize yield in male-headed households stood at 1,162 kilograms per acre compared to 968 kilograms in female-headed households.

Table 14: Differential Levels of Investment in Production

Crop	Men investment in inputs-KES per Acre	
	Male-headed households	Female-headed households
Maize	70,514	21,753
Beans	5722	2632
Cow Peas	2672	860
Sweet Potatoes	2754	1106

Irish Potatoes	29,619	5167
Pigeon Peas	2028	415



4.4.6 Women's Heavy Workloads

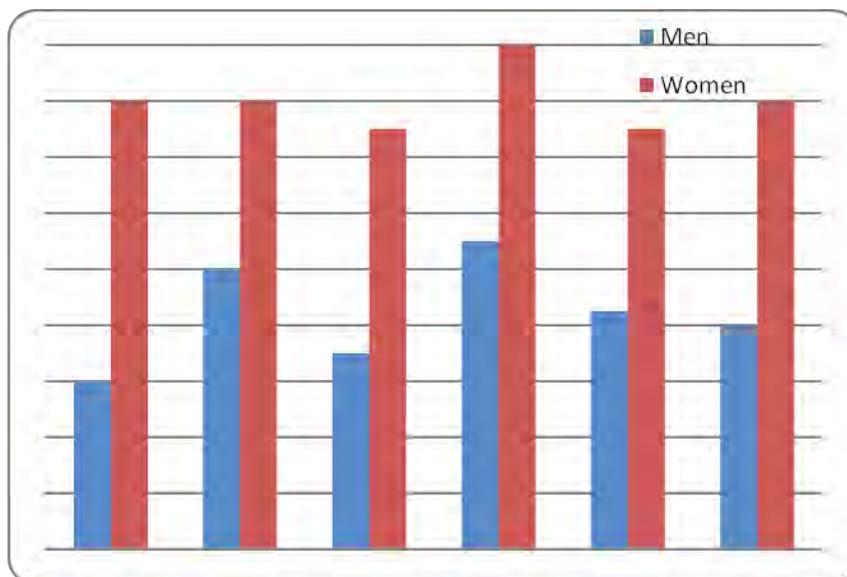
Time is a critical input in production and women's overstretched schedules therefore compromise their efficiency and effectiveness in farming. On average, women in the study areas had more than double the number of hours of work compared to men as reflected in Table 15. Women combined both reproductive and productive work, reproductive work referring to roles that help to maintain families such as child care, cooking, fetching for water and firewood among others. This was an area where men and male youth hardly participated in as this form of work as it is culturally assigned to women and girls. Productive work, which was shared by men and women, is defined as those tasks that have a direct return and benefit, such as food, income and assets. The third category, referred to as community work, is defined as contribution to work that provides common social good, such as building of schools, funerals, weddings, among others. The mean number of hours spent by household members constituted workloads.

Table 15: Differential Workloads for Men and Women

County/District	Hours of Work
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	Men	Women
Uasin Gishu-Cheptiret-Nandet	6	16
Trans Nzoia-Cherangany	10	16
Bungoma-Namwela	7	15
Siaya-Ugunja	11	18
Makueni-Nzui	8.5	15
Nyandarua-Ngorika-Nyaituga	8	16

Source: Focus Group Discussions



Appreciation of the intensity and drudgery of work undertaken by women by men, particularly domestic work, became an area of contention. Men considered women's work 'light' and therefore deserved a lower rating when compared to the heavy physical work men were engaged in. On their part, women, particularly in Makueni, felt that men

overstated the number of hours of actual work. These differing and conflicting perceptions provided an opportunity for the programme to undertake gender awareness among producer groups to help bring appreciation, harmony, equity in labor contribution and participation.

4.4.7 Women's limited ownership of improved storage facilities

Availability and adequacy of storage facilities is critical to maintaining quality and reducing post-harvest losses. Only in Makueni, Nakuru and Uasin Gishu was a majority of women found to have improved storage facilities-100%, 78.6% and 100% respectively. In Bungoma West, the proportion of women owning improved storage was only 5.3%. In Siaya for example, women had no improved storage facilities, resulting in the majority (78.3%) of them storing their produce in rooms within their houses. Consequently, a higher proportion of women experienced more post-harvest losses (59%) compared to their male counterparts (49%). In Bungoma West, women lost 40% of the produce to aflatoxin compared to only 5% for men.

4.4.8 Women's Limited Decision-Making Power

Despite women's major contribution to farming-related activities, men made the important decisions concerning different enterprises. Exclusion of those who had made contributions was found to create discontent. Although not comprehensively implemented, the Farming as a Family Business (FaaFB) approach developed by KMDP holds great potential to addressing household conflicts and challenges which undermine productivity and investment in household economy. As an illustration, a study of the SEMRY rice project in the Cameroon found evidence of household production decisions that led to sub-optimal production and failure to maximize income. In Cameroon, men and women had their individual rice fields but they are expected to contribute labor to the fields owned by their husbands. In this project, the women's willingness to contribute labor to rice production depended on their being compensated

significantly above what they could earn from low-return subsistence crops (adapted from Blackden and Bhanu, 1986).

Unpublished undertaken by Kabutha (1998) in the Awendo Sugar growing area of Homa Bay District of Kenya confirms the same. In this area, men were contracted to produce sugar cane for the local sugar company, the South Nyanza Sugar Company (SONY). Under this arrangement, family members work on the farm expecting communal and individual benefits on payment for cane by the company. In many instances, once paid, men went away from home, spent the money and only returned when they ran out of cash. The result is that family members redirect their labor towards activities that directly benefit them such as paid labor. During the Focus Group Discussions, household level decision-making was one of the areas of focus and while on the subject, the participants made reference to joint decisions but which on further analysis turned out not to be in reality joint. In cases where the woman failed to endorse the man's idea, the man took a unilateral decision to have his way as summarized in Table 16.

Table 16: Reality of Joint Decision-Making

County/District	Power relations
Uasin Gishu- Cheptiret-Nandet	<ul style="list-style-type: none"> • Husband and wife consult but if no consensus is reached, the man's position wins
Trans Nzoia- Cherangany	<ul style="list-style-type: none"> • Husband makes all major decisions although the wife can be consulted • If there is no consensus, man's position wins
Bungoma-Namwela	<ul style="list-style-type: none"> • Women have the freedom to express themselves- things must however be discussed to avoid conflict
Siaya-Ugunja	<ul style="list-style-type: none"> • Men make all decisions although they discuss with their wives
Makueni-Nzui	<ul style="list-style-type: none"> • Major family decisions, e.g. on land are jointly taken
Nyandarua-Ngorika-	<ul style="list-style-type: none"> • Man is the main decision-maker and sometimes

Nyaituga	consults with the wife
----------	------------------------

a) Decision-making on Purchase of Inputs

In male-headed households, a large proportion of men made decisions on purchase of inputs (42.5%) compared to low participation of wives (11.8%). Since joint decision-making stood at 44.1%, it further confirmed that once men made decisions, rarely did they take into account inputs from the spouses and other family members. Exceptions were however noted in Makueni and Siaya districts where the women/wives were a lot more involved in decision-making at 20% and 25.5% respectively. In female-headed households, women made most of the decisions on purchase of inputs.

b) Decision-making on Sale of Outputs.

Overall, a substantial proportion of households reported joint decision-making on sale of outputs (58.1%), but again, the men had a more decisive role (26.9%) compared to the wives (13.4%).

c) Decision-making on Commodities to Produce

The role of women/wives on sale of outputs was found to be lowest in Nakuru (3%), Trans Nzoia (3.3%) and Uasin Gishu (6.5%) districts.

d) Decision-Making Power on How to Produce

On average, 53.8% of households reported making joint decisions on how to produce, with men being responsible for 31.7% and women 12.9% of the decisions and the rest by other family members. There was however some departure in Makueni and Siaya where they played a more important role at 23.3% and 22.6% respectively. Lowest participation of women on how to produce was found in the Trans Nzoia and Uasin Gishu at 6.5% and 6.7% respectively.

e) Decision-Making Power on Animals to Buy or Sell

In male-headed households, 58.6% of respondents reported joint decision-making, with men alone making 31.7% and wives only 8.1% of the decisions. Women played a much bigger role in Makueni (22.3%) compared to their counterparts in Nakuru (3%), Trans Nzoia (3.3%) and Bungoma East (3.2%).

f) Decision-making on How to Spend the Money

On average, 66.7% of the households reported joint decision-making, with men taking responsibility for 22.6% of the decisions compared to women's 9.1%.

4.5 Implications of Gender Inequalities on Productivity

4.5.1 Women's Limited Access to and Control over Resources

Limited ownership and control over land and low income levels among women, particularly in female-headed households, led to low input use resulting in much lower yields compared to their male counterparts. Production cost per acre of most of the crops was higher among the male than female-headed households, a relationship documented in similar studies undertaken in other parts of the world.

Access to land and security of tenure are major factors in food production because decisions on technology adoption are influenced by access to land and security of land tenure. Individuals with insecure tenure will generally be less likely to invest in new technologies that require resources such as capital (Doss, C.R. 1999). Where tenure is secure, farmers are more inclined, for example, to invest in slower-growing tree crops, or productivity enhancing inputs, or more labor-intensive land conservation practices—thereby raising both productivity and the quality of land. Where tenure is insecure because land is titled or disputed, or there is multiple and overlapping ownership, or rights are unclear, uncertainty discourages the investments needed to improve land productivity. As investment in land also improves its quality and permit its sustainable use, failure to invest can have negative environmental impact. Comparing the performance of squatters on state land (insecure tenure) and titled farmers (secure

tenure) in Thailand, Feder et al. (1988) found that the latter had a larger volume of more intensive use of variable inputs, and higher output per unit land (cited in Panayotou 1993).

4.5.2 Women's Heavy Workloads

Time is a major factor in adoption and effective management of technologies and competition for women's time between productive and reproductive work, can result in lower yields even when adoption levels are high. Inefficiencies created by heavy workloads include lateness in undertaking certain agricultural practices, such as weeding.

Time is a major factor in adoption of technologies. Competition for women's time between productive and reproductive work and their obligations to provide unpaid family labor for husbands can result in inefficiencies in women's farming. In Ghana and Nigeria, women have been found to be unable to carry out important operations on their land on time because they had to work for their husbands. In Burkina Faso, men can force their wives to work on their fields even on days when they customarily work on their land, thus taking time away from their farming activities. The situation is made worse by the fact that women lack time to engage in paid labor and now with the advent of HIV/AIDS, they have to spend a substantial amount of their time tending the sick. Because women work for long hours, it may difficult for them to fully participate in agricultural activities such as field days and demonstrations.

4.5.3 Women's Limited Decision Making Power over Benefits

Even though women in male-headed households made major contributions to production and related activities, they had limited decision-making power on accruing benefits. This form of inconsistency creates discontent which eventually undermines productivity as those not compensated for their input reduce their subsequent contribution. Some examples:

- a) A Kenyan sample survey compared differences in maize yields in male and female-headed households due to weeding practices (weeding is a female obligation in most parts of Kenya). In female-headed households, weeding increased yields by 56 percent whereas in male-headed households (MHH) the increase was only 15 percent. Since other factors were similar, the difference in yield increase appeared to have been due to lack of incentives for women to work on holdings whose output they have no control. The national maize loss in Kenya due to the effect of disincentives is estimated to be about the same as maize gained by application of phosphate and nitrogen fertilizers (Demery et al. 1993: In: Madhuchhanda and Makhopadhyay, 2000).

- b) A study of the SEMRY rice project in the Cameroon found evidence of household production decisions that led to sub-optimal production and failure to maximize income. In Cameroon, men and women had their individual rice fields. Women were however expected to contribute labor to the fields owned by their husbands. In this project, the women's willingness to contribute labor to rice production depended on their being compensated significantly above what they could earn from low-return subsistence crops (adapted from Blackden and Bhanu, 1986).

5. INTEGRATING GENDER INTO PERFORMANCE MONITORING PLAN

A review of the Performance Monitoring Plan (PMP) revealed some level of effort, albeit small, to integrate gender into programme results but the core indicators are currently not

gender sensitive. In addition, there was no evidence of gender sensitive data collection instruments. Since the indicators provide the basis for comprehensive gender integration, it is necessary that adequate gender sensitivity be built in. As an illustration, indicator IM1 is stated as “% change in household income” but fails to recognize the different household actors, male and female, among other categories. A more gender sensitive way to state it would be “% change in income by sex of household head.” This is what will finally guide the nature and level of disaggregation of data collected to monitor change. Some additional example are in Table 17.

Table 13: Integrating Gender into the PMP

Code	Indicator	Proposed Disaggregation	Proposed improvement
OC7	Value of incremental sales (collected at farm/firm level)	Commodity, location	<ul style="list-style-type: none"> Value of incremental sales by sex of household head Disaggregation by commodity, location & sex of household head
OC8	Volume of targeted agricultural commodities traded from project beneficiaries	Commodity, location	<ul style="list-style-type: none"> Volume of targeted agricultural commodities traded by project beneficiaries-disaggregated by sex of household head Commodity, location & sex of household head
OC9	Post-harvest losses as a % of overall harvest	Commodity, location	<ul style="list-style-type: none"> Post-harvest losses as % of overall harvest by sex of household head Commodity, location & sex of household head
OP4	Number of market information systems developed and made available to users	KACE MIS Analysis report	<ul style="list-style-type: none"> Number of market information systems developed and made available to users-disaggregated by sex of users
OC10	Number of micro-	Location	<ul style="list-style-type: none"> Number of micro-enterprises linked to

Code	Indicator	Proposed Disaggregation	Proposed improvement
	enterprises linked to larger-scale firms as a result of USG assistance to the value-chain		large scale firms as a result of USG assistance and ownership by sex of household head

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

1. Farming was the main occupation and source of livelihood for a large proportion of household members (44.2%), majority of whom were from female-headed households (47.9%). The much higher dependency of female-headed households on farming was because of their much narrower range of income sources, compared to male-headed households.

2. Household headship in the study area was predominantly male (79.5%). Female-headed headship, comprising of 20.5%, was associated with widowhood, divorce or the never married women who had land that provided them with an assured source of livelihood.
3. Women and men emerged as major actors in farming, contributing to different roles in production, storage and marketing. More women than men were members in farmer/producer groups, with a membership of 4531 out of a total of 6778 (66.85%). What was however not captured during the study was their representation in the leadership of these organizations and how as a majority, they had managed to influence the direction and agenda of the organizations. This is an area to be pursued during the implementation of this programme.
4. All the regions, albeit much less in Makueni district, had strong cultural attitudes and practices which discriminated against women in a range of areas critical to farming and livelihoods, including access to resources, benefits and overall decision-making. Recognizing this, the ACIDI/VOCA consortium very early developed a manual on Farming as a Family Business (FaaB) to address these social constraints and thus improve equity. The FaaFB has however not been very comprehensively implemented, both in terms of proportion of families reached as well as in training family members together. The study noted that the majority of those trained were single members of households, with only 5.5% couples reached.
5. Female-headed households, more than their male counterparts, were more constrained with regard to access to and control over factors of production, such as land, finance and farm inputs. These households had smaller parcels of land and less disposable income, resulting in lower farm input use and consequent low yields. As an illustration, on maize production, spent KES 21,753 compared to KES 70,514 in male-headed households. Consequent yields for major crops like maize were 1,162

kg per acre in male-headed households compared to 968 kg per acre in female-headed households.

6. Female-headed households were much poorer than their male counterparts, with a mean income of KES 31,604 compared to KES 107,955 in male-headed households, amounting to over three times that in female-headed households.
7. Women had extremely heavy workloads, often reaching 18 hours per day compared to 6-11 hours for men. Because heavy workloads often introduce inefficiencies and reduce effectiveness in farming operations, this inequality might also have contributed to reduced yields in female-headed households.
8. Women in male-headed households had limited decision-making power despite their very significant contribution to farming activities. Since current global evidence shows that when those who work are not adequately compensated for their input reduce their subsequent contribution, this might be a factor holding back productivity in male-headed households.
9. Full integration of gender into the Performance Monitoring Plan (PMP) is critical to full integration of gender in the entire programme. Currently, gender integration is minimal in the PMP. A number of areas that need further work include full integration of gender in the actual Indicators, data collection instruments and adoption of a gender sensitive project development cycle that will ensure that gender is integrated in the baselines, project design, particularly the objectives, outputs and outcomes, implementation and monitoring and overall reporting
10. Organizations that form the ACIDI/VOCA consortium hold the key to full integration of gender in the entire programme through transformation of cultural attitudes and practices in organizations and households they work with. To effectively do this, they need the commitment, capacity, resources and

mechanisms to address gender-based constraints. However, the current status of respective institutional preparedness to take on this responsibility is currently not fully understood as no institutional gender assessment was undertaken during this exercise.

6.2 Recommendations

1. For the KMDP II to effectively address gender inequalities and constraints identified through this gender assessment, the ACDI/VOCA consortium needs to develop targeted gender integration mechanisms, systems and adequate gender capacity. To build this foundation, the study recommends a quick institutional gender assessment of the consortium members to establish capacity needs as a basis for capacity building. Building gender awareness and appreciation will need to cover all levels, top management, technical levels, producer organizations and the wider community. This way, attitudes and practices will begin to change.
2. Transforming social attitudes and practices that foment and sustain gender inequalities needs to be a priority for this programme. It is proposed that this be done through training sessions that bring families together, not women and men separately. To scale-up the effort, local level teams of gender trainers could be developed, ensuring participation of men who need to understand and support the effort. Men hold the key to social change as they command resources and make most family decisions. The FaaFB manual be a key resource for this purpose.
3. Women form a significant majority of members in producer organizations. What was however not captured is their effective representation in these organizations and how as a majority they have been able to influence the direction and agenda of these organizations. It is therefore be recommended that data on male-female representation and leadership capacity needs be established and supported to

ensure equity in participation. Producer organizations could also be used as basis for information sharing on some of the new rights in the new Kenya Constitution.

4. Some limited work on integration of gender into the Performance Monitoring Plan (PMP) is evident but this is clearly insufficient. This study recommends that all partners get involved in the gender integration exercise. To be effective, the exercise should be preceded by a gender training of staff from these organizations who then review the PMP, identify gaps and fill in the gaps. It is important that this be seen as a continuing exercise as new insights emerge due to improved skills.
5. To scale up gender mainstreaming in programme regions, it is recommended that some forms of sharing and learning forums be developed and supported. This might mean some selected study tours or biennially meeting of producer groups from different regions to share how they have addressed gender constraints, sharing approaches and success stories. Success stories emerging from this approach would then be documented and widely shared.

6. Currently, the 20.5 percent female-headed households are holding agricultural productivity down. In order for them to adequately benefit from this programme and help the realization of Strategic Objective 7, some interventions that target this group might be necessary. Some of the areas that could initially be targeted include credit, post-harvest handling to reduce loss due to aflatoxin and pest infestation and special attention to women -managed crops such as sorghum and Irish potatoes in Siaya and Nakuru respectively. While on the whole all households had low levels of access to credit, access in female-headed households was much lower than in male-headed households (18% and 21.1% respectively). Of significance was that female-headed households in Bungoma West and Siaya did not receive any loans. Some lessons could be learned from Uasin Gishu where female-headed households registered higher access than their male counterparts.

7. INTEGRATED GENDER ACTION PLAN

7.1 Strategic Areas of Focus

1. Enhancement of institutional capacity, systems and commitment to gender integration in organizations and programming.
2. Building institutional gender capacity necessary to transform social attitudes and practices that sustain gender inequalities in families and institutions.
3. Transformation of local social attitudes and practices which perpetuate gender-based discrimination. Gender awareness for household members, using the FaaFB manual, is one of the recommended strategies.
4. Comprehensive integration of gender into the Performance Monitoring Plan and programming.
5. Targeted support to female-headed households characterized by low income levels resulting in low productivity, major post-harvest losses and low mean prices for their produce.
6. Development of local level sharing forums to help communities learn and benefit from progress and success of others.

Strategic Objective	Outputs	Outcome Indicators	Activities
<p><u>Institutions</u></p> <p>1. To build strong institutional gender commitment and capacity</p>	<p>Gender sensitive institutions</p> <ul style="list-style-type: none"> • Clear policies & resources • Gender sensitive organizational culture • Accountability to gender equity • Strong gender capacity 	<ul style="list-style-type: none"> • Clear gender mainstreaming strategies based on issues and gaps • Strong and well-resourced coordinating mechanisms • Strong gender capacity and commitment to gender mainstreaming • Gender sensitive Performance Monitoring Plan 	<ul style="list-style-type: none"> • Institutional gender assessment of consortium to identify gaps, develop strategies and plans • Capacity building to facilitate gender mainstreaming • Review and strengthening of gender in PMP and development of gender sensitive data collection instruments and reporting • Establishment of well-resourced coordinating and accountability mechanisms-for individual organizations
<p>2. To build strong gender capacity for gender mainstreaming</p>	<ul style="list-style-type: none"> • Gender skilled technical teams • Gender aware and sensitive producer groups & communities 	<ul style="list-style-type: none"> • Sharp skills in gender analysis and integration • Availability of resource materials- manuals, policies • Gender sensitive documentation-all gender disaggregated • Attitudes and local attitudes that recognize value of gender equity 	<ul style="list-style-type: none"> • Gender awareness and analysis training of leadership and staff • Training of gender trainers –staff and producer organizations • Procurement and/or development of appropriate gender materials for reference
<p>3. To integrate gender in Performance and Monitoring Plan</p>	<ul style="list-style-type: none"> • All indicators and results fully gender integrated 	<ul style="list-style-type: none"> • Full adoption gender sensitive Project Cycle Management approach, i.e. gender sensitive baselines, design, implementation and reporting <p>Gender disaggregation of all results</p>	<ul style="list-style-type: none"> • Review of gender strengthening of current PMP • Review of data collection instruments for gender gaps and addressing gaps • Engendering baselines, goals, implementation and monitoring and evaluation systems

Strategic Objective	Outcomes	Outcome Indicators	Activities
4. To create gender sensitivity and appreciation of gender equity at household level	<ul style="list-style-type: none"> • Number of families who have benefited from the training 	<ul style="list-style-type: none"> • Consultations and shared decision-making • Broad-based participation and sharing of benefits • Reduced family-level conflict • Equity in representation in leadership of producer groups 	Intense FaaFB training that brings together families-spouses and children
5. Formation of regional sharing forums to share success in gender mainstreaming	<ul style="list-style-type: none"> • Number of forums established • Number of times sharing undertaken • Types of sharing 	<ul style="list-style-type: none"> • Adoption of approaches that help equity in households • Social changes that have occurred that can be associated with the activity • Improved productivity, incomes • Improvements in household assets 	<ul style="list-style-type: none"> • Development of forum strategy, with full content • Organizing and convening forums
6. Support to female-headed households	<ul style="list-style-type: none"> • Needs identified and strategies developed 	<ul style="list-style-type: none"> • Improved productivity • Improved incomes and assets, e.g. storage facilities 	<ul style="list-style-type: none"> • Identification of needs and support to address the constraints

Activities	Output	Time Frame	Budget
Review of gender mainstreaming commitment and capacity in partner organizations	Clear gender mainstreaming and gaps and strategies for strengthening	Sept. 2011	
Gender awareness for top managers of KMDP II Consortium and endorsement of gender mainstreaming plan	Top managers with understanding and appreciation of gender	Oct. 2011	
Gender training for technical staff	Numbers trained and skills acquired	Oct 2011	
Review of PMP and full integration of gender	Fully gender sensitive PMP	Oct. 2011	
Gender training for leadership of producer organizations-awareness and selected trainers	Numbers trained, levels of appreciation	Nov. 2011	
Training of participating households/families in gender/FaaFB	Number of households trained	January 2012	
Documentation of special needs constraining female-headed households from moving out of poverty	<ul style="list-style-type: none"> • Well-documented needs • Clear strategy to address constraints • Concrete actions to address gaps 	Oct 2011-end of project	

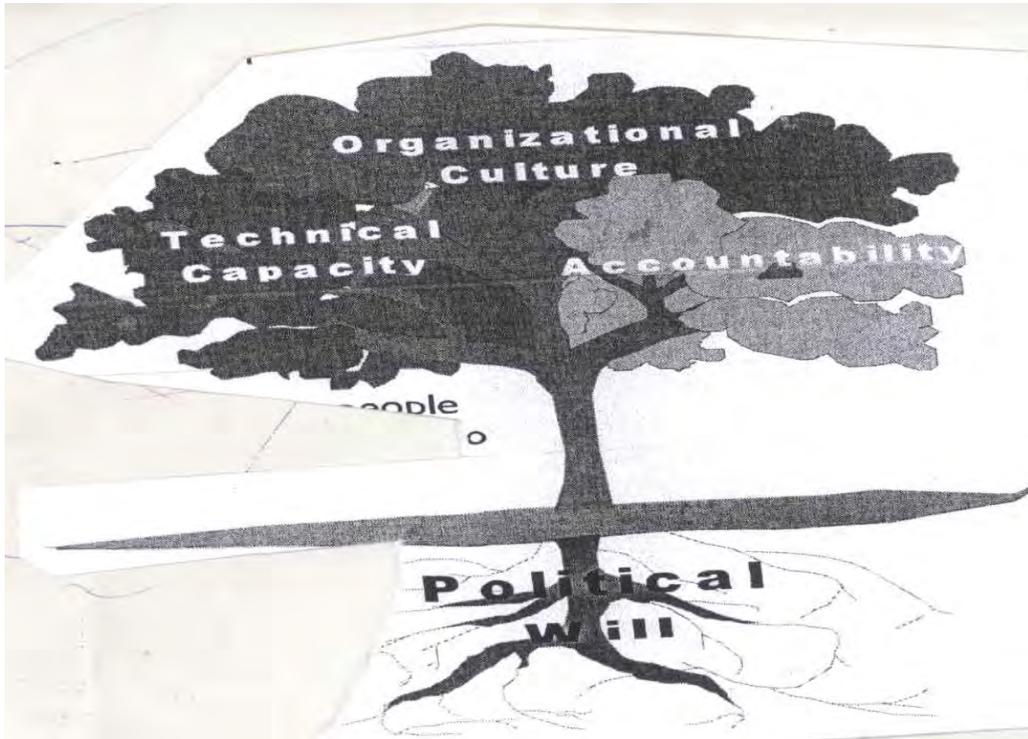
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Annex I: Tool for Institutional Gender Analysis

One of the most comprehensive and effective institutional gender analysis tools was developed by InterAction in 2004 and consists of four core pillars namely:

- Political will;
- Gender Technical Capacity;
- Accountability; and
- Organizational Culture.



1. **Political Will.** This refers to use our positions of power as leaders to communicate and demonstrate support, enthusiasm for and commitment to working towards gender equality in the organizations. The level of commitment is derived from public pronouncements, commitment of staff time and resources and establishment of needed policies and procedures, among others. Political will is the most important pillar as it largely determines how well the other pillars function.
2. **Technical Capacity.** This refers to enhancing ability, qualifications and skills individuals in our organization need to carry out the practical aspects of gender integration for enhanced programme quality and institutionalization of gender equitable organizational processes.
3. **Accountability** is about mechanisms by which an organization determines the extent to which it is 'walking the talk' in terms of integrating gender equality in its programmes and organizational structures. Most times, gender work is tucked away in small sections that are under-resourced and too low to have credibility. Accountability requires the building of gender into job descriptions, work plans, performance contracts, strategic plans, policies, programs and Monitoring and Evaluation (M&E) systems.
4. **Organizational Culture is about** norms, beliefs and codes of behavior in an organization that support or undermine gender equality. It concerns how people relate, what are seen as acceptable ideas, how people are expected to behave and what behaviors are rewarded. A culture that promotes equality provides a good environment and ground for gender mainstreaming. Sample characteristics of gender sensitive organizations are tabulated below.

Characteristic	Details
Strong political will.	<ul style="list-style-type: none"> • Reflects conviction and commitment to gender mainstreaming in all operations.
Presence of a gender policy statement.	<ul style="list-style-type: none"> • A stated policy affirms commitment to gender equity. It includes values and principles and a mission that will guide the organizational direction.
Demonstrated commitment of senior management.	<ul style="list-style-type: none"> • Top management fully supports policies that may result in substantial change within the organization.
Strong and highly positioned coordination machinery.	<ul style="list-style-type: none"> • A gender office has responsibility for monitoring gender practice, providing gender training and giving programmatic support to the organization.
Strong resource base.	<ul style="list-style-type: none"> • Availability of both human and financial resources ensures effective implementation of activities.
Gender sensitive personnel and work policies.	<ul style="list-style-type: none"> • Treatment of men and women is conscious of their different needs and circumstances. Communication is inclusive and addresses the concerns of women and men equally.
Gender-focused programming.	<ul style="list-style-type: none"> • All programmes and activities are analyzed from a gender perspective with attention to the participation of women and men and the impact on women and men. • Data are disaggregated on the basis of sex. • Gender analysis of projects is conducted on routine basis and projects are adjusted to reflect the finding. • Programmes are monitored and evaluated often for gender impacts. • Projects include men and women in their operations
Gender responsive budgets.	<ul style="list-style-type: none"> • Allocation of financial resources based on differential needs and circumstances of men and women.
Reporting mechanisms & level of disaggregation of data, outputs, outcomes and impacts.	<ul style="list-style-type: none"> • Entire Monitoring and Evaluation system is fully engendered (Goal, Purpose, Outputs, Inputs & Activities)

Annex II

Kenya's Gender Mainstreaming Efforts

Kenya is committed to gender equity and equality as reflected in its compliance with international and regional gender equality conventions and instruments and establishment of national policies and structures to support gender mainstreaming.

Some examples are below:

International Instruments

- Kenya is a signatory to the 1984 Convention on Elimination of All Forms of Discrimination Against Women (CEDAW), an international convention adopted in 1979 by the United Nations General Assembly. It is described as an international Bill of Rights for women and came into force on 3 September 1981. According to

the Convention, discrimination against women is “any distinction, exclusion, or restriction made on the basis of sex and which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field”.

- Kenya is a signatory to the Beijing Platform for Action (BPFA) adopted in 1995 during the Women’s conference.
- Kenya adopted the Millennium Declaration and the Millennium Development Goals (MDGs). Goal 3 aims to ‘*Promote gender equality and empower women*’. Kenya is thus committed to promoting gender equality and women’s empowerment as an effective way to combat poverty, hunger and disease and to stimulate development that is truly equitable and sustainable.

Regional Instruments

- The African Union African Plan of Action on Gender Policy (2006).
- The African Union Gender Policy (2007) under which the African Union (AU) urges “States to adopt, sign and ratify the Protocol to the African Charter on Human Rights and People’s Rights on the Rights of Women in Africa as well as other instruments and mechanisms to guarantee and preserve the rights of women” (2005).

National Actions

- A National Gender Policy for Development and Equality (2000) that provides a coherent and comprehensive overall framework for guiding sectors and agencies involved in engendered development. It outlines strategies and actions to be taken in diverse areas, including economic, poverty and livelihoods; law, political participation and decision-making; education and training, health and the media.
- The National Commission on Gender & Development Act (2003) and establishment of the Commission in 2004. The Commission is an oversight body that appraises the performance of the government institutions on matters of mainstreaming gender concerns. It also strengthens National Machineries which support gender mainstreaming and advises the government on all matters related to gender.
- The Sessional Paper No. 2 of 2006 on Gender Equality and Development. This Sessional Paper provides a framework for implementation of the Gender Policy. The paper recognizes that development initiatives impact differently on men and women and therefore the importance of assessing these before investments are made.
- Establishment of the Ministry of Gender, Children and Social Development (2005). The Ministry’s overall objective is to ensure women’s empowerment through mainstreaming the needs of women, men, boys and girls in all sectors of

development in order for them to participate and benefit from development. Its current Work plan (2008-2012) reflects the Ministry's nature and level of support to other sectors.

- The Vision 2030, the framework driving Kenya's development, aims at making Kenya a "globally competitive and prosperous nation with a high quality of life by 2030. The Vision is anchored on three pillars; (1) the economic, (2) political and the (3) social pillars. The economic pillar aims at maintaining a 'sustained economic growth of 10% per annum over the next 25 years whilst the political pillar plans to build a "just and cohesive society enjoying equitable social development in a clean and secure environment". The third pillar calls for an "issue-based, people-centered, result-oriented and accountable democratic political system. The pillar addresses gender concerns, vulnerable groups and youth. It aims at "gender equity in power, resource distribution, improved livelihoods for all vulnerable groups and a responsible, globally competitive and prosperous youth".

- The Vision's first Medium Term Plan (2008-2012) translates this commitment into practical actions. It makes a firm commitment to the following:
 - Mainstreaming gender in all government policies, plans and budgets with the aim of achieving gender equity in all aspects of society.
 - Ensuring implementation of affirmative action to ensure that women have at least 30 per cent representation in recruitment, promotion and appointment at all levels.
 - Ensuring that an efficient legal system is put in place to help protect the rights of individuals and reduce gender-based violence and other human rights violations on vulnerable groups.
 - Increasing funding towards the Women Enterprise Fund (see Box 1)

- Issuance of a Presidential Directive, establishing a minimum 30 percent threshold for women representation in senior positions in the public service (2007). There is no legal framework to enforce the presidential directive. However, some individual organizations are using the directive to improve representation.

- Incorporation of Gender reporting in Performance Contracting guidelines for all public sector employees. The institutions covered include Ministries, State Corporations, Local Authorities, Public Universities and Tertiary Institutions. The current guidelines expect organizations to submit quarterly reports on gender mainstreaming efforts to the Ministry of Gender, Children and Social Development. This strategic action will hold organizations and individuals accountable to all aspects of gender mainstreaming.

- Kenya's New Constitution contains a strong Bill of Rights that provides for socio-economic and legal protection. The 'Bill of Rights is an integral part of Kenya's democratic state and is the framework for social, economic and cultural policies. The purpose of recognizing and protecting human rights and fundamental freedoms is to preserve the dignity of individuals and communities and to promote social justice and the realization of the potential of all human beings".

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