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EVALUATION

Compendium Report

Multi-Stakeholder Evaluation of Agriculture and Livestock Value Chain Activities In Kenya

March 29, 2012

This publication was produced for review by the United States Agency for International Development. It was prepared by Development & Training Services, Inc. (dTS).

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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.

ACRONYMS

AAC	African Agricultural Capital
ABEO	Agriculture, Business and Environment Office (USAID)
ABS	African Breeders' Service Total Cattle Management
AGM	Annual General Meetings
AI	Artificial Insemination
AIDS	Acquired Immune Deficiency Syndrome
APHIS	Animal and Plant Health Inspection Service
ASCU	Agricultural Sector Coordination Unit
ASDS	Agriculture Sector Development Strategy
ASSP II	Agricultural Sector Support Program Phase II
ASSP	Agricultural Sector Support Program
BDS	Business Development Services
BMGF	Bill & Melinda Gates Foundation
BSPs	Business Service Providers
CAADP	Comprehensive Africa Agriculture Development Program
CAHP	Community Animal Health Provider
CAIS	Central Artificial Insemination Service
CAP	Community Action Plan
CBAHWs	Community Based Animal Health Workers
CGA	Cereal Growers Association
CGIAR	Consultative Group on International Agricultural Research
CIG	Common Interest Group
CIP	International Potato Center
COMESA	Common Market of East and Southern Africa
COP	Chief of Party
COSOP	Country Strategy Opportunities Program
COR	Contracting Office'sRepresentative for USAID
CP	Chilling plant
DCA	Dairy Commercialization Area
DCAC	Dairy Commercialization Area Committee
DED	German Development Service
DFBA	Dairy Farmer Business Associations
DfID	Department for International Development
DFID-BSMDP	Department for International Development-Business Service Management
DG	Dairy Groups
DGAK	Dairy Goat Association of Kenya
DivPIT	Divisional Planning and Implementation Team
DMG	Dairy Marketing Group
DPCT	District Program Coordinating Team
DTF	Dairy Task Force
DTI	Dairy Training Institute
dTS	Development and Training Services, Inc.
DVA	Department of Veterinary Anatomy

DVO	District Veterinary Officer
EAC	East African Community
EADB	East Africa Development Bank
EADD	East African Dairy Development Project
EAGC	Eastern Africa Grain Council
EAPP	East African Agriculture Productivity Program
ECF	East Coast Fever
EGs	Extension Groups
EU	European Union
FADC	Focal Area Development Committees
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmers Field School
FIPS	Farm Inputs Promotions Africa
FSA	Financial Services Associations
FtF	Feed the Future
GAP	Good Agricultural Practices
GATE	Greater Access to Trade Expansion
GC	Multi-Stakeholder Guidance Committee
GDP	Gross Domestic Product
GIS	Geographic Information System
GIZ/GIZ	German Development Agency
GMP	Good Management Practice
GoK	Government of Kenya
GTIL	Genetics Technologies International Limited
HCDA	Horticultural Crops Development Authority
HHs	Households
HIV	Human Immune-deficiency Virus
HR1	High Rainfall Counties
ICRAF	World Agroforestry Center
ICT	Information and Communication Technology
IDA	International Development Agency
IF	Implementation Framework
IFAD	International Fund for Agriculture Development
IGA	Income Generating Activities
ILRI	International Livestock Research Institute
ITM	Infection and Treatment Method
JICA	Japan International Cooperation Agency
KACE	Kenya Agriculture Commodity Exchange
KAPAP	Kenya Agricultural Productivity and Agribusiness Project
KARI	Kenya Agricultural Research Institute
KDB	Kenya Dairy Board
KDDP	Kenya Dairy Development Program
KDSCP	Kenya Dairy Sector Competitiveness Program
KEBS	Kenya Bureau of Standards
KENFAP	Kenya National Federation of Agriculture Producers
KES/KShs	Kenya Shillings

KHCP	Kenya Horticulture Competitiveness Program
KIM	Kenya Institute of Management
KLBO	Kenya Livestock Breeders Organization
KMDP	Kenya Maize Development Program
KSB	Kenya Stud Book
LOL	Land O'Lakes
LPD	Liters per day
LOP	Life of project
Ltrs	Liters
M&E	Monitor & Evaluation
MBCs	Milk Bulking Centers
MDBA	Meru Dairy Goat Breeders Association
MDG	Millennium Development Goals
MFI	Micro Finance Institution
MIS	Market Information System
MoA	Ministry of Agriculture
MoCD&M	Ministry of Cooperative Development and Marketing
MODE	Market Oriented Dairy Enterprise
MoGC&SS	Ministry of Gender, Culture and Social Services
MoLD	Ministry of Livestock Development
MoU	Memorandum of Understanding
MRS	Milk Recording Service
MSWGs	Milkshed Working Group
MTIP	Medium Term Investment Plan
MTR	Mid-Term Review
NALEP	National Agriculture and Livestock Extension Program
NARC	National Rainbow Coalition government
NEMA	National Environmental Management Authority
NEPAD	New Partnership for Africa's Development
NGOs	Non-Governmental Organizations
NIMES	National Integrated Monitoring and Evaluation System
NKCC	New Kenya Cooperative Creameries
NRM	Natural Resources Management
NS	Natural Service
NSC	National Steering Committee
PACE	Performance, Analysis, Communication & Evaluation Project
PCU	Program Coordination Unit
PESUAP	Pesticide Evaluation Use Action Plan
PMO	Pasteurized Milk Ordinance
PMP	Program Management Plan
PRA	Participatory Rural Appraisal
PSDA	Private Sector Development in Agriculture
PTC	Practical Training Center
QA	Quality Assurance
RBS	Rwanda Bureau of Standards
RIMS	Results Impact and Monitoring System

RWGs	Regional Working Group
SA2	Semi-Arid Counties
SACCO	Savings and Credit Cooperative
SAM	Social Accounting Matrix
SBO	Smallholder Business Organization
SCALE	System-wide Collaborative Action for Livelihoods and the Environment
SDCG	Smallholder Dairy Commercialization Consultative Group
SDCP	Smallholder Dairy Commercialization Program
SDP	Smallholder Dairy Program
SHF	Stakeholder Fora
SHEP-UP	Smallholder Horticulture Empowerment and Promotional Unit Project
SIDA	Swedish International Development Agency
SIFET	Sexed in vitro Fertilization and Embryo Transfer
SME	Small and Medium Enterprise
SMS	Short Message Services
SoW	Scope of Work
SPs	Service Providers
SRA	Strategy for Revitalization of Agriculture
SSA	Sub-Saharan Africa
TEAM	Multi-Stakeholders Evaluation Team
TNS	TechnoServe
UHT	Ultra Heat Treatment
UK	United Kingdom
UN	United Nations
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
VBAs	Village Based Agricultural Advisors
VC	Value Chain
WMU	Western Michigan University
WWS	World-Wide Sires

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INTRODUCTION

This report summarizes the results of the "Multi-Stakeholder Evaluations of Agriculture and Livestock Value Chain Activities in Kenya" undertaken by Development & Training Services, Inc. (dTS) from October 24 to December 17, 2011 in Kenya.

BACKGROUND

The Kenya Development Partners have committed themselves to aligning their support for agricultural sector projects and programs behind a country-led plan, and to developing a common framework for monitoring and evaluation (M&E). They are interested in learning from one another's experiences with value chain interventions, determining what design and implementation approaches are working or have worked in Kenya, and understanding why those approaches have been successful. The Kenya Development Partners agreed to undertake a joint evaluation of agriculture and livestock value chain activities they fund with a focus on information sharing about the design and implementation of new value chain interventions.

The evaluation results are intended to articulate a common frame of reference and approaches for donors to use in designing and implementing agriculture and livestock value chain development activities in support of Kenya's Medium Term Investment Plan (MTIP), and the Kenya Agricultural Sector Development Strategy (ASDS).

The Kenya ASDS seeks to achieve the following by 2020:

- reduce the population living under the absolute poverty line to less than 25%;
- reduce food insecurity by 30%; and
- increase annual agricultural sector growth to 7%.

The related MTIP addresses the following three priority areas though 2015:

- increased productivity, commercialization and competitiveness;
- promotion of private sector participation; and
- increased market access and trade.

The ASDS and MTIP are targeted to achieve the goals and objectives of Kenya Vision 2030 - the Government of Kenya (GoK) blueprint for national development. In addition, the related Agricultural Sector Support Program Phase II (ASSP II) has been designed to implement the ASDS through 2015. The primary elements of ASSP II are agribusiness, market access, value-addition, and improvement of rural infrastructure.

OBJECTIVES OF THE EVALUATION

The overall goal of this evaluation was to develop a common frame of reference and approaches for donors to use in designing and implementing agriculture and livestock value chain development activities in support of Kenya's MTIP.

The evaluation results are intended to benefit USAID/Kenya, members of the Kenyan Development Partners, and GoK. The results are also expected to help inform the design and implementation of USAID/Kenya Feed the Future (FtF) activities, and help align FtF agricultural development and poverty

reduction efforts with those of other donors. The main objective of the USAID/Kenya FtF program is inclusive agricultural sector growth.

The specific objectives of this evaluation were to:

- Identify and describe best practices in: a) donor activity design, and b) implementing partner organizational, operational, and implementation approaches that have most contributed to the success of agriculture and livestock value chain activities in Kenya. The evaluation was to specifically consider activity achievements as compared to the original activity design intentions.
- Identify and describe the most important elements that contributed to the success of agriculture and livestock value chain activities.
- To make specific recommendations for USAID-financed activities, and how those can be better aligned with the MTIP and other donor activities.

For the purposes of the evaluation, success was defined in terms of increases in one or more of the following:

- agriculture and livestock value chain productivity and competitiveness;
- smallholder producer participation in value chains;
- agricultural production and sales;
- rural household income;
- private investment;
- employment generation;
- involvement by women and youth; and/or
- environmental and economic sustainability.

EVALUATION SCOPE

The evaluation focused on three agriculture and livestock value chains of particular interest to USAID/Kenya and the Kenya Development Partners: staple foods/basic grains, horticulture, and dairy. The projects and programs were selected based on donor recommendations of activities that were generally recognized as effective and successful in achieving objectives and generating positive impacts for beneficiaries and the rural economy. The evaluated projects are listed in Table 1.

While seven projects focused exclusively on one of the sub-sectors, three of the projects had interventions involving all three sub-sectors. These included the National Agriculture Productivity and Agribusiness Project (NALEP), the Private Sector Development in Agriculture (PSDA), and the Kenya Agricultural Productivity and Agribusiness Project (KAPAP). Three of the 10 projects were directly implemented by the GoK, while the others were independently implemented in close consultation with the GoK.

Table 1. Projects and Programs Evaluated

SN	Name of Project / Program	Acronym	Sector	Donor	Implementer
1	East Africa Dairy Development Project	EADD	Dairy	Gates Foundation	Heifer Kenya
2	Kenya Agricultural Productivity and Agribusiness Project	KAPAP	All 3	IDA	GoK
3	Kenya Dairy Sector Competitiveness Program	KDSCP	Dairy	USAID	Land O'Lakes
4	Kenya Horticulture Competitiveness Program	KHDCP	Horticulture	USAID	Fintrac
5	Kenya Maize Development Program	KMDP	Maize	USAID	ACDI/VOCA
6	National Agriculture and Livestock Extension Project	NALEP	All 3	SIDA	GoK
7	Private Sector Development in Agriculture	PSDA	All 3	GIZ	GIZ
8	Smallholder Dairy Commercialization Program	SDCP	Dairy	IFAD	GoK
9	Smallholder Horticulture Empowerment and Promotion Unit Project	SHEP-UP	Horticulture	JICA	JICA
10	Thika Horticultural Practical Training Center	PTC	Horticulture	Netherlands	FPEAK

EVALUATION METHODS

The evaluation Scope of Work (SoW) set out guidelines for the methodology as follows:

> *"The evaluation will emphasize a qualitative approach to assessing donor experience with implementing successful value chain activities in Kenya, focusing on identifying what approaches have worked, and explaining why. This qualitative look at value chain implementation will include a review of activity documents and information regarding the scale of benefits and overall impact."*

Therefore, the evaluation team focused on qualitative aspects of activity design and implementation, complemented by summary information and quantitative data to evaluate what worked and why. The team employed a variety of standard interactive qualitative tools as appropriate to elicit comprehensive information within a short time. The main tools employed were:

Key Informant Interviews: These interviews captured information from individual key project stakeholders of all the projects visited, implementing partner staff, and other organizations. While verifying program activities in the field, the evaluation team consulted with beneficiaries to gain their perspective on the success of each intervention.

Semi-Structured Interviews: Information from individuals and groups were obtained, using a series of broad questions to guide the conversations, but allowing for new questions to arise as a result of the discussion. This was useful in enabling the evaluation team to gain an in-depth understanding of qualitative issues in particular.

Focus Group Discussions (FGD): These group-level discussions were held with community beneficiaries, including small groups of entrepreneurs and groups/associations involved in a cross section of enterprises

and other project activities. The FGDs enabled the evaluation team to obtain feedback on the efficiency and effectiveness of the respective projects.

Several of the development partners collaborated with USAID/Kenya to help manage the evaluation. This level of collaboration helped orient the evaluation team, build a foundation for future cooperation among the donors, and establish a common point of reference and set of approaches for supporting agriculture and livestock value chain development in Kenya.

As a further guide to the team, the SoW included 13 points of inquiry that were to be considered as each project was evaluated. In turn, the team was directed to respond to each point of inquiry as it related to each project.

For each of the projects reviewed, the following process was followed:

- literature reviews were conducted;
- the Mission's introduction to the project;
- the project's verbal brief to the Mission;
- the project's submission of a written brief to the Mission; and
- a check of the project's M&E data's consistency between recorded data and actual field findings.

EVALUATION TIMELINE

The evaluation performance period was from October 24 to December 17, 2011. An initial briefing was held with the Agriculture, Business and Environment Office (ABEO) of USAID/Kenya on Tuesday, October 25, 2011. National staff members joined the evaluation team on October 31, 2011. The Evaluation work plan was approved by ABEO on October 31, 2011. The team met with the Kenyan Development Partners on October 31, 2011 to discuss this evaluation. An interim briefing was held with the Kenyan Development Partners on November 9, 2011.

As per the approved work plan, of the total approved 47 working days, eight were dedicated to inception, work planning, and literature review. Eleven days focused on preparation and initial, interim, and final meetings with USAID and Kenyan Development Partners. Twenty-eight days were devoted to field interviews, internal meetings, and writing appendices and annexes as well as the sub-sector and overall reports.

A debrief meeting with the Partners' Guidance Committee was held on December 2, 2011. A half-day workshop was held at the Kenya Agricultural Research Institute (KARI) with attendance from a wide range of stakeholders on December 6, 2011. A final debrief to USAID/Kenya was given on Thursday, December 16, 2011.

EVALUATION TEAM MEMBERS AND THEIR ROLES

The Evaluation was undertaken by a nine-member team consisting of:

- John Willsie, Team Leader and Sub-Team Leader for Horticulture
- Jim Dempsey, Sub-Team Leader for Maize/Staple Crops
- Hezekiah Muriuki, Sub-Team Leader for Dairy

- Paul Wagubi, Team member, Maize/Staples
- Michael Makokha, Team member, Maize/Staples
- Evelyn Nasambu, Team member, Horticulture
- Patrick Mtsami, Team member, Horticulture
- James Mbikwa, Team member, Dairy
- George Oyoko, Team member, Dairy

James Adrian provided administrative and logistical support for the first part of the evaluation.

EVALUATION CHALLENGES

The team evaluated 10 separate projects funded by eight different donors in three sub-sectors: horticulture, staple foods/basic crops, and livestock activities (see Table 1). It was challenging to manage a comprehensive evaluation of all 10 projects in three sub-sectors within a short period. dTS met the challenge by mobilizing an evaluation team with sub-sectors expertise and strong skills in conducting evaluations.

The basic differences in the three sub-sector value chains, the diversity of projects, and the variations in the project objectives and design presented additional challenges in defining a common frame of reference and approaches. In each project, the successes were, in part, related to some aspects of the design and implementation methods. Accordingly, the individual sub-sector reports contain a variety of case studies that demonstrate good practices to improve value chains for the benefit of both producers and consumers.

REPORT STRUCTURE

This evaluation report consists of a summary narrative and complete sub-team reports in Appendices B to D, including Annexes to each sub-team report. A consolidated list of people interviewed during the course of the evaluation is provided in Appendix E, and a list of documents reviewed form Appendix F.

EVALUATION FINDINGS

PROGRAM DESIGN AND TECHNICAL APPROACH

The following discussion demonstrates the evaluation findings in a questions answer format.

What are the major design strengths of successful agriculture and livestock value chain activities?

Major design strengths of successful activities include the following:

Detailed background studies and learning from earlier interventions. Four of 10 programs evaluated by the team demonstrated the benefit of developing project designs based on the successful practices of earlier interventions and intensive research conducted at the beginning of the programs. The design of the East African Dairy Development project (EADD) was informed by detailed background studies and the incorporation of lessons learned from similar projects by Heifer International Kenya within Kenya and elsewhere. This project focused on building structures to enable broader diversification of dairy business services, and to develop sustainable dairy hubs. This model has the potential to be replicated in future programs. The milk hubs and chilling plants provide models for business efficiency, providing new integrated services, and enabling farmers to access new technologies, including the means to make the transition from traditional to modern breeds.

The Private Sector Development in Agriculture project (PSDA) design benefited from a baseline survey of farm households, input dealers, service providers, and processors conducted between December 2003 and February 2004 in the eight selected districts in the target area. The PSDA dairy goat value chain is particularly relevant for rural communities in the medium and high potential areas with limited agricultural land and fodder for sustaining dairy cows. The design is effective in that the interventions proposed are appropriate to the resource constraints of the beneficiaries.

The Smallholder Dairy Commercialization Program (SDCP) design included visits to all program target districts. Due process in terms of studies to inform the design and targeting were conducted by ILRI through a contract between SDCP and IFAD. The design builds on previous interventions and learning generated in the sector by programs such as the smallholder dairy program funded by Department for International Development (DfID); the Private Sector Development Assistance (PSDA) program funded by GIZ and DED; the National Agriculture and Livestock Extension Program (NALEP) funded by the Swedish International Development Agency (SIDA); and the United States Agency for International Development (USAID) funded Kenya Dairy Development Program (KDDP). Other considerations that influenced design included the GoK national and agriculture sector policy environment, and the IFAD Country Strategic Opportunities Program (COSOP). The program goal was to increase the incomes of poor rural households that depend substantially on production and trade of dairy products.

The design of the National Agriculture and Livestock Extension Program (NALEP) phase II was based on lessons learned from phase I, and on the need for continued government reform programs within the framework of the National Agricultural Sector Extension Policy Implementation Framework (NASEP-IF).

Incorporating flexibility to meet changes in demand. Key informants indicated that programs with more flexible designs adapt faster to the changes in the environment which often leads to the success of the program itself. For example, one of the design strengths of the Farm Inputs Promotion Program (FIPS) has

been its ability to adapt to shifting requirements of farmers as the project went through different stages of implementation. It moved from demonstration plots to small packets of seeds to fertilizer in small sizes. When fertilizer prices increased, the private sector re-blended the fertilizer packaging to make it more affordable. When KMDP/FIPS turned to root crops, the small number of vines and cuttings to farmers and on-farm demonstrations remained, but the distribution of the cuttings and vines directly from farmer to farmer was introduced to meet demand. Similarly, the EADD design has enabled flexibility in implementation. When baseline studies in the expanded program in Uganda and Rwanda demonstrated that farmer and cattle density within originally selected chilling plant sites was unlikely to enable the achievement of key project milestones for registered farmers and milk production, it realigned its mobilization strategies.

Regional approach using a consortium of implementers. Region-wide programs can reduce costs due to the economy of scale. If such a program is implemented by several partners, it also benefits from cross fertilization and knowledge sharing between the partners who are working as a team. One of the programs reviewed by the team, the EADD, worked at the regional level and was implemented by five different organizations. By operating at a significant scale in different regions, EADD has sought to build synergies by expanding smallholder access to private dairy markets, provide avenues for inter-regional exchange and learning, and advocate for greater livelihood support for poor dairy farmers. EADD is implemented by a consortium of five organizations, led by Heifer International in Kenya. The other organizations are International Livestock Research Institute (ILRI), TechnoServe (TNS), African Breeders' Service Total Cattle Management (ABS-TCM), and International Centre for Research in Agroforestry (ICRAF).

Incorporating stepwise approach to identify leverage points. When leverage points cannot be identified clearly at the design phase, a stepwise approach can be used to identify these points during the project implementation. Two programs reviewed by the team used this approach. The Kenya Dairy Sector Competitiveness Program (KDSCP) used a stepwise approach to intervene through a milkshed which is defined as an area with the potential to produce 50,000 to 100,000 liters of milk per day. This approach identified the constraints and opportunities for competitiveness along the critical nodes in the value chain; identified market-based solutions to competitiveness constraints that can be overcome by utilizing commercial Business Development Services (BDS) providers; and assessed the most viable and priority solutions in target areas. This approach has contributed to the achievement of the overall KDSCP outputs as it enabled cause-effect analysis and allowed the program to develop working solutions using the BDS methodology. This design is also innovative and provided enhanced credit provision to farmers. The design incorporated the utilization of Kenyan resources mobilized through a competitive sub-awards program. The design created a competitive bidding process; linked project beneficiaries with the necessary BDS from their localities; created the availability of financial products required for market growth and to foster industry competitiveness; build local capacity at the grass-roots level; and ensured sustainability of and future access to services.

The SDCP also used a stepwise approach which was based on capacity building of the groups to move them through their three levels of development.

Dedicated orientation toward knowledge creation and dissemination. Most of the projects were oriented toward stimulating investment in research and dissemination of new market-based services, inputs, and technologies that directly increase the competitiveness of the enterprises along the value chain. This was particularly true of KDSCP.

What were the principal agriculture and livestock value chain technical issues, and how were they addressed?

Each of the five dairy programs varied in their design and implementation. One of the common drawbacks in all of the projects was the focus on the formal market even though the informal market accounts for 80% of total milk production capacity in Kenya.

The technical issues were addressed as discussed below:

Collective intervention. Three of the projects evaluated by the Horticulture sub-sector team (NALEP, PSDA, and SHEP-UP) were designed as cooperative agreements with the GoK to be implemented within the MoA. NALEP, PSDA, and SHEP-UP projects work in coordination with district MoA offices. From a technical perspective, these projects work in a complementary fashion without any apparent conflict or overlap. The horticulture sub-sector team visited several district MoA locations throughout Kenya to observe how these projects function. NALEP plays a broad role in rural development with Common Interest Groups (CIG) as a focal point to begin the "construction" of a value chain. PSDA and SHEP-UP focus on value chain constraints and development from more developed and yet very different perspectives. The collective intervention results in a comprehensive and well rounded "package" of tools available for beneficiaries.

The Kenyan Horticulture Competitiveness Project (KHCP) and Practical Training Center (PTC) Horticulture were the other projects evaluated and were designed to function outside of the GoK, but with strong consultation with the MoA. From a design perspective, KHCP is identified as being "market-driven and partner-managed" working closely with the MoA and other governmental institutions, but it functions independently. After an in-depth market study, eight crops were targeted for value chain interventions. Technically, the project has formed partnerships with private sector actors via substantial grants. The evaluation team reviewed numerous partnership arrangements currently underway via KHCP and concluded that the design and technical implementation of the project is providing opportunities for small landholders to successfully participate in the global cut flower business, expanding sweet potato export opportunities, improving seeds intended for dry-land agriculture, and the expansion of tropical fruit production, along with assisting with market opportunities.

The PTC – Horticulture was designed to fill voids in horticulture value chains as related to training producers and workers. Although this facility was proposed by private sector interests, it became a reality due to the collaborative efforts of the private sector, government, and donors. Technically, this project is self-sustainable and is a reflection of what can occur when the private sector, government, and donors join in a collaborative effort to share human resources and financial assets to achieve a mutually agreed objective.

Guidance on training and marketing. The team observed and interviewed numerous beneficiaries engaged in value chain activities related to horticulture who directly benefitted from the PSDA's hard-hitting and pragmatic production and market development guidance. The team also met many beneficiaries who had made well-informed business decisions as a result of training in conducting market surveys — a basic activity motivated by SHEP-UP. In addition, the SHEP-UP technique of involving husbands and wives together in all training programs is a "social" approach to value chain intervention that is both productive and relevant to the culture of daily life in Kenya.

GOVERNANCE

What were the principal agriculture and livestock value chain governance issues, and how were they addressed?

Grass-root farmer organizations facilitated community-level empowerment. The biggest strength of NALEP has been the formation and capacity building of grass-root farmer organizations in the form of CIGs. This has helped promote the following: an empowered community demanding quality extension services; the establishment of a Forum of Stakeholders; mutually supportive activities in providing extension services for crops, livestock, fisheries and value-added activities; as well as funds and expertise for infrastructure such as sub-surface dams and water harvesting structures, rural access roads, and rural health centers. NALEP has reached 1,800,000 households through CIGs and farmers' field days since it began. As a result, farmers increased their production of crops, livestock, and processed agricultural produce. Some members of CIGs have increased their income by a factor of two to four within two years, and have moved out of poverty and improved the nutritional, health, and educational standards of their families. Men, women, and youth have benefited. The empowerment of women and civil society in general is the most impressive result of the program. Some programs, such as NALEP and SDCP, put effort into forming groups while others, such as KDSCP, EADD and PSDA, used existing groups.

Village-based advisory services helped reach farmers efficiently. The FIPS Village-Based Agricultural Advisor (VBA) system complements the higher skilled work of the government extension officers in the Ministry of Agriculture or other ministries. The GoK extension workers, as the team found from its review of NALEP, are capable of reaching farmers with technical advice and linkages to government programs. On the other hand, the VBAs and the related components of the KMDP partner, FIPS, input promotion system has proven to be a cost effective, quick approach to increasing farm production and food security.

INCLUSION AND ACCESS

What approaches were most effective in increasing participation in agriculture and livestock value chains?

Involving husbands and wives in training helped increase participation. Traditionally, in agrarian societies women are engaged in day-to-day farm work, while men attend social activities including trainings. Special efforts to involve women into the trainings and project activities provide significant benefits. For example, evaluation of SHEP-UP program revealed that inclusion of both husbands and wives in training and in conducting market studies have resulted in an 11% increase in income among participants since the inception of the project.

KDSCP has reached a total of 250,000 of beneficiaries, mostly women and youth. KDSCP has helped 57 dairy enterprises meet national certification standards and has trained a total of 90,434 producers. KDSCP helped link farmers with financial institutions to develop their dairy enterprises. The program has introduced 42,814 farmers to credit facilities against a target of 36,000, with 37% of them being women. A total of KShs 88 million was accessed by dairy farmers in the program area from financial service providers enabled through program links.

SDCP has reached a total of approximately 17,500 households (from within 537 dairy groups). Beneficiary milk productivity has improved from 4.0 liters per cow per day to 10.6 and production costs per liter have been reduced by an estimated 23%.

PRIVATE SECTOR PARTICIPATION

What was the role of the private sector in activity design and implementation?

There was evidence of strong public/private collaboration. The PSDA worked with potato sector stakeholders to support the government in developing a legal and policy framework. This same group successfully advocated that the GoK allocate funds for potato sector research and specific programs. The National Potato Council of Kenya, a multi-stakeholder forum for the potato sector, was recently established and launched.

In KDSCP, high levels of collaboration contributed to stronger vertical and horizontal linkages within the value chain. The project has reached and sometimes surpassed its targets to date, indicating the application of sound design and implementation approaches. The organization of farmer groups into business organizations enables dairy producers to increase their bargaining power with the processors. The formation of federations has resulted in increased milk prices at the farmer level and, at the same time, qualified members for premiums/bonuses given by processors. It has increased milk production from 6.4 to 10.0 liters/day/cow; reached almost 250,000 households; introduced 42,814 farmers (37% women) to credit facilities; and helped establish 124 SBOs who market their milk collectively and earn a bonus.

COMPETITIVENESS – ACCESS TO FINANCIAL SERVICES

How did the activity increase producer and enterprise access to agriculture and livestock financial services?

SDCP has helped farmers to access credit. Some 2,500 group members have accessed a total of KShs 34 million in credit from financial institutions.

KDSCP has helped 42,814 farmers access credit, 37% of them women. These farmers have accessed a total of US$977,000 (KShs 88 million) from financial service providers. EADD has leveraged farmer investment of over KShs.340 million in chilling plants and hub-related services, including Agrovet stores, milk tankers, milk collection trucks, financial service associations, and Savings and Credit Cooperatives (SACCOs) providing Front Office Savings (FOSA) services for its members.

PARTNERSHIP

Who were the most important collaborators and cooperators, how were they engaged, and what was their contribution to success?

There has been a high degree of collaboration of donor-funded assistance over the past decade. The PTC Horticulture in Thika, for example, became a reality due to cooperation and input from virtually all donors and implementers who at the time were engaging in horticulture value chain interventions in Kenya.

The approaches of donor-funded projects implemented via the MoA were different, but nonetheless complementary. This is a result of extensive consultation with the MoA to identify the skills, knowledge, and attributes each donor could provide, along with defined goals and objectives and frequent re-evaluation via M&E. As a result, there was no indication of duplication of effort among the NALEP, PSDA, and SHEP-UP projects working through the district MoA offices. The evaluation team visited dozens of these locations throughout Kenya. NALEP played a broad role in rural development with CIGs as a focal point to begin the "construction" of a value chain. PSDA and SHEP-UP focused on value chain constraints and development from more developed and yet very different perspectives. Collectively, the interventions resulted in a comprehensive and well-rounded package of tools available for beneficiaries.

The other donor-funded projects implemented in collaboration with the MoA and /or MoLD — PSDA, SHEP-UP, and SDCP — all coordinate with NALEP to provide value chain guidance, business training, and technological assistance. These projects, and others that function as stakeholder forums at the local (district) and provincial levels, have been valuable assets for the District Agricultural Officers (funded via NALEP) who facilitate CIGs interested in participating in value chains.

Coordination among the aforementioned projects has yielded impressive results in recent years. The sub-sector reports note many successful value-chain related activities that can be attributed to the good working relationships among the MoA, Ministry of Livestock (MoLD), and the donors.

All the assessed programs had a partnership of some sort. The EADD model is a good model for partnership development and planned coordination of different actors. The partners had clear mandates and roles, and offered varying expertise.

ENABLING ENVIRONMENT

What was the effect of Government of Kenya (GOK) policy, and the enabling and regulatory environment, on implementation and investment?

The enabling environment for agriculture-related value chain activities in Kenya was less than desirable a decade ago. Weak and ineffective government ministries and a poor enabling environment for private sector development meant that little information was available to producers about production techniques or any aspect of value chains. Input supplies were generally scarce, and not consistent with technological advances. Rural infrastructure was inadequate, and communications poor. Corruption at all levels was out of control. Market knowledge and intelligence available to farmers was extremely limited.

The change in government led to a new enabling environment and renewed GoK efforts to provide services to the rural population engaged in agriculture. Thanks to responsive policies and practices by the GoK over the past 10 years, there has been a dramatic improvement in the enabling and regulatory environments, especially reflected in the horticulture sector. The fact that all the partners support the ASDS and, in turn, the MTIP indicates that the global community is convinced the GoK is on the right track.

OTHER CONSIDERATIONS

What other important issues and considerations were incorporated and addressed?

Growth versus Poverty Alleviation

The three sub-teams found different balances between growth and poverty alleviation. In the design of NALEP and PSDA, a pro-poor set of objectives was set out. KMDP I was more balanced in seeking maize sector growth and poverty reduction, but then became more pro-poor in its second phase, which started in 2011.

SDCP design was pro-poor in focus and used poverty levels as a criterion for areas of operation. The approach, with its market-oriented dairy commercialization, is better suited for pro-poor dairy value chain interventions at the producer level. This facilitates participation of the rural farming poor who have no dairy (grade) cattle.

Subsidies

Donor programs intervened in the value chain to enable, incentivize, and sustain positive change without distorting the market. All three reviewed programs sought to intervene in the crop sectors without subsidy or

direct delivery of services. KHCP is providing US$18 million in grants and GIZ has provided some direct financial assistance. In the potato sector, PSDA assistance to the private agribusiness firms to help re-establish a potato seed supporting market for potato subsector growth is a strong example of smart subsidies.

All the dairy value chain activities were designed to use a commercial approach (sales of milk) to increase income and/or reduce poverty. For example, KDSCP has employed a market-driven value chain approach using a BDS methodology to promote embedded service delivery by providers.

Standards

Concerns about the authenticity of goats being sold as dairy goats has led to a demand for registration services with KLBO, and for records of milk. Adoption of Global GAP standards in the form of Kenya-GAP has been a cornerstone in the acceptance of horticulture products in the global marketplace. Continued emphasis on developing quality standards acceptable to international and domestic buyers by all agricultural and agribusiness sectors within Kenya will be key to financial success.

MONITORING AND EVALUATION

What approaches were used and systems put in place for M&E activity implementation and impact?

All the programs evaluated had some M&E system in place. Of the projects evaluated by the Horticulture Team, a number of M&E concepts were noted, as required by donor home-country rules and regulations. KHCP was subject to an extensive third-party evaluation after the initial year of operation. The evaluation sought to determine if the project was making reasonable progress toward the goal of assisting 200,000 beneficiaries and their families. The project aimed to engage them in improved production and agro-processing practices, and link them to sustainable value chains resulting in increased household income and food security. NALEP and its predecessor projects funded by SIDA responded constructively to all M&E reports and adjusted the following projects to fit M&E results and recommendations. GIZ and JICA utilized different methodologies to conduct M&E. They were extremely detailed and precise, and led to improved projects that fit ever-changing circumstances. Partners would benefit from workshops comparing M&E techniques and methodologies.

The projects, however, need a stronger learning and value-chain knowledge management base. A more systematic approach to results monitoring is necessary to ensure that a baseline reference is developed and similar indicators contribute to reviews and evaluations of the projects, and that a broader picture of the interventions can assess overall impact and institutional learning. This is clearly seen in the EADD project.

In all cases, sufficient self- or third-party M&E had been authorized by donors to insure that the next project concept fit the current enabling environment as related to targeted beneficiaries.

RESULTS

How effective were agriculture and livestock value chain activities in terms of scale and overall impact?

All projects increased scale and showed improvements in overall impact through their activities. KMDP's work with smallholders has increased their productivity and improved their linkages to other actors in the value chain. The project has increased farmers' milk production through the use of improved technologies, helping beneficiaries increase their dairy income to an average of KShs 5,200 per month. Interviews confirmed that farmers who participated in KDSCP capacity-building exercises had higher per-cow milk

production than those who did not. Beneficiaries report that their gross margin of KShs 10.05 per liter has doubled, primarily due to the increased prices received as a result of milk bulking. KDSCP demonstrates that success is built on well designed and targeted interventions, and results-oriented implementation.

EADD has increased dairy-related income among poor farmers by expanding access to formal and informal marketing channels. Given the limited capacity of traditional markets to absorb increases in milk production, EADD promoted access to under-developed consumer markets, particularly in urban and peri-urban areas. The project has helped 21 dairy farmer business associations become private companies, cooperatives, or public companies. EADD has 110,480 registered dairy farmers, with more than 80,000 actively selling milk through CPs. Daily CPs intake is averaging 213,500 liters. EADD has leveraged farmer investment of more than KShs.340 million in chilling plants and hub-related services, including: Agrovet stores, milk tankers, milk collection trucks, financial services associations, and SACCOs providing Front Office Savings (FOSA) services for its members. In three years of operation, EADD beneficiaries have earned more than US$36 million from the sale of more than 106 million liters of milk and generated about 983 BDS employment opportunities.

SDCP has improved milk revenues for farmers through improved pricing as a result of collective marketing. The project is working with 224 dairy groups composed of 3,755 dairy group members who collectively market their milk, which has resulted in higher prices paid by the processors. Farmers are presently paid a Kshs7 premium for selling collectively, and an additional bonus of KShs 1 per liter for delivering chilled milk.

PSDA activities have increased household income from the enhanced production of goat milk as well as from the sale of improved goats, the latter in particular. The allure of the PSDA dairy goat activity has been the high milk productivity of the improved or purebred goats, and the fact that they demand less fodder than do dairy cattle.

NALEP II has promoted an empowered community demanding quality extension services. The mid-term review reported that approximately 1,800,000 households have been reached through CIGs and farmers' field days since the start of NALEP II (January 2007). Farmers have been able to increase their production of crops, livestock, and processed agricultural produce as a result of improved practices and technologies. Some members of CIGs have increased their income by a factor two to four within two years, and improved the nutritional, health, and educational standards of their families.

KDSCP, EADD, and SDCP have performed well in facilitating milk production and sales and in increasing rural household incomes. KDSCP, EADD, SCDP, and PSDA have all contributed to dairy value chain productivity and, to some extent, to competitiveness. The existence of markets for milk, and for inputs and their access is critical to the success of dairy value chain.

The KHCP, with its private-sector partnership, is a model whereby very small producers can participate in the lucrative export market for cut flowers. KHCP has improved the lives of its participants. The team observed recently built new homes, children in fresh uniforms attending schools, and improved rural communities as a direct result of participation in the project. Mirroring these achievements, the evaluation team observed and interviewed numerous beneficiaries engaged in value chain activities related to horticulture who directly benefitted from PSDA's pragmatic production and market development guidance. The SHEP-UP project has enabled beneficiaries to make well- informed business decisions as a result of training in conducting market surveys.

Significant opportunities exist for improved coordination and collaboration between donors, the private sector, and the GoK to generate impact.

SUSTAINABILITY

What factors were most important in achieving the activity goals and objectives and sustaining impact?

None of the projects evaluated by the Horticulture team had been implemented long enough to pass judgment as to their sustainability. KHCP activities are just over a year old. Although there are numerous promising partnerships with private-sector interests via grants, the realities of sustainability will not be known for several years.

Many of the CIG and producer entities that have evolved from the work of NALEP, PSDA, and SHEP-UP show the potential for long-term financial sustainability, and a few have been operating for enough time to conclude that they will have continued success if the enabling environment continues to improve. The unique example was PTC Horticulture which, although a young venture, has developed a complete and well thought-out business plan, and enjoys such superb management talent that the potential for sustainability is extremely promising.

KEY LESSONS

What were the greatest strengths of the successful activities, and the most important lessons which can be learned from them regarding the design and implementation of new agriculture and livestock value chain activities in Kenya?

Need to adapt to global marketplace in a competitive manner. The simple reality of adapting to the global marketplace in a competitive fashion was the obvious lesson learned. Successful ventures in horticulture and agriculture must be orchestrated in geographic areas that are conducive for the commodities produced.

Private-sector interests must take the lead with the support of government and, wherever appropriate, should accept donor assistance. Private interests demonstrate that Kenya has the appropriate productive conditions to compete with any and all global competitors in numerous horticultural crops. The GoK has been a good partner with the private sector over the past decade by increasing the credibility of Kenyan producers, and donors have provided important assistance in technology and human resources.

The key elements for successful design and implementation include the following:

- Strong knowledge of the markets: A clear definition and understanding of the value chain target market, its requirements, and related competitive factors.
- Fostering market linkages: A concerted effort to improve market linkages and value chain governance. A clear emphasis on helping producers to engage and effectively participate in the value chain through facilitation of horizontal linkages.
- Knowledge creation and dissemination for technological improvements: A flexible approach to providing producers with ready access to information and training on new cultural practices or other technical inputs that help resolve production issues and improve competitiveness.

The evaluation team found a variety of approaches which had impact at different points within the value chains. There were very few interventions, other than a few examples in the horticulture sub-sector, which dealt with 'farm to fork' value chains in a comprehensive fashion. However, all the evaluated projects employed the elements described above in one form or another.

RECOMMENDATIONS

Value Chain Design Imperatives

The design of project interventions should be finalized after comprehensive assessment of a particular value chain it is intending to influence. Strong value chain assessments were conducted by both KMDP and PSDA/Potatoes at the start of implementation. This knowledge has been central to program implementation and the results achieved. A solid understanding of the entire value chain is required to get the right design for the value chain program for the crop or enterprise. The EADD and KDSCP projects focused on the formal processed milk part of the value chain to the near exclusion of the informal warm milk branch of the value chain. Growth in the formal sector has been achieved, but opportunities for small farmer participation and income in the informal raw milk sector have been missed.

The value chain is a system that requires an understanding of the need to work at various points along the chain at differing times. PSDA's decision to focus on the potato seed supporting market is a good case study of understanding the potato value chain system, and selecting and facilitating a high-impact intervention.

The end markets for the selected value chain can drive or limit value chain program impact and sector transformation. The evaluation team found strong end markets for potatoes, potato seed, and crops complementary to maize for food security. The farmer demand for maize as a food security crop was very high. However, government interference in the commercial market for maize in Kenya has made some marketing decisions and actions difficult. For example, maize storage or warehousing after the main harvest becomes questionable if government actions will distort markets and pricing. Yet, USAID's decision to move forward with KMDP acknowledged the centrality of the maize sector to food security. Policy changes are still needed to free the maize sector of GoK distortions.

The follow-on program to NALEP II is not a comprehensive value chain approach that starts with end markets, and builds support for the smallholder farmer from a strong understanding of the entire value chain needed to reach end markets. A complete value chain approach for a selected few of the CIG crops should be added to the NALEP follow-on project to determine if such a value chain approach can be added successfully to the extension project.

Facilitation versus Intervention

Donor programs are not, and should not engage as actors in the value chain. Donors need to find ways to facilitate improvement in the value chain without disrupting the incentives, markets, and flow of goods and services in the value chain system. Donor programs should not provide a service or function that private actors in the value chain can deliver. However, there are many cases where the private-sector service or function is weak or non-existent. A value chain project then has to facilitate upgrading the weak service or function in a way that builds sustainable service providers in the private sector. Effective facilitation does not disrupt the markets and leaves the "ownership" of the service or good in the hands of market actors. In this way, sustainable value chains will be established.

In the case of maize and other food crops, KMDP's provision of seeds enabled farmers to access improved varieties at affordable prices through private seed companies. This is an example of donor facilitation for value chain growth. KMDP's work with private fertilizer companies to provide affordable, small-sized packages of fertilizer to smallholder farmers is a good example of KMDP facilitating service provision improvements. In the potato sector, PSDA assistance to private agribusiness firms to help establish a private sector potato seed supporting market for potato production growth is an example of smart subsidies. In the

dairy sector, the EADD and SDCP expanded and strengthened a range of dairy and business support services for farmers and their associations.

Horizontal Linkages

Donors should encourage development of horizontal linkages between organizations supported by different projects. The KMDP staff and their implementing partner, the Kenyan Cereal Growers Association (CGA), have built on existing groups and expanded the latter's capability around specific value chain objectives. As the primary interface with farmers during the life of the project (LOP), farmer organizations, with their increasing effectiveness, were the basis for much of the project's impact. In 2010, approximately 7,000 farmers participated in such groups according to the KMDP staff. Scaling up to reach a significant portion of the 3.5 million farmers that grow maize remains a challenge. It should be noted that in many of the maize growing areas, post-election violence in early 2008 reduced the number of farmer associations and weakened others.

Farmer Outreach and Extension, Inclusion, and Access

The inclusion of farmers (into program activities, corresponding outreach activities, and program extension) should be planned based on the desired mix of sector growth and poverty reduction resulting from the program implementation. The key to engaging in value chain promotion is to identify the intended balance between economic growth and poverty reduction. This balance varied among the assessed food crop, dairy, and horticulture programs. In the design of NALEP and PSDA, a pro-poor set of objectives were set out. KMDP I was more balanced in seeking maize sector growth and poverty reduction, but then became more pro-poor in its second phase, which started in 2011.

Smallholder farmers; working directly or in groups with technology, improved inputs, and market access; are gaining power as they grow food for their households and the markets, and are strengthening the value chain. KMDP's work with smallholders has increased their productivity and improved linkages to other actors in the value chain. In addition, with maize and root crop productivity increases, farm household food security has improved in some areas. PSDA's work on potatoes, especially in the seeds area, is starting to expand the use of potatoes as a food and commercial crop. A similar pattern is just beginning for sweet potatoes as a food security crop. These examples of small-scale, farm-level food crop improvements lead to significant positive movement in the value chain in the staple food crops. These changes are not yet robust, but the trend is encouraging. The methods and approach of KMDP's partner, FIPS, are the most promising in bringing improved food security to selected village farmers.

Private Sector

Involvement of private sector actors into value chain projects is recommended to ensure sustainability of the project results. Market forces are the impetus behind value chains and small-scale farmer commercialization in all three sectors. These same forces yield sustainable farm systems and markets. Donor and government programs can facilitate commercialization if they are implemented to enhance private sector services and market forces.

Competitiveness in Financial Services

The value chain development projects should work with the financial sector to make the chain more attractive to the lenders through better visibility and understanding of its components. Given the increasing commercial viability of maize farming, banks are now more interested in lending to small farmers, albeit "larger" small farmers. During the 2008 long rainy season, KMDP reported that more than 7,702

individual farmers received loans amounting to US$1,097,101 from seven commercial banks through their farmer groups. In 2010, the number of farmers receiving bank loans rose by nearly 10% to 8,300.

Enabling Environment

Working with GoK to create an enabling environment for specific value chains would still be a valuable component of a good program.

Maize operates in a balanced market network but has two features that disrupt the balance. The first is direct GoK involvement through the NCPB that, on occasion, sets a price that disrupts market operations. The second is that the GoK will waive or lower the 50% import duty on maize coming through the port of Mombasa, which also disrupts the market. GoK distortions in the market remain an issue to be addressed. On the other hand, PSDA, working with potato sector stakeholders, supported the Government in developing a legal and policy framework. This same group successfully advocated to have the GoK allocate funds for potato sector research and specific programs. The most recent allocation was Ksh 22 million. PSDA partnered with donors, the Government, and CIP to complete a National Seed Potato Master Plan to pave the way for further development of the potato sub-sector through 2014. The National Potato Council of Kenya, a multi-stakeholder forum for the potato sector/industry, was recently established and launched. This public-private partnership facilitates planning, organization, and coordination within the potato sector. Its first strategic objective is to create an enabling environment for effective and efficient potato value chain growth and development. Its membership represents all segments of the value chain, including the GoK and development partners. A program for affordable quality potato seed has been developed through a partnership of donors, the GOK, and private companies. Establishing an enabling environment for a largely private-sector potato seed industry was critical to the success of the potato seed value chain growth to date.

Partnership

Programs should develop solid business and financial plans for public-private partnerships to be successful. Public-private partnerships and stakeholder involvement with strong market linkages are crucial for the successful and sustainable implementation of horticultural projects. However, such projects must have a good business and financial plan in addition to a robust M&E strategy. In addition, the use of a well-developed curriculum for building stakeholder capacity along the horticulture value chain contributes to the production of high-quality horticultural products that meet international standards and enhance Kenyan horticulture competitiveness in the export market. The PTC project is highly recommended for scaling up including with Good Neighbors and Agricultural Training Centres in different regions of Kenya as well as East and Central Africa. This will develop the agricultural industry by increasing income generation at the household level, and improve livelihoods and Kenya's gross domestic product (GDP).

Monitoring and Evaluation

Donor value chain programs need M&E strategies that reaches beyond the donors' M&E requirements to better assess how the value functions. The government/donor programs and eventually, the value chain actors themselves need the capacity to adjust and learn as the value chain changes. All three programs evaluated would benefit from instituting an on-going learning and building a knowledge management system.

A second aspect of this "learning as you go" process is that value chain interventions change as programs and markets evolve. The evolution of the KMDP/FIPS provision of inputs indicates that facilitation is an iterative process. FIPS moved from demonstration plots to small packets of seeds and then added fertilizer in small sizes. When fertilizer prices jumped, the private sector re-blended the fertilizer to make it more affordable. When KMDP/FIPS turned to root crops, the small number of vines and cuttings for farmers and

on-farm demonstrations remained, but the distribution of the cuttings and vines directly from farmer to farmer was new.

Results

Programs with a comprehensive approach that included all aspects and market channels of a value chain yielded the strongest results. Where this was not done the programs were less effective. The marketing part of the value chains for many of the CIG selected crops was weak or not assessed in a systemic way. More robust results could have been achieved with a value chain approach to markets and marketing. Similarly, the near-complete focus on formal market channels in processed milk in the value chain limited the potential for expanded results.

Feed the Future

The proposed initiative to reach food-insecure smallholder farmers will look strategically at the agricultural sector. The cost to the Kenyan government, economy, and food aid donors of continuing to feed those that cannot feed themselves is enormous. The government cost of maintaining a strategic reserve of food at NCPB is over $15 million this year alone. The U.S. Government's emergency food aid and other humanitarian assistance during drought and disruption averaged over US $61 million per year over the 10 year period between 2000 and 2009. FY 2011 expenditures for emergency food aid alone have been $77.47 million. The proposed food security initiative will not eliminate food insecurity in Kenya, but it will substantially reduce the number of people in need. Pastoral and arid areas will not benefit from the proposed food security initiative and some emergency assistance will be needed even if the initiative succeeds. However, a conservative estimate of reduced food and other humanitarian aid is in the 40-50% range. This assumes achievement of $25-30 million savings per year if a fast action food security program can be put in place at the start of the new FtF program in 2012. The humanitarian and relief benefits would be enormous.

Table 2. USG Humanitarian Assistance to Kenya (FY 2000–2009), in US$ Millions

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total	Yearly Avg.
OFDA	5.7	6.0	1.5	0.2	0.3	2.2	5.6	1.4	11.3	24.2	38.4	3.84
FFP	22.8	38.7	4.7	12.1	30.1	34.9	82.4	80.1	64.6	133.7	504.1	50.41
Other USG	70.7	56.4	21.1				11.5	2.4	24.0	32.1	70.0	7.00
Total	99.2	100.1	27.2	12.3	30.4	37.1	99.5	83.9	99.9	190.0	612.5	61.25

FY2000-2009 figures from USAID/FFP Information System. USAID/FFP funding only includes emergency food assistance. Between FY1999 and FY2008, USAID/FFP allocated additional food commodities and funds for development activities in Kenya. Other USG assistance can include humanitarian assistance from USAID's Bureau for Africa, USAID's Office of Transition Initiatives, the U.S. Department of Agriculture, and the U.S. Department of State's Bureau of Population, Refugees, and Migration.

The geographic focus of the FtF strategy is a plus, since many of the food-insecure farmers live in the FtF focus areas of SA2 and HR1. Yet it also makes sense to reach out to any districts that have high numbers of food insecure and in which crops complementary to maize can be grown. Successful FtF food security initiatives that can achieve success in a relatively short time (3-5 years) save the government and donors the cost of a food emergency over the longer term. For the GoK and some donors, these "savings" can be used to expand efforts to transform the agricultural sector. For the USG, where funds are not transferred from food aid and emergency accounts to development accounts, we can say there will be a net saving to the USG in general. Thus, some flexibility in the geographic focus of FtF is desirable. One way to explore this option

would be to look at the district level rather than the eight agro-ecological zones reviewed in the FtF strategy with food insecurity and complementary crop filters. These filters are analogous to the FtF sub-region filters of poverty and food production.

The evaluation team, therefore, recommends a new FtF program based on the introduction of food crops complementary to maize that builds on the success of KMDP and especially its partner, Farm Inputs Promotions Africa (FIPS), to address farmer risks through on-farm demonstrations and affordable input provisions. The village-based structure set up by FIPS has been most effective in reaching smallholder farmers. Group approaches may also work. It will be necessary to define the role of the government extension system. The food security program for smallholder farmers could have important impacts within 3-5 years by taking many farmers out of food insecurity and eliminating the cost of feeding and supporting them during periods of drought or other problems. USAID alone has averaged more than $60 million per year in emergency feeding and support in Kenya. If half of that can be saved in the future through an immediate and directed food security program based on the successful experiences the team found, there would be direct savings to the USG of $25-30 million per year. USG money is not usually fungible, but for other donors and the GoK, savings on emergency funding for the food insecure could be used for the longer-term goal of transforming the agricultural sector. Improvements in health and education performance of these newly food-secure farmers, although hard to quantify, could also be significant.

Transforming the agricultural sector is the goal of FtF. The GoK Vision 2030 is more difficult to achieve if there is a continuing need to feed millions of individuals as climatic and other shocks disrupt agricultural production. Eliminating the need for much food aid and emergency support through improved agricultural production for the small-scale, food-insecure farmer early in the FtF program brings potentially millions of dollars in savings to the USG and GoK. Perhaps most important, we need to add to the advantages of the program the enormous humanitarian and relief benefits that would come from bringing so many households out of food insecurity in the near term.

APPENDICES

APPENDIX A. SCOPE OF WORK

PURPOSE

To identify the best approaches for donors to use in designing and implementing agriculture and livestock value chain development activities in the context of Kenya's Medium Term Investment Plan (MTIP).

The evaluation team will concentrate their efforts on examining successful donor-supported Kenyan agriculture and livestock value chain activities, and on determining why those activities have been successful. For this evaluation, the focus will be on the value chains of dairy, horticulture and staple foods. The results of the evaluation will be used to help inform and guide the design and implementation of future donor-funded and government-funded value chain activities in Kenya, and contribute to the harmonization of donor-supported rural economic development programs. More specifically, the results will also be used to inform and guide the design and implementation of USAID/Kenya activities financed under the Feed the Future (FtF) Initiative.

In sum, the evaluation will present USAID/Kenya and the Kenya Development Partners with findings, conclusions and recommendations on the key aspects of successful agriculture and livestock value chain activity design and implementation. It will also provide a common framework and point of reference for donors to use in designing and implementing agriculture and livestock value chain activities, and in collaborating with one another in support of the Kenya Agricultural Sector Development Strategy (ASDS).

The overall deliverable under this Scope of Work (SoW) will be a comprehensive Evaluation Report that responds to the following questions:

1. DESIGN: What are the major design strengths of successful agriculture and livestock value chain activities?
2. TECHNICAL APPROACH: What were the principal agriculture and livestock value chain technical issues, and how were they addressed?
3. GOVERNANCE: What were the principal agriculture and livestock value chain governance issues, and how were they addressed?
4. INCLUSION AND ACCESS: What approaches were most effective in increasing participation in agriculture and livestock value chains?
5. PRIVATE SECTOR: What was the role of the private sector in activity design and implementation?
6. COMPETITIVENESS: How did the activity increase producer and enterprise access to agriculture and livestock financial services?
7. PARTNERSHIP: Who were the most important collaborators and cooperators, how were they engaged, and what was their contribution to success?
8. ENABLING ENVIRONMENT: What was the effect of Government of Kenya policy, and the enabling and regulatory environment, on implementation and investment?
9. OTHER CONSIDERATIONS: What other important issues and considerations were incorporated and addressed?

10. MONITORING AND EVALUATION: What approaches were used and systems put in place for monitoring and evaluating activity implementation and impact?
11. RESULTS: How effective were agriculture and livestock value chain activities in terms of scale and overall impact?
12. SUSTAINABILITY: What factors were most important in achieving the activity goals and objectives and in sustaining impact?
13. LESSONS: What were the greatest strengths of successful activities, and the most important lessons that could be learned from them regarding the design and implementation of new agriculture and livestock value chain activities in Kenya?

The evaluation report should be framed to summarize and present a broad range of donor experience, cite successful design and implementation innovations, and articulate lessons learned that will contribute to a scaling up of donor-funded agriculture and livestock value chain activities. PACE should frame the evaluation report around answering the 13 questions above for each sector, as well as presenting overall findings, conclusions and recommendations. **The evaluation is expected to provide general recommendations and describe best practices for agriculture and livestock value chain activities in Kenya; and specific recommendations for the USAID-financed activities, and how those can be better aligned with the MTIP and other donor activities.**

BACKGROUND

The Government of Kenya (GoK) launched ***Kenya Vision 2030*** as the long-term blueprint for national development in June 2008. The aim is to transform Kenya into *"a globally competitive and prosperous nation with high quality of life for her citizens by the year 2030.*

The Agricultural Sector Development Strategy (ASDS) was formulated in 2009 as the overall national policy document for agricultural sector ministries and sector stakeholders. ASDS is also aligned with the Comprehensive Africa Agriculture Development Program (CAADP) goal of raising agricultural productivity by 6 percent annually, and the United Nations Millennium Development Goals. The ASDS specifically seeks to achieve the following in Kenya by 2020:

- Reducing the population living under the absolute poverty line to less than 25 percent
- Reducing food insecurity by 30 percent
- Increasing annual agricultural sector growth to 7 percent

The Agricultural Sector Support Program Phase II (ASSP II) has been designed to implement the ASDS through 2015. A principal element of ASSP II is: ***Agribusiness, Market Access, Value-Addition, and Rural Infrastructure Improved.*** Activities in this area will focus on upgrading value chains for selected commodities, increasing private sector integration, and improving development partner coordination and program harmonization.

Traditional commodity-specific approaches assume that increased agricultural production and productivity would be sufficient to fuel agricultural sector growth. The more recent emphasis on value chain approaches uses a broad analytical scope to understand the principal constraints to overall competitiveness, encompassing agricultural productivity and commercialization. More specifically, value chain approaches require understanding of the market system in its totality from farm to fork: from input suppliers to small producers

to traders and processors or buyers; the support markets that offer technical, business and financial services to value chain actors and enable improved productivity/upgrading; the strength and efficiency of vertical and horizontal linkages/cooperation; and the policy and business (both formal and informal) environment in which the value chain operates, and consumer preferences.

Within the context of Kenya's Agricultural Sector Development Strategy (ASDS), donor-supported agriculture and livestock value chain activities specifically address the following three Medium-Term Investment Plan (MTIP) priority areas:

1. Increasing productivity, commercialization, and competitiveness.
2. Promoting private sector participation.
3. Increasing market access and trade.

The analytics that underpin the value chain approach include the selection of high-potential value chains; end market and chain analysis; and development of strategies to improve competitiveness, the overall value of benefits, and the spread of those benefits to the beneficiary population. Implementing value chain activities relies on facilitating interventions which lead to long-term growth and poverty reduction. The value chain approach seeks to catalyze change in the value chain and to achieve impact throughout the system, rather than simply measuring impact at the beneficiary level (producer, organization or firm) as a result of direct assistance.

The Kenya Development Partners have committed to aligning their support for agricultural sector projects and programs behind a country-led plan, and to developing a common framework for monitoring and evaluation. The Partners are also interested in learning from one another's experience, in finding out what design and implementation approaches are working or have worked in Kenya, and in understanding why those approaches are successful. They have agreed to undertake a joint evaluation of their agriculture and livestock value chain activities to inform the design and implementation of new value chain interventions.

The evaluation will focus on qualitative aspects of activity design and implementation, using summary information and data to reflect the scale of outreach and impact on incomes and employment. Several of the Kenya Development Partners (listed on Page 5) have agreed to collaborate with USAID/Kenya and help manage the evaluation. That collaboration will help build the foundation for future cooperation, and establish a common point of reference and set of approaches for supporting agriculture and livestock value chain development.

USAID/Kenya is financing this evaluation of donor-supported Kenyan agriculture and livestock value chain activities to help inform the design and implementation of its Feed the Future (FtF) activities, and to help align its agricultural development and poverty reduction efforts with those of other donors. The objective of the USAID/Kenya FtF program is ***inclusive agricultural sector growth***. This will be achieved through transformational value chain development, working to increase the productivity and competitiveness of crops grown and livestock raised by large numbers of smallholder farmers. FtF program implementation will focus on increasing broad-based economic growth within smallholder farmer dominated value chains. Specific activities will seek to improve value chain competitiveness, leverage the multiplication effects from value chain growth to expand off- and non-farm enterprise and employment opportunities, and enable smallholder diversification into more intensive, higher value commodities.

Goal and Objectives

The overall goal of the evaluation is to develop and articulate a common frame of reference and approaches for donors to use in designing and implementing agriculture and livestock value chain development activities in support of Kenya's Medium Term Investment Plan (MTIP). The evaluation will emphasize a qualitative approach to assessing donor experience with implementing successful value chain activities in Kenya, **focusing on identifying what approaches have worked, and explaining why**. This qualitative look at value chain implementation will include a review of activity documents and information regarding the scale of benefits and overall impact. The evaluation results will be used to help inform the design and implementation of donor-funded value chain activities, and contribute to the harmonization of donor-supported agriculture and livestock economic development programs. In particular, they will be used to inform and guide the design and implementation of USAID/Kenya activities financed as part of the Feed the Future (FtF) Initiative.

The specific objectives of the evaluation are to identify and describe best practices in: a) donor activity design, and b) implementing partner organizational, operational, and implementation approaches that have most contributed to the success of agriculture and livestock value chain activities in Kenya. The evaluation will **specifically consider activity achievements as compared to the original activity design intentions.** For the purposes of the evaluation, success may be defined in terms of increases in one or more of the following:

1. Agriculture and livestock value chain productivity and competitiveness.
2. Smallholder producer participation in value chains.
3. Agricultural production and sales.
4. Rural household income.
5. Private investment.
6. Employment generation.
7. Involvement by women and youth.
8. Environmental and economic sustainability.

The evaluation will focus on three agriculture and livestock value chains of particular interest to USAID/Kenya and the Kenya Development Partners: staple foods/basic grains, horticulture, and dairy. The specific activities to be assessed were chosen based on donor recommendations, and generally recognized effectiveness and success in achieving objectives and generating positive impacts for the rural economy and beneficiaries.

The evaluation will examine ongoing USAID-funded agriculture and livestock value chain activities, and prior related efforts implemented by the same partners within the overall context of donor-supported efforts. The extent to which individual donor-funded agriculture and livestock value chain activities are assessed will be determined by the evaluation team based upon document review, and interviews and discussions with the individual donors.

The Development Partners have agreed to examine the following ongoing activities:

Table 3. Activities to be Evaluated

Activity	Total Funding ($000)[1]	Donor
Dairy Value Chain (6 activities)		
Kenya Dairy Sector Competitiveness (Land O'Lakes)	9,000	USAID
East Africa Dairy Development (EADD) (Heifer Kenya)	9,000	Bill Gates Foundation
Smallholder Dairy Commercialization Program (SDCP)	17,500	IFAD
Kenya Agricultural Productivity and Agribusiness Project[2]	20,000	IDA
National Agriculture and Livestock Extension Project	40, 675	SIDA
Private Sector Development in Agriculture (PSDA)[3]	12,500	GIZ
Horticulture Value Chain (6 activities)		
Kenya Horticulture Development Project Horticulture Competitiveness (Fintrac, Inc.)	32,425	USAID
Thika Horticultural Training	6,500	Netherlands
Smallholder Horticulture Empowerment and Promotion Unit Project (SHEP-UP)	7,000	JICA
Kenya Agricultural Productivity and Agribusiness Project[2]	20,000	IDA
National Agriculture and Livestock Extension Project	40, 675	SIDA
Private Sector Development in Agriculture (PSDA)[3]	12,500	GIZ
Staple Foods / Basic Grains Value Chain (4 activities)		
Kenya Maize Development Program (ACDI/VOCA)	3,000	USAID
Kenya Agricultural Productivity and Agribusiness Project[2]	20,000	IDA
National Agriculture and Livestock Extension Project	40, 675	SIDA
Private Sector Development in Agriculture (PSDA)[3]	12,500	GIZ

These activities are all relatively mature, with implementation records going back at least four years. Some do not explicitly incorporate value chain methodologies and approaches, but have been designed and implemented in a manner that is consistent with a value chain approach. They include activities that are at the mid-point of implementation, but follow from prior activities. They also include activities that are in the last year of implementation, or that have been recently completed. Background information on these activities accompanies this SoW on a CD, and additional information will be made available to the teams by relevant donors.

[1] Funding level for current activities – does not include funding for prior activities.

[2] World Bank funding for general agribusiness support is channeled through the Ministry of Agriculture under this activity. Therefore, it will be assessed in terms of its contribution to the success of the specific agriculture and livestock value chain activities (all three sectors).

[3] PSDA funding level $2.5 million/year is for a range of value chain activities. Specific value chains to be assessed under PSDA include horticulture (mango and passion fruit), staple crop (potato/sweet potato), and (possibly) dairy goats.

METHODOLOGY

The evaluation team will use a qualitative approach to examine activities and answer the questions posed above, and to identify and describe the most important elements that contributed to agriculture and livestock value chain activity success. This approach is expected to emphasize interviews with donor representatives, implementing organization staff, government counterparts, stakeholders and beneficiaries, complemented by field visits to activity implementation sites. USAID and cooperating donors will compile and make available to the evaluation team key documents and reports on the individual activities to be assessed.

The evaluation team will be expected to complement the qualitative information with existing quantitative information on activities. This information will be made available by individual donors and implementing partners. The team may use this quantitative information as an indicator of success, and especially as the basis for comparing activity scale, efficiency, impact and overall results. Field visits to the activity site are expected to be used as a means of validating the quantitative information.

Guidance Committee (GC)

The evaluation will be managed by the PACE Contracting Officer's Representative (COR) and PACE Evaluation Team Leader, with information being provided by a Guidance Committee (GC) chaired by USAID's Agriculture, Business and Environment Office (ABEO). The GC will include three USAID/ABEO representatives and one representative of the Government of Kenya Agricultural Sector Coordination Unit (ASCU). In addition, one representative of each donor who has agreed to have activities they support included in the evaluation will be invited to be a member of the GC. The GC is expected to meet at least once prior to the initiation of the evaluation to agree upon guidance procedures. It is also expected to have an initial meeting with the Value Chain Sub-Team Leaders during Week 1, and a debriefing meeting at the end of Week 6.

The GC will provide a forum for sharing information related to the evaluation. GC members will be distributed copies of draft reports submitted by the Team, and invited to review and comment upon them. Members of the GC will also be expected to help organize and schedule interviews with stakeholders and beneficiaries, and visits to the field.

EVALUATION TEAM COMPOSITION AND SCHEDULE

The evaluation is expected to take approximately eight weeks to complete. The Evaluation Team will be comprised of three Value Chain Sub-Team Leaders, one for each of the three priority agriculture and livestock value chain areas (maize/basic grains, horticulture, dairy). One of the Value Chain Sub-Team Leaders will be designated as the overall Evaluation Team Leader.

The three Value Chain Sub-Team Leaders will begin work roughly one week before the rest of the team members. During Week One they will develop a work plan for the Evaluation in consultation with the PACE Senior Monitoring and Evaluation (M&E) Advisor, and members of the GC. The Work Plan will describe how the evaluation will be conducted, delineate the roles and responsibilities of the team members, provide a proposed schedule for field visits, and include a final schedule for the submission of deliverables. The draft Evaluation Work Plan will be submitted to the PACE COR for approval within five days of the arrival of the Value Chain Sub-Team Leaders.

The Value Chain Sub-Team Leaders will be supported by approximately six local professionals. These individuals will be integrated into the Evaluation Team and begin working in Week 2. The Value Chain Sub-Teams are expected to interview donor personnel, implementing partners, government officials, private sector players, and non-government organization representatives in Nairobi, then travel to the field to interview

implementing organization staff, stakeholders and beneficiaries to obtain input and perspective on the individual activities. Field visits are expected to begin during Week 2, and extend through Weeks 3, 4 and 5.

The Value Chain Sub-Teams will make an initial presentation of the results of their individual value chain evaluations to the Guidance Committee, and deliver a draft copy of their individual evaluation reports for review and comment by the end of Week 6. **The individual value chain evaluations will provide general conclusions and describe best practices for implementing agriculture and livestock value chain activities in Kenya. They will also provide specific findings and conclusions on current USAID-financed activities, and recommendations on how those can be better aligned with the MTIP and other donor activities.**

The Value Chain Sub-Team Leaders will further refine the draft reports, address issues and comments provided by USAID and members of the GC, and submit final Value Chain reports prior to departing Kenya at the end of Week 7. The Evaluation Team Leader will submit a draft Overall Evaluation Report to the COR prior to departing from Kenya in Week 8. The Final Evaluation Report will be submitted within one week of receipt of comments on the draft report from USAID/Kenya.

The Contractor will also organize a full-day workshop to present and discuss the results of the evaluation with an estimated 100 participants representing a broad range of agriculture and livestock value chain stakeholders. The suggested timing of the workshop is during Week 7. The PACE Work Order Proposal should describe how the workshop will be organized and conducted, and the dates for the workshop will be finalized in the Evaluation Work Plan.

DELIVERABLES

The anticipated Deliverable Schedule is outlined below. PACE may propose to adjust this schedule as needed in the draft work plan.

1. Draft Evaluation Work Plan: The draft work plan will be submitted to the COR for review and approval within five days of the arrival of the Value Chain Sub-Team Leaders.
2. Draft Value Chain Sub-Team Reports: Submitted to the COR for distribution to the members of the GC, and for review and comment, by the end of Week 6.
3. Value Chain Sub-Team Debriefs: Presentations to USAID/Kenya and the Guidance Committee by the end of Week 6.
4. Evaluation Workshop: Presentation of the general evaluation findings, conclusions and recommendations for general critique and discussion during Week 7.
5. Final Value Chain Sub-Team Reports: Submitted to COR by the end of Week 7 (prior to the departure of Value Chain Sub-Team Leaders).
6. Draft Overall Evaluation Report: Submitted to COR for review and comment in Week 8 (prior to the departure of the Evaluation Team Leader).
7. Final Evaluation Report: Final USAID-branded Evaluation Report incorporating input from the Evaluation Workshop and comments from USAID/Kenya within one week of receipt of comments. Final Report to include thirty (30) bound, color printed copies of the report; both Microsoft Word and 508 compliant Portable Document Format (PDF) electronic documents; and, four electronic PowerPoint

presentation of findings, conclusions and recommendations (one for each sector and one overall presentation).

CORE STAFF

Approximately a nine-member Team is envisioned for the conduct of the evaluation. While PACE can propose the final members of the Team, the following list is illustrative of the types of skills required for the completion of the evaluation:

Maize/Staple Crop Value Chain Sub-Team

Senior Agricultural Development Specialist: This individual will serve as the Maize/Staple Crops Value Chain Sub-Team Leader. S/he will be responsible for managing and coordinating the evaluation process for these value chain activities and writing the Maize/Staple Crops Value Chain Report. The individual will have a graduate degree in an agricultural discipline, with at least 15 years of experience managing the implementation of donor-funded maize and staple food crop production and marketing activities in Africa. Familiarity with agriculture and livestock value chain methodologies and terminology, and prior evaluation team experience required. Prior Team Leader experience, and experience with the implementation of USAID-funded activities preferred. Prior East Africa experience desirable.

Local Technical Specialist (Maize): This individual should have a graduate degree in an agricultural discipline, and have at least 15 years of work experience in maize production and marketing in Kenya. This individual should have broad technical knowledge in subjects related to maize value chains, including research and extension, rural organization development, agribusiness management, and marketing. Experience with the implementation of donor-funded activities required.

Local Technical Specialist (Staple Food Crops): This individual should have a graduate degree in an agricultural discipline, and have at least 15 years of work experience in the production and marketing of staple food crops (cereals, pulses and root crops) in Kenya. This individual should have broad technical knowledge in subjects related to staple food crop value chains, including research and extension, rural organization development, agribusiness management, and marketing. Experience with the implementation of donor-funded activities required.

Horticulture Value Chain Sub-Team

Senior Agricultural Development Specialist: This individual will serve as the Horticulture Value Chain Sub-Team Leader. S/he will be responsible for managing and coordinating the evaluation process for these value chain activities and writing the Horticulture Value Chain Report. The individual will have a graduate degree in an agricultural discipline, with at least 15 years of experience managing horticulture production and export activities. Familiarity with agriculture and livestock value chain methodologies and terminology, and prior evaluation team experience required. Prior Team Leader experience, and experience with the implementation of USAID-funded activities, preferred. Prior East Africa experience desirable.

Local Technical Specialist (Fruit/flowers): This individual should have a graduate degree in an agricultural discipline, and have at least 15 years of work experience in fruit and flower production and export in Kenya. This individual should have broad technical knowledge in subjects related to horticulture value chains, including enterprise development, agribusiness management, processing, export marketing, and financing. Familiarity with the implementation and management of donor-funded activities desirable.

Local Technical Specialist (Vegetables): This individual should have a graduate degree in an agricultural discipline, and have at least 15 years of work experience in vegetable production, processing and marketing in

Kenya. This individual should have broad technical knowledge in subjects related to horticulture value chains, including enterprise development, agribusiness management, processing, export marketing, and financing. Familiarity with the implementation and management of donor-funded activities desirable.

Dairy Value Chain Sub-Team

Senior Agricultural Development Specialist: This individual will serve as the Dairy Value Chain Sub-Team Leader. S/he will be responsible for managing and coordinating the evaluation process for these value chain activities and writing the Dairy Value Chain Report. The individual will have a graduate degree in an agricultural discipline, with at least 15 years of experience managing dairy production, processing, and marketing activities in Africa. Familiarity with agriculture and livestock value chain methodologies and terminology, and prior evaluation team experience required. Prior Team Leader experience, and experience with the implementation of USAID-funded activities preferred. Prior East Africa experience desirable.

Local Technical Specialist (Dairy): This individual should have a graduate degree in an agricultural discipline, and have at least 15 years of work experience in dairy production, processing and marketing in Kenya. This individual should have broad technical knowledge in subjects related to dairy, including enterprise development, agribusiness management, processing, marketing, and financing. Familiarity with the implementation and management of donor-funded activities desirable.

Overall Evaluation Team

Team Leader / Senior Agricultural Development Specialist: The Contractor will designate one of the three Value Chain Sub-Team Leaders as the overall Evaluation Team Leader. The Evaluation Team Leader will be responsible for managing and coordinating the overall evaluation process for the value chain activities and writing the Final Evaluation Report. The individual designated will have at least 20 years of experience managing the implementation of agriculture and rural development activities. In addition to his/her qualifications as the Value Chain Sub-Team Leader, s/he shall have prior Team Leader experience, broad knowledge of a range of agricultural disciplines, and experience with agriculture and livestock value chain methodologies and terminology.

Local Technical Specialist (Poverty Reduction, Gender and Youth Specialist): This individual should have a graduate degree in economics or agricultural economics, and at least 15 years of work experience in the design and implementation of agriculture and rural development activities, with an emphasis on poverty reduction and increasing the participation of women and youth. This individual will support all three of the Value Chain Sub-Teams in assessing the impact of agriculture and livestock value chain activities on poverty reduction, and the increased participation of women and youth.

PERIOD OF PERFORMANCE

The period of performance for the evaluation will be determined by PACE, but has been illustratively outlined as eight weeks, starting from October through December 2011.

INSPECTION AND ACCEPTANCE

The Deliverables as specified above shall be reviewed and accepted by the COR.

LOGISTICAL SUPPORT

The Contractor will be responsible managing all the required logistics for the evaluation. This will include the recruitment of local technical specialists, arrangements for international and in-country travel and logistics, scheduling appointments and field visits, and all other required support services, equipment and facilities.

DUTY STATION

A total of seven weeks level of effort for the evaluation is estimated to be coordinated from Nairobi, and carried out in Kenya. The final Value Chain Sub-Team Reports and Draft Overall Evaluation Report will be submitted prior to the departure of the team from Nairobi. The Final Evaluation Report may be produced at the dTS home office.

FACTORS TO BE CONSIDERED IN THE EVALUATION PROCESS

Throughout its work, the evaluation team should examine the following in its efforts to identify best practices:

1. How effective were agriculture and livestock value chain activities in terms of scale and overall impact? Specifically,
    a How effective were activities in expanding poor rural household participation?
    b What was the impact on poor rural households in terms of reduced poverty?
    c What steps were taken during implementation to scale up activities and increase impact, and which approaches were most successful?
    d Were activities expanded in response to participant/beneficiary demand?
    e What scale was achieved in terms of number of individuals (including women and youth) and/or households affected?
    f What was the geographic area in which the activities were implemented, and what effect did the area selected for individual activities have on efficiency and overall impact?
    g What was the impact of activities on beneficiaries (producers, households) and stakeholder groups?
    h What factors had the greatest influence on activity scale and impact?
2. What factors were most important in achieving activity goals and objectives and sustaining impact? Specifically,
    a What components were the most successful, and what was their impact on agricultural production, household income, private investment, and employment?
    b What unanticipated issues had to be overcome to achieve success?
    c What unexpected factors contributed to success?
    d To what extent were increases in agriculture and livestock value chain productivity, competitiveness, and participation sustained over time?
    e What are the main factors that influence the sustainability of agriculture and livestock value chain activities and their contribution to poverty reduction?
3. What were the greatest strengths of successful activities, and the most important lessons that could be learned from them regarding the design and implementation of new agriculture and livestock value chain activities in Kenya?

4. What are the major design strengths of successful agriculture and livestock value chain activities? Specifically,
    a What were the principal factors that influenced design?
    b What analyses were undertaken to inform design, and how were the results incorporated?
    c What additional documentation and analyses were considered, and how were these incorporated?
    d How did the Government of Kenya participate in design?
    e How were participants and stakeholders involved in the design process?
    f What consideration was given to other issues (e.g., poverty, gender and youth involvement, capacity building, agricultural sustainability, and environment/climate change) during design?
5. What were the principal agriculture and livestock value chain technical issues, and how were they addressed? Specifically,
    a What initial technical issues were identified during design?
    b What additional technical issues emerged during implementation?
    c How were these issues identified and analyzed, and what process was used to decide how to address them?
    d To what extent did cross-cutting issues (see 4.f above) influence technical analysis?
    e What approaches are most successful in identifying and resolving technical issues?
6. What are the principal value chain governance issues, and how were they addressed? Specifically,
    a What initial value chain governance issues were identified during design?
    b What additional governance issues emerged during implementation?
    c How were these issues identified and analyzed, and what process was used to decide how to address them?
    d To what extent did cross-cutting issues (see 4.f above) influence analysis?
    e What organizational and operational structures and mechanisms were used to identify and resolve value chain governance issues?
    f What approaches are most successful in identifying and resolving governance issues?
7. What approaches were most effective in increasing (expanding) participation in agriculture and livestock value chains? Specifically,
    a How were potential participants/beneficiaries (especially women and youth) identified, and what guidelines/requirements were established to guide selection?
    b How were differences in the characteristics of beneficiary households (especially resource-poor households) identified and dealt with?

c Who were the major actors and stakeholders (including women and youth), and how were they involved in the process?

d How were the major actors and stakeholders empowered to negotiate solutions and make decisions?

e What were the incentives for participating?

f What commitments were expected from participants and beneficiaries?

8. What was done to effectively engage the private sector (input suppliers, commercial producers, processors, transporters) in activity design and implementation? Specifically,

   a How was the private sector involved, what role did they play, and how did they contribute to success?

   b What approaches to increasing private sector participation proved most effective?

   c How did private sector investment and participation impact the success of the activity?

9. How did the activity increase producer and enterprise access to rural financial (savings, credit, transactions) services? Specifically,

   a What role did financial institutions (banks, micro-finance institutions, savings and credit cooperatives) play in design and implementation?

   b What actions were taken to expand financial services provision to producers and enterprises?

   c What approaches to increasing access to financial services were the most effective?

   d What was the impact of increased access to financial services on producer and enterprise investment and economic sustainability?

10. Who were the most important collaborators and cooperators, how were they engaged, and what was their contribution to success? Specifically,

    a What was the contribution of the Government of Kenya, what was the role of government personnel, and how did they contribute to success?

    b How were agricultural research and development institutions involved, what role did they play, and how did they contribute to success?

    c Did other donors and donor activities collaborate/cooperate? If so, what was the nature and effectiveness of their collaboration/cooperation?

    d How were public and private extension service providers involved, what role did they play, and how did they contribute to success?

11. What was the effect on implementation of Government of Kenya policy, and the enabling and regulatory environment? Specifically,

    a What were the major enabling environment issues during start-up and implementation, what steps were taken to address them?

    b What policy changes took place during implementation that most affected operations? What was their impact?

c How did the regulatory environment impact implementation and results?

d Are there common issues between the value chains examined in which public sector policy was a factor in affecting performance and competitiveness?

12. What other important issues and considerations were incorporated and addressed? Specifically,

a Were activities designed to consider or deal with the potential impact of climate change on the production system?

b What was incorporated to address adaptation to climatic variability?

c What actions were taken to encourage and/or promote the use of sustainable agricultural practices?

d What steps were taken to effectively incorporate the results of agricultural research in terms of improved varieties and production techniques?

e How were issues regarding good agricultural practices, natural resource management, soil fertility, and integrated pest management addressed?

f Were there any explicit health-related or child nutrition outcomes related to the value chain activities? If so, what was the experience?

13. What approaches were used, and systems put in place, for monitoring and evaluating implementation and impact? Specifically,

a How was information collected, compiled and analyzed?

b How broadly and transparently was information shared?

c How effectively was information used to guide and inform implementation?

d What information was the most important in terms of managing activities to achieve results?

QUALIFICATIONS OF PERSONNEL

The three Value Chain Sub-Team Leaders are expected to work as a team under the overall leadership of the individual designated as the Evaluation Team Leader. The Evaluation Team Leader is expected to guide the overall effort, and ensure the effective and consistent application of the evaluation methodology in each of the value chains. The Sub-Team Leaders are expected to be able to manage the evaluation of their respective value chain areas, and make effective use of the local technical professional(s) engaged to support the work. The COR must approve the replacement of any personnel subsequent to Work Order Approval.

Overall Evaluation Team Leader

PACE will designate one of the Value Chain Sub-Team Leaders as the overall Evaluation Team Leader. In addition to his/her other responsibilities, the Evaluation Team Leader will be responsible for managing and coordinating the overall evaluation process for the value chain activities and writing the Final Evaluation Report. For this reason, the individual designated will have at least 20 years of experience managing the implementation of agriculture, rural development and rural poverty alleviation activities. In addition to his/her qualifications as the Value Chain Sub-Team Leader, this individual will have substantial experience leading evaluation teams.

Maize/Staple Crops Value Chain Sub-Team Leader

- At least 15 years of experience with donor-funded maize and staple food crop production and marketing activities, with at least 5 years of experience in senior management. Previous East African experience is preferred.
- Education, demonstrated technical competence, and experience related to agribusiness management, private sector development, and agriculture and livestock value chain competitiveness.
- Current knowledge of and familiarity with best practices in value chain development, and its application to poverty reduction in rural areas.
- Prior experience evaluating and/or assessing the effectiveness and impact of donor-funded agriculture and rural development activities related to maize and staple food crops.

Horticulture Value Chain Sub-Team Leader

- At least 15 years of experience with donor-funded horticulture production, processing, and export activities, with at least 5 years of experience as a manager. Previous East African experience is preferred.
- Education, demonstrated technical competence, and experience related to agribusiness management, private sector development, and agriculture and livestock value chain competitiveness.
- Current knowledge of and familiarity with best practices in value chain development, and its application to poverty reduction in rural areas.
- Prior experience evaluating and/or assessing the effectiveness and impact of donor-funded agriculture and rural development activities related to horticulture.

Dairy Value Chain Sub-Team Leader

- At least 15 years of experience with donor-funded smallholder dairy development activities, with at least 5 years of experience as a manager. Previous East African experience is preferred.
- Education, demonstrated technical competence, and experience related to agribusiness management, private sector development, and agriculture and livestock value chain competitiveness.
- Current knowledge of and familiarity with best practices in value chain development, and its application to poverty reduction in rural areas.
- Prior experience evaluating and/or assessing the effectiveness and impact of donor-funded dairy development activities.

DOCUMENTS TO BE PROVIDED BY USAID

1. MTIP
2. ASDS
3. ASSP II
4. FtF Strategy (Internal USG Use Only Version; NOT for Public Distribution)
5. Descriptions for each project to be evaluated

APPENDIX B. MAIZE/STAPLE CROPS SUB-TEAM REPORT

EXECUTIVE SUMMARY

This evaluation identifies lessons learned from successful staple food-crop value chain activities to improve the design and implementation of future efforts.

Kenya's donor partners in the Agriculture and Rural Development Working Group have committed to aligning their support for agricultural sector projects and programs behind the Government of Kenya's Agricultural Sector Development Strategy (ASDS). An important aspect of this strategy is transforming the agricultural sector and commercializing agricultural producers. The donor partners are interested in learning from the experience of developing and implementing value chain projects in Kenya as a key commercialization approach. The Partners have agreed to undertake a joint evaluation of 10 select agriculture and livestock value chain activities to inform the design and implementation of new value chain interventions. USAID/Kenya volunteered to fund and implement an evaluation, The Multi-Stakeholder Evaluation of Agriculture and Livestock Value Chain Activities in Kenya.

The purpose of a multi-stakeholder evaluation is to identify the best approaches for donors to use in designing and implementing agriculture and livestock value chain development activities in the context of Kenya's Medium Term Investment Plan (MTIP) within the context of collaborating in support of the Kenya Agricultural Sector Development Strategy.

The evaluation team concentrated on examining successful donor-supported value chain activities in dairy, horticulture, and staple food crops. Each of the three value chains is covered in a separate report and then drawn together in a summary document. This section deals with staple food crops.

Three programs were selected by the donor partners that fit under the staple food crops component of the multi-stakeholder evaluation as follows.

- USAID's Kenya Maize Development Program (KMDP)
- Private Sector Development in Agriculture (PSDA) – Potato Sector
- National Agriculture and Livestock Extension Program (NALEP) II

There are existing evaluations and result reporting for the three selected programs. This evaluation team evaluated the reported outcomes and results of these programs. Then the members reviewed what elements of the program have worked well. Where experience and practices lined up with results and achievements recorded by the three projects, the team reported best practices and good lessons learned. Our largely qualitative approach to identify value chain practices that work was backed by the three evaluated programs' own quantitative and qualitative reporting.

The staple food value chain team looked at the plans of the three programs in its sector with the goal to identify strong value chain design and implementation factors. The team started with what is known to work in the value chain approach and identified aspects in the various programs that support these evidence based lessons on value chain design and implementation. The main lessons and common features of a strong value chain program design and implementation with examples taken from the evaluation are set out below.

Understanding the Value Chain: A Requisite to Getting the Project Right

A solid understanding of the selected value chain is required to design the value chain program correctly at the onset and to be able to course correct as the markets and the chain evolves. Robust value chain

assessments were conducted by both KMDP and PSDA/Potatoes at the start of implementation. This value chain knowledge has been central to program implementation and the results achieved.

The value chain is a system that requires an understanding of the need to work at various points in the system/chain at differing times. PSDA's decision to focus on the potato seed supporting market is a good case study of understanding the potato value chain system and selecting and facilitating a high-impact intervention.

From a value chain point of view, the maize sub-sector can be divided into two interrelated parts. The first is a subsistence food value chain that is driven by farmer-level food needs and preference for maize as the staple food crop. For many small farmers, maize is grown primarily for household consumption with market sales a secondary objective. There is also a large commercial market for maize that can be described as a balanced governance network where firms' cooperate and no one firm is dominant. However, government and parastatal firm interventions often distort the market and make the buy and sell decisions challenging. The balance of power in the maize sub-sector changes with governmental and parastatal pricing, and import duty adjustments.

Donor Programs Intervene in the Value Chain to Enable, Incentivize, and Sustain Positive Change

Donor programs do not, and should not engage as actors in the value chain. Donors need to find ways to facilitate improvement in the value chain without disrupting the incentives, markets, and flow of goods and services in the value chain system. The donor program should not provide a service or function that private actors in the value chain can deliver. However, there are many cases where the private sector service or function is weak or nonexistent. In these cases, a value chain project has to facilitate reducing the weakness by building the capacity of service providers in the private sector. Effective facilitation does not disrupt the markets and leaves the "ownership" of the service or good in the hands of the market actors.

All of the three programs reviewed sought to intervene in the crop sectors without subsidy or direct delivery of services. The case of maize and other seed interventions that enabled farmers to access improved varieties at affordable prices through private seed companies is an example of donor facilitation of value chain growth. (See Sections on Technology and Input Upgrades.) The sustainable provision of fertilizer to smallholders is a second example. In the potato sector, PSDA assistance given to private agribusiness firms to help re-establish a potato seed supporting market for potato sub-sector growth is a good example of smart subsidies. Details can be found in the Section on PSDA potato sub-sector technology and input upgrades.

Balancing Growth and Poverty Reduction Objectives

The key to engaging in value chain promotion is to identify the intended balance between economic growth and poverty reduction. These three programs found different balances between growth and poverty alleviation. In the design of NALEP and PSDA, a pro-poor set of objectives was set out. KMDP I was more balanced in seeking maize sector growth and poverty reduction, but then became increasingly pro-poor in its second phase which started in 2011.

Value Chain Upgrading: Learning as You Go

Donor value chain programs need strong monitoring and evaluation that reach beyond the donors' M&E needs to the actual functioning and dynamics of change in the value chain. The government/donor programs, and eventually the value chain actors themselves, need to have the capacity to adjust and learn as the value chain evolves. All three programs evaluated would benefit from on-going learning and a strong knowledge management function.

A second aspect of this "learning as you go" process is that the value chain interventions change as programs and markets evolve. The evolution of the KMDP/FIPS provision of inputs shows that facilitation is an iterative process. FIPS moved from demonstration plots to small packets of seeds to small sizes of fertilizers. When fertilizer prices surged, it worked to incentivize the private sector re-blend the fertilizer to make it more affordable. When KMDP/FIPS turned to root crops, the small number of vines and cuttings to farmers and on-farm demonstrations remained, but the distribution of cuttings and vines directly from farmer to farmer was a new concept.

Public/Private Consultation and Collaboration to Improve the Potato Enabling Environment

Working with potato sector stakeholders, PSDA supported the government in developing legal and policy frameworks. This same group went on to successfully advocate the GoK to allocate funds for potato sector research and specific programs. The most recent allocation was KShs 22 million. PSDA partnered with donors, the government, and CIP to complete the National Seed Potato Master Plan to pave the way for further development of the potato sub-sector through 2014. The National Potato Council of Kenya, a multi-stakeholder forum for the potato sector/industry, was recently established. It is a public-private partnership intended to facilitate planning, organizing, and coordination within the potato sector. Its first strategic objective is to create an enabling environment for effective and efficient potato value chain growth and development. Its membership comes from all segments of the value chain, including the GoK and development partners. A program for affordable quality potato seed has been developed through a partnership of donors, the GoK, and private companies. Establishing an enabling environment conducive for a largely private-sector potato seed industry has been critical to the growth of the potato seed value chain.

Value Chain Program Support to Smallholder Farmers is Driving Systemic Changes in Food Crop Value Chains

In reaching smallholder farmers directly, or in groups through technology, improved inputs, and market access; smallholder farmers are gaining power as they grow food for their households and the markets, and strengthen the value chain. KMDP's work with smallholders has increased their productivity and improved their linkages to other actors in the value chain. With productivity increases in maize and root crops, farm household food security, a critical systemic change, has improved in some areas. PSDA's work on potatoes, especially in the seed area, is starting to expand potato as a food and commercial crop. A similar trend is now beginning for sweet potato as a food security crop. These examples of small-scale, farm-level food crop improvements accumulate significant positive movement in the value chain in the staple food crops. These changes are not yet robust, but the trend is promising. The methods and approach of KMDP's partner, FIPS, are the most promising in bringing improved food security to selected village farmers.

GoK Extension Services and Village-Based Agricultural Agents

The FIPS' Village-Based Agricultural Advisor (VBA) system complements the higher skilled work of the government extension officers in the Ministry of Agriculture and other ministries. The GoK extension workers, as the team found from its review of NALEP, were capable of reaching farmers with technical advice and linkages to government programs. On the other hand, the VBAs, and the related components of FIPS's input promotion system, has proven to be a cost effective and quick approach to increasing farm production and food security. The two approaches are complementary on the production side, but both face challenges in marketing and commercialization of smallholder farms. For production, the VBAs are more successful in bringing the private seed and fertilizer providers to the smallholders as well as helping the Kenya Agricultural Research Institute and the NARCs reach out to the smallholder farmers with improved varieties and farming systems.

NALEP II Follow-On Project

The follow-on program to NALEP II is not a comprehensive value chain approach, which starts with end markets and builds support for the smallholder farmer from a strong understanding of the entire value chain needed to reach end markets. A complete value chain approach for a select few CIG crops should be added to the NALEP follow-on project to determine if such a value chain approach can be added successfully to the extension base of the NALEP approach.

Feed the Future

An additional task in the scope of work is to have the evaluation team inform and guide the design and implementation of USAID/Kenya activities financed under Feed the Future (FtF). The findings and conclusions of this evaluation led the team to recommend a new FtF program based on the introduction of food crops complementary to maize that build on the success of KMDP and especially its partner, Farm Inputs Promotions Africa (FIPS), to address farmer risks through on-farm demonstrations and affordable input provisions. The approach that has best reached out to smallholder farmers is the village-based structure set up by FIPS. Group approaches may also work and there will be a need to define the role of the government extension system. The food security program for smallholder farmers could have important impacts within 3-5 years by taking farmers out of food insecurity, and eliminating the cost of feeding and supporting them during periods of drought or other farm problems. USAID alone has averaged over $60 million per year in emergency feeding and support. If just half of that could be saved in the future through an immediate and directed food security program based on the successful experience that the evaluation team found, there would be direct savings to the USG of $25-30 million per year. USG money is not usually fungible, but for other donors and the GoK, savings on emergency funding for the food insecure could be used for the longer-term goal of transforming the agricultural sector. Improvements in health and education performance by these newly food secure farmers, although hard to quantify, could also be significant.

BACKGROUND

INTRODUCTION

Donors who are funding development projects in Kenya have established an informal organizational structure known as the "Kenyan Development Partners" (Partners). The Partners have committed to aligning their support for agricultural sector projects and programs behind a unified sector development blueprint orchestrated by the GoK known as Agricultural Sector Development Strategy (ASDS). As an important aspect of this effort, the Partners intend to develop a common framework for monitoring and evaluation.

The Partners are interested in learning from one another the experience of developing and implementing of value chain projects in Kenya. The Partners have agreed to undertake a joint evaluation of 10 select agriculture and livestock value chain activities, with a specific focus on using this evaluation in the context of forming the design and implementation of new value chain interventions.

On behalf of the entire membership group, Partner member USAID/Kenya volunteered to fund and implement the Multi-Stakeholder Evaluation of Agriculture and Livestock Value Chain Activities in Kenya (Evaluation). USAID/Kenya is interested in aligning agricultural development activities, as well as poverty reduction efforts in line with the activities of other donor Partners. USAID/Kenya is particularly interested in collaboration and cooperation with other Partner members as related to the design and implementation to the Feed the Future (FtF) initiative, which is intended to increase a broad base of economic growth within smallholder farmer dominated value chains.

The Partners have endorsed the Kenyan Vision 2030 blueprint for national development launched by the GoK in 2008 as the framework and blueprint for national development plans and objectives. In conjunction with Kenyan Vision 2030, the Agricultural Sector Development Strategy (ASDS), created in 2009, is now the overall national strategy guiding agricultural sector ministries and stakeholders. In turn, the GoK initiated Medium Term Investment Plan (MTIP) as related to ASDS establishes specific primary objectives. This policy is aligned with the Comprehensive Africa Agriculture Development Program (CAADP) as well as the United Nations Millennium Development Goals. The Partners intended for this evaluation to be conducted with the vision and goals of the ASDS and MTIP objectives as cornerstones for team recommendations and conclusions.

EVALUATION PURPOSE AND OBJECTIVES

The purpose of the multi-stakeholder evaluation of agriculture and livestock value chain activities is to identify the best approaches for donors to use in designing and implementing agriculture and livestock value chain development activities, in the context of Kenya's MTIP, and in collaborating with one another in support of the Kenyan ASDS.

The evaluation team concentrated on examining successful donor-supported Kenyan agriculture and livestock value chain activities, and determining why those activities have been successful. The team focused on dairy, horticulture, and staple foods value chains. Each of the three value chains is covered in a separate report and drawn together in a summary document. This section deals with the staple foods sector.

The results of the evaluation will be used to help guide the design and implementation of future donor-funded and government-funded value chain activities in Kenya, and contribute to the harmonization of donor-supported rural economic development programs. The results will also be used to inform and guide the design and implementation of USAID/Kenya's activities financed as part of the Feed the Future (FtF) Initiative.

The team's evaluation methodology and conclusions were built from a qualitative approach supported by verifiable quantitative sources. Some projects were unable to provide verifiable quantitative and qualitative monitoring and evaluation studies. The evaluation team assessed performance results using available documentation. This entire methodology and approach informed, shaped, and buttressed the team's own qualitative evaluation work to identify and describe the most important elements that contributed to agriculture and livestock value chain activity success.

The team's qualitative data resulted from:

- interviews conducted with senior donor staff as well as implementing staff from each project;
- review of documents provided by each project as well as contact information for key stakeholders involved with each project;
- engaging project operational staff in the "field" where project activities were reviewed;
- interviews with related stakeholders;
- discussions with relevant government staff; and
- interview with numerous beneficiaries.

The 13 lines of inquiry as specified within the SoW were integral within the evaluation of each project. To gather responses to these inquiries, the team utilized several tools, including:

Multi-sector Value Chain Question Matrix: This tool identified the data type and possible sources needed to address the 13 key inquiry areas and related questions as identified within the SoW. This tool helped the team organize and ensure that all areas of the evaluation were covered.

Program Design and Implementation Data Collection Guide: The team assessed three programs funded by five donors, each with distinct design and implementation approaches, and each working under different strategic, evaluative, and monitoring arrangements. To ensure that the necessary background, information, data, and understanding of the project development and causal logic are in place for the review, a checklist to guide team reviews of the projects was employed.

Interview Guides and/or Checklists: These were used to ensure a consistent approach across interviews when seeking information on the same type of issues/programming actions. They served in interviews with beneficiaries, stakeholders, implementers, and value chain actors.

KEY REFERENCE/BACKGROUND POINTS FOR MAIZE AND STAPLE CROPS IN KENYA

Maize is the principle staple food crop for 96 percent of Kenya's population. The average Kenyan consumes 98 kilograms of maize annually. One out of every two acres cultivated in Kenya is maize. Thus, maize is not only the major staple food crop but also a direct and indirect (though farmer labor) source of income for a significant proportion of Kenya's population. Despite its high consumption, in 2002, Kenya's maize was among the most expensive in Africa; and the poorest quarter of the population spent 28 percent of their household income on the purchase of maize (Tegemeo Institute, 2002). Inefficient production, blurred transaction channels, and costly marketing contributed to the sector's poor performance, thus suppressing sector competitiveness and exacerbating economic stagnation and poverty. Maize offers an excellent opportunity to increase rural household incomes, reinvigorate rural economies, and improve nutritional value. USAID/Kenya Mission's 2001-2005 strategic plan recognized that the inefficient maize production/marketing system greatly contributed to economic malaise and heightened poverty in Kenya. The strategic plan concluded that increased productivity, more efficient markets, and rational government policies could dramatically alter the economic contribution of Kenya's maize sub-sector, thus becoming a key element in accelerated growth and poverty reduction.

In Kenya, the potato is the second most important food crop after maize, and is both a staple food and a cash crop for many rural and urban families. As a food crop, the potato is an important source of carbohydrates, protein, and vitamins, and plays a major role in food security. It is also a major source of income and is increasingly assuming importance as a cash crop. In 2008, the total area under potato cultivation was estimated to be 158,386 ha, with an average yield in the range of 7 tons/ha, and 850,000 farmers participating in its production.

According to the FAO, the average Kenyan consumes 2,155 kilocalories of food per day, 1,183 kilocalories (55 percent) in the form of the key staples: maize, wheat, dry beans, potatoes, plantains, and rice. Maize accounts for 65 percent of total staple food caloric intake and 36 percent of total food caloric intake (FAO STAT, 2009). Average per capita annual maize consumption dropped from 90 kg in 2003 to 88 kg in 2009; which points to Kenya's changing staple crop sub-sector. Alternate crops (common potatoes, sweet potatoes, pulses, sorghum) are beginning to fulfill food security needs of a population challenged by food shortages. Alternative staples are more drought-tolerant, growing well in Kenya's depleted soils with little fertilizer. Alternative staples, also referred to as orphan crops, are attracting the attention of policymakers as Kenya develops strategies to mitigate the effects of increasingly regular droughts.

PROGRAMS EVALUATED IN STAPLE FOODS VALUE CHAIN REVIEW

There were three programs selected by the donor/development partners that fit under the staple food crop portion of the Multi-Stakeholder Evaluation.

USAID/Kenya Maize Development Program (KMDP)

In 2002, KMDP's purpose was to increase rural household incomes through improved production and marketing efficiency in the maize sub-sector in order to achieve "sustainable economic growth through increased rural household incomes." KMDP's objectives were arranged under four intermediate results:

- Increased Productivity
- Increased Marketing and Trade
- Increased Access to Business Support Services (BDS)
- Increased Effectiveness of Farmer Organizations

KMDP activities focused mainly on high and medium-potential maize-producing districts of Kenya's Western and Rift Valley Provinces. Originally, a four-year cooperative agreement, KMDP was progressively extended to a final end date of June 2010. In January 2011, USAID/Kenya invested $3 million in the 18-month Kenya Maize Development Program II (KMDP II). This follow-on project addresses supply chain inconsistencies in targeted staple crop sectors to better understand their market potential, facilitate the development of alternative staple value chains, and improve the position of smallholder farmers working in alternate staples. The vision of KMDP II is to increase incomes and food security in accruing to an additional 20,000 rural dwellers in the high/mid-potential areas of Kenya's Rift Valley, medium-potential productivity areas, and marginal-potential areas in Makueni and Machakos Counties, and Nyanza Province.

Private Sector Development in Agriculture (PSDA) – Potato Sector

This program is funded by GIZ, and the executing agency is the Ministry of Agriculture. The program began in January 2003 and will end in December 2013**.** The program aims to enable small and medium sized agricultural production and processing enterprises to fully utilize their production and market potential, while sustainably managing their natural resource base.

The program is composed of three components:

- Improvement of the Policy Framework for Agriculture and Agribusiness
- Strengthening of Implementation Capacities for Value Chain Development
- Promotion of Resource Friendly Technologies

Eight value chains were ultimately selected for the program. The potato sector is the staple food value chain being reviewed in this evaluation.

National Agriculture and Livestock Extension Program (NALEP)

NALEP, supported by The Swedish International Development Agency (SIDA), is a component of the larger National Agricultural Sector Extension Program (NASEP) Implementation Framework designed to implement the NASEP policy under the auspices of the Agricultural Sector Coordination Unit. NALEP is jointly implemented by the Ministry of Agriculture and the Ministry of Livestock Development (MoLD).

NALEP's purpose is to provide and facilitate pluralistic and efficient extension services for increased production, food security, higher incomes, and an improved environment. The program forms sustainable partnerships and networks with relevant stakeholders, including community-based organizations, non-governmental organizations, civil society organizations, private sector organizations, individuals, and GoK departments.

NALEP's specific objectives include the following:

- institutionalize demand-driven and farmer-led extension services;
- increase effectiveness of pluralistic provisions of extension services;
- increase private sector participation in providing extension services;
- empower farmers, pastoralists, and those engaged in commercial fishing to take charge of project cycle management of extension projects;
- develop accountability mechanisms and transparency in the delivery of extension services; and
- facilitate commercialization of some agricultural extension services.

NALEP Phase II is a five-year program that started in 2007 and will close on December 31, 2011.

DESIGN OF VALUE CHAIN PROGRAMS

The staple food value chain team examined the plans of the three programs to identify strong value chain design factors and determine what is most important to donors in new project design, because design is critical to successful implementation.

Some of the programs were designed not as value chain programs, but rather with private sector and market-related factors added to its main program objective. In the case of NALEP, it is true to its name as a national agriculture and livestock extension program. Nonetheless, we did find program design elements that were in line with the value chain design precepts in all three of the programs. The evaluation team started with what is known to work in the value chain approach and identified aspects in the various programs that support these evidence-based lessons on value chain design. The lessons and common features of a strong value chain design and ultimately programs are listed below with a short discussion of how they have been applied and worked well in the three programs reviewed.

MARKETS FOR THE SELECTED VALUE CHAIN CAN DRIVE OR LIMIT PROGRAM IMPACT AND SECTOR TRANSFORMATION

Food security in Kenya has generally been viewed as synonymous with maize security. However, for many smallholders, growing maize has not been a path to food security. Potatoes and other root crops in major maize-deficit years are likely to be a consumption *shock absorber*. A combination of maize and root crop value chain development can drive significant improvements in food security.

A proper understanding of the value chains is required for a particular value chain program to be successful. The existing or potential market should offer strong opportunities for producers and value chain service providers. Maize is Kenya's main staple food and potato is the second most important (Source: International Potato Center). Maize is the central crop in Kenyan agriculture, grown by 98 percent of the country's 3.5 million smallholder farmers. A recent Tegemeo study showed that farm sizes in Kenya declined by 15 percent

between 1997 and 2007 (Tegemeo WPS 44/2011). About one-third of the smallholder farms nationwide are less than 1.0 hectare.

The Kenya food security objectives of increased availability and access make both sectors a high priority. The first and most important end market for maize and potato production is the farmers. However, the food security aspects of the two sectors are not just on-farm and local markets. Kenya's consumption of maize is nearly always less than its production. On the commercial side of maize, sales market forces are somewhat unpredictable. A recent Tegemeo study highlighted uncertainty over government behavior on import tariff rates as well as the stifling of private investment in maize by NCPB actions on maize pricing and marketing (Tegemeo 44/2011).

Kenyan policy makers are confronted with the classic "food price dilemma." On one hand, they seek to ensure that maize producers receive strong or at least adequate incentives to produce and sell the crop. Large, and some small-scale, farmers depend on the viability of maize production as a commercial crop. On the other hand, the food security of the growing urban population and many rural households who are net buyers of maize depends on maintaining maize prices affordable levels.

On balance, the commercial market for maize is strong but there are distortions and fluctuations that can make buy and sell decisions difficult. On the other hand, the on-farm food security "market" for maize is predictable and strong, but subsistence-food driven. It is difficult to characterize the governance structure of the commercial aspects of the maize market. The balance of power and advantages in the maize sub-sector changes with the government and parastatal pricing and import duty adjustments.

Potato productivity has dropped over the last two decades as more land is used to produce potatoes to meet some of the rising demand. Potatoes are growing in importance as a staple food in urban and rural areas. Potatoes are not exported to any significant degree. Their market is chiefly on-farm and local, with some regional trade into Kenyan urban areas. The potato is one of several root crops that can, and to a limited extent, already does, help farmers endure food deficit periods when maize crop production is poor. Decisions regarding commercial sales are market-driven and the price is determined with little formal cooperation among value chain participants.

UNDERSTANDING THE VALUE CHAIN: A PREREQUISITE TO GETTING THE PROJECT RIGHT

A strong value chain assessment was completed by both KMDP and PSDA-Potatoes at the start of implementation. This value chain knowledge has been central to program implementation.

The value chain is a system that requires an understanding of the need to work at various points in the system/chain at differing times. KMDP planned on working with partners in three areas of the chain at the start: (1) market information and linkages, (2) smallholder organization, and (3) productivity gains through improved inputs and better farming systems. The implementation section below discusses the PSDA potato programs holistic approach to the value chain. KMDP and PSDA/Potato were designed to take a holistic approach in implementation.

DONOR PROGRAMS INTERVENE IN THE VALUE CHAIN TO ENABLE, INCENTIVIZE, AND SUSTAIN POSITIVE CHANGE

Donors and development agencies are external to the value chain system. Their role is to facilitate upgrading and to provide support to value chain actors. The program should not provide a service or function that the private actor in the value chain can deliver. However, in many cases, private-sector provision of the service or

function is weak or non-existent. A value chain project then has to facilitate the upgrading of the weak service or function in a way that builds sustainable service providers in the private sector. Some general principles on how to do this are drawn from the GIZ value chain manual and presented in Box 1.

USAID instructed KMDP at the start of the program to avoid subsidies and direct delivery of services. This set the course for KMDP to help strengthen local companies and other actors in the maize value chain to ensure sustainability beyond the life of the program. KMDP has followed this directive and stepped in with smart subsidies and adjustments as appropriate. Much training is provided free of charge, and some inputs for demonstration and education objectives are given without payment. However, in most cases, a private company finances most of the demonstrations and promotions, thus using the value chain actors to provide farmer education.

Box 1. Important Principles of Promoting and Facilitating Chain Upgrading

Facilitators of chain upgrading should:

- Make the role of an external facilitator transparent
- Act upon demand of the value chain operators or their representatives
- Serve the clients and manage the process with impartiality toward content, sharing results
- Build on market and development potential working toward viable/sustainable market structures
- Build on the initiatives taken by value chain actors and existing organizations and institutional setup
- Stick to a clear division of tasks among chain actors
- Respect the culture, rights, and autonomy of all participating groups
- Place the focus on practical implementation as well as rapid and visible results and impacts
- Build on the initiatives of chain leaders, private enterprises, or business associations
- Cooperate with partners who behave as change agents and leaders
- Openly acknowledge any potential conflict of interest
- Create a balance between participation and results
- Coordinate efforts of different donors along the chain

Source: GIZ *ValueLinks: The Methodology of Value Chain Promotion*–Module 4-5

BALANCE ECONOMIC/VALUE CHAIN GROWTH AND POVERTY REDUCTION

Planners intending to engage in value chain promotion must first identify the intended balance between economic growth and poverty reduction. GIZ with PSDA, USAID with KMDP, and SIDA with NALEP, all found that both objectives could be achieved. The three programs were well designed to seek the dual goal of growth and poverty alleviation. These programs did find somewhat different balances between growth and poverty alleviation. Often the question arises as to whether the program is emphasizing pro-poor interventions. In the design of NALEP and PSDA, a pro-poor set of objectives were set out. KMDP I was more balanced in seeking maize sector growth and poverty reduction but then became more pro-poor in its second phase, which started in 2011. The NALEP tool for Participatory Analysis of Poverty and Livelihood Dynamics (PAPOLD) worked well to identify the poor and their needs in the NALEP focal areas and direct the program and other resources to the most needy.

VALUE CHAIN UPGRADING: LEARNING AS YOU GO

Donor value chain programs require strong monitoring and evaluation that reaches beyond the donors' M&E needs to the actual function and dynamics of change in the value chain. The government/donor programs,

and eventually the value chain actors themselves, need to have the capacity to adjust and learn as the value chain evolves. One indication that donor assistance can end is when value chain actors are capable of responding to changes in the market and the value chain itself by product upgrading or other actions that keep the value chain product(s) competitive in its end markets. This achievement rests on many factors, but at the design stage, a critical step is obtaining donor commitment and planning to gather value chain data and improve the actors' understanding of the value chain. GIZ included a strong multi-layered evaluation process in the PSDA program design. It is comprehensive and provides some input and analyses to help the implementers and value chain actors understand and respond to changes in the value chain.

IMPLEMENTATION OF VALUE CHAINS: WHAT HAS WORKED WELL

INTRODUCTION

The three selected programs have existing evaluations and result reporting. The team evaluated these outcomes and results. Then the members identified what elements of the program have worked well – lessons learned and best practices. Where experience and practices lined up with results and achievements recorded by the three projects, the team reported best practices and good lessons learned. Our largely qualitative approach to identify value chain practices that work was supported by the evaluated programs' own quantitative and qualitative reporting.

This section is organized first by program (KMDP, PSDA and NALEP) and then by six areas that cover the main parts of a value chain. The six areas are arbitrary divisions in the value chain and many of the practices that have worked well have multiple elements that reach into several of the value chain segments listed below. Where there were no strong lessons on what has worked well in one of the six areas for a particular program, the area was not presented.

1. Comprehensive Value Chain Approach
2. Horizontal Linkage – Farmers Working Together in the Value Chain
3. Technology and Input Upgrades – Improved Seeds, Fertilizer, Farming Systems
4. Vertical Linkages/Market Linkages
5. Enabling Environment – Policy, Practices, Laws, and Regulations
6. Supporting Markets – Finance

KENYA MAIZE DEVELOPMENT PROGRAM I AND II

Comprehensive Value Chain Approach

Facilitation and Using Value Chain Partnerships to Enable, Incentivize, and Sustain Maize Sector Productivity and Growth

The Kenya Maize Development Program started 10 years ago with a full commitment to a holistic and comprehensive approach to grow the maize value chain. The program set out to build the capacity of maize producers to have a basic understanding of the diverse elements across the value chain, and most importantly, help farmers know their role, place and options in the maize value chain system. Farmer learning was not just a training exercise in value chain theory. Partnerships around the key areas for farmer participation in the value chain created the foundation upon which the learning was built. Three local private sector service

providers were selected under KMDP to support the priority areas of (1) input supply, technology, and productivity upgrading (Farm Inputs Promotions, Africa –FIPS), (2) farmer organization for product consolidation, grading and standards, marketing ,and efficient training delivery (Cereal Growers Association of Kenya – CGA), and (3) market information and linkages (Kenya Agricultural Commodity Exchange – KACE). Two aspects of the partnership were particularly important in the success of the program:

The three partners were not direct actors in the value chain but facilitators who helped the farmers and service providers to do a better job in adding value in the chain. In the case of the Kenya Agriculture Commodity Exchange's (KACE), we refer to its price and market information function, not the exchange role where it does compete against some brokers. The partners were not in the value chain but were important actors in influencing and building the maize sector value chain for farmers and service providers. USAID specifically directed the KMDP implementer to be a facilitator in the market — not an actor. Subsidies for service providers and farmers were to be avoided for production, although free training and capacity building were encouraged as long as they were done in a way to ensure fair access by all.

The three local partner implementing agencies worked as the central value chain technical support providers along with the KMDP staff from the start of the program through the present. A consistent, value chain system approach with the same partners was presented to the farmers over the nine years of KMDP I and II implementation to date. During the course of the program, the sector and markets changed (drought, reduced duties, a changed NCPB, new seed varieties, political upheaval, etc.) and the KMDP consortium responded with appropriate adjustments while keeping to its value chain methods.

The core partners were buttressed by other private sector service providers in the value chain, including seed and fertilizer companies, banks, the Eastern African Grain Council, millers, grain storage and handling operations, and individual traders and transporters. Practical programs and business exchanges helped farmers understand these diverse value chain actors' place and gave the latter the ability to help farmers. And, of course, the service providers better understood the farmers' role and challenges through their working together along the value chain. The strength of these private sector partnerships and linkage did not undercut or diminish the interchanges and support provided by the government's agricultural sector support agencies and its policy and other work to improve the enabling environment.

The one partner task that competes with the private sector is the KACE, which matches buyers and sellers for grains and other crops, inputs, and farm animals. KACE is spinning off and franchising its existing field office to have them operate as private brokers and hopefully improve their efficiency and effectiveness in their market exchange function. KACE started franchising in the last year; and it is too early to ascertain whether this franchising will be successful. However, franchise revenues are good in all cases and robust in some.

Evidence of Success

The evidence of success of this value chain private-partner approach is found in the success of KMDP. The program's phase I final report reported: "significant progress was made towards achieving the project's objectives; there was a fourfold increase in productivity in the targeted project areas and a $208 million increase in total earnings from maize realized for an estimated 370,000 farmers benefiting directly from the project" (KMDP Final Report, p. 2). Additional achievements are reported further in this section on Lessons and Successful Value Chain Elements.

Key Success Factor and Scaling Up

The key factor that produced the positive results was the consistent and comprehensive application of the value chain approach with private partners and service providers at the core of the interventions. No production subsidies were provided under KMDP. The program did not provide value chain services directly. Improvements in the access to markets, services, and inputs were achieved by enabling private actors to expand their role. The sustainability of the benefits now rests on systemic value chain improvements, not subsidized inputs, equipment, or other capital needs.

HORIZONTAL LINKAGE

Farmers working together in the value chain

KMDP worked with 65 farmer groups in 2006, which grew to 120 by 2010. KMDP, working with the Kenya Cereal Growers Association (CGA), strengthened existing groups in maize production and marketing. Farmer association members benefited from training in management of associations, strategic planning and leadership development, as well as improved integration and inclusion of women in all aspects of farmer organizations. The increase in active female membership and the number of women managers of smallholder organizations increased, resulting in more equitable resource distribution and profit sharing.

Evidence of Success

Farmer organizations created a nucleus for enterprise development activities, including access to financial services in the latter part of the project. The more successful farmer organizations became capable of engaging other value chain actors. In 2010, focus group discussions held by the International Livestock Research Institute indicated that most farmers who participated in a group for better output prices gained from economies of scale and the ability to better negotiate with buyers and input suppliers.

KMDP reports the following results:

> In 2002, targeted farmers sold one 90 kg bag of maize for KShs 880.16. In 2007, the price increased to KShs 1,350 and to an average of 1,900 in 2009. Furthermore, the cost of producing one 90 kg bag dropped from KShs 910 in 2002 to KShs 576 per bag in 2006 and KShs 687 in 2009.

Key Success Factor and Scaling Up

The successful approach used by KMDP staff and their partner CGA has been build the capability of existing groups around specific value chain objectives. As the primary interface with farmers during the LOP, farmer organizations, with their increasing effectiveness, were the basis for much of the project's impact. In 2010, approximately 7,000 farmers participated in groups per the KMDP staff. Scaling up to reach a significant portion of the 3.5 million farmers who grow maize remains a challenge. It should be noted that, in many of the maize growing areas, post-election violence in early 2008 reduced the number of farmer associations and weakened others.

TECHNOLOGY AND INPUT UPGRADES- IMPROVED SEEDS, FERTILIZER, FARMING SYSTEMS

Increased competitiveness and variety of maize seed for smallholder farms

KMDP designed and implemented a private-sector based innovative approach that increased competitiveness and seed variety choices for farmers. This was much needed as the local seed market was dominated by the parastatal, Kenya Seed Company, and seed choices and improved varieties were few.

KMDP worked with its partner, FIPS, to establish 168,000 largely on-farm demonstration plots to educate farmers on use of other seed varieties coupled with proper application of fertilizer and timely planting as well

as environmentally friendly practices such as conservation tillage. KMDP mobilized seed companies that, in many cases, provided free seeds for the demonstrations. To expand farmer knowledge and choice as well as hasten the adoption of new varieties, KMDP/FIPS worked with seed companies so the demonstration plots included trials of their seeds as well as inorganic fertilizers and modern land preparation technologies. Farmers were empowered to select those most suitable for their soil and geographic region; farmers saw what worked well.

Evidence of Success

A household sample survey of KMDP beneficiaries in 2008 showed that 95.8 percent of the households reported use of hybrid maize seed. KMDP's 2010 final survey indicated that the increased use of hybrid seed varieties is correlated to increases in maize yields. Another general outcome from KMDP that rests on a combination of factors, of which seed is the most important, is the increase in yields achieved by KMDP-supported farmers. Yields increased from 16 bags of maize (90kg) per acre in 2006 to 27 bags per acre in 2010. Farmers did not usually shift all maize production to new seed varieties, but phased out the costlier seed and fertilizer as money was available.

Key Success Factor and Scaling Up

The first success factor was KMDP's use of a large number of low-cost demonstration plots on or near farmer fields that showed farmers the yield increases of improved seeds and fertilizers when properly used. The partnership with the private seed companies was also a key factor in that they provided free seeds for demonstrations and easy access and purchase of the seed once farmers decided to buy. Lastly, having improved hybrid seeds that did increase yields was a huge benefit. The private seed research and development paid off.

Improved Smallholder Access to Inorganic Fertilizers and Nutrients

KMDP and its partner, FIPS, have improved smallholder farmer access to fertilizer by making the standard packages smaller and changing fertilizer composition. KMDP has helped the fertilizer industry reach the "bottom of the pyramid" that is small-scale farmers in Kenya.

With the increasing demand for inorganic fertilizers by smallholder producers, KMDP identified the need for fertilizer manufacturers to use smaller packages to meet the former's needs. KMDP with FIPS approached the private sector company, Athi River Mining, to blend and package inorganic fertilizers of various types into sizes smaller than the conventional 50 kg bags. The size of the packages was as low as two kg. KMDP promised to use the smaller packages at its demonstration plots. The arrangement between Athi River Mining and KMDP ensured that the new smaller packages reached many farmers in different agro-ecological zones. Following the initial adoption of the smaller packaging by Athi River Mining, other big players in blending and packaging of fertilizer followed suit.

Farm Inputs Promotions in Africa (FIPs) took the concept of mini-input packages a step further by presenting to smallholder farmers at the village level a package of fertilizer and seed that could be demonstrated on an area as small as 10 m^2. KMDP/FIPs introduced inorganic fertilizer packed in units as low as 100 grams for on-farm demonstrations among smallholder producers. The positive results under such demonstrations have encouraged smallholder producers to demand progressively higher amounts of the same fertilizers with resultant aggregate enhanced productivity in the project areas.

One final innovation has been the re-blending of fertilizers after the 2008 increases in fertilizer prices that made fertilizers unaffordable for some farmers and financially unattractive in some growing areas. In collaboration with FIPS, KMDP developed two fertilizer demonstration protocols to show farmers that it is

possible to obtain good yields using fertilizers that cost as little as KShs 1,500 per bag instead of the prevailing price of KShs 4,000 resulting from the sharp increases in oil prices. Minjingu fertilizer, developed by private sector Minjingu Ltd., is cheaper than Di-ammonium Phosphate fertilizer (DAP) and more appropriate for the acidic soils in Western Kenya due to its high calcium content.

Evidence of Success

Many fertilizer blending and packaging companies that serve various agro-ecological zones have adopted the practice of packaging fertilizer in sizes smaller than the standard 50 kg bags, thus creating adequate competition in new market segments for one of the most important productivity-enhancing inputs and, by extension, improved efficiency in fertilizer blending, packaging, and distribution.

Increased maize yields, as discussed above in the improved hybrid maize seed section, also rely on the use of fertilizer. In contrast to KMDP farmer use of hybrid maize seed, the adoption of inorganic fertilizer varied and was in fact lower in 2010 than in 2008 because of its high price.

Key Success Factor and Scaling Up

As noted above in the seed section, the first success factor was KMDP's use of a large number of low-cost demonstration plots on or near farmer fields that showed farmers the yield increases of improved seeds and fertilizers when properly used. The partnership with the fertilizer companies and their reformulating and small size packaging linked to FIPS distribution channels is also a key factor. The potential for further scaling up of the fertilizer input innovations is good. It is necessary to continue to make the fertilizer affordable to smallholders to match their effective demand.

Improved Inputs and Technology through Village-Based Agricultural Advisors (VBAs)

Farm Inputs Promotions Africa (FIPS) is implementing a highly innovative and integrated set of interventions that center on community-based agricultural change agents as well as improved farm inputs and technology. The presentation below describes the important role that these VBAs play in upgrading smallholder farm production and on-farm food security. One example of what can be achieved with a VBA approach is the FIPS initiative in Western Kenya that has resulted in 32,000 smallholder farmers growing sweet potatoes as a complementary insurance crop to maize.

The arrangements and work requirements for VBAs have evolved over time. Currently, the local farmers are recruited by FIPS to work in their home villages and neighboring areas as VBAs. The selected individuals are good farmers who have adopted and successfully used the new technologies and improved inputs introduced by FIPS. Each has seen on his/her own farm what the new inputs and technology can do; they serve as local demonstrations of what can be achieved. At present, the farming system innovations are mostly staple food-related improvements in seed and fertilizer use, although there are other technologies promoted, such as inoculation of chickens against Newcastle Disease. These advisors work with their neighbors to demonstrate and introduce the new inputs and techniques on the neighbors' farm. The advisors' success on their own farms has made them enthusiastic agents for change. As their promotion of the new seeds, fertilizer, and other cropping system changes have shown results, the advisors' own community status and trust has grown.

Within a district, there is a structure and set of farmer outreach targets for the VBAs. For example, in Kakamega South district, there is a set of 15 VBAs that are supervised by district coordinators. Each advisor works in a village/area that has approximately 1,000 farmers, all of whom the VBA is to visit. The VBAs' objective is to have farmers adopt the new seeds, practices, or farming systems. The percent of the farmers who accept the change is a measure of his/her success. Success ratios of 40-60 percent are common. Some top performers hit 80-85 percent. The district coordinators are supervised by a regional coordinator.

The VBAs undertake a range of services, including demonstrations of crop varieties, selling small packs of seed and fertilizer, establishing multiplication sites of cassava or sweet potato varieties, establishing tree nurseries, and vaccinating local poultry against Newcastle Disease. Usually, the advisor has tried and benefitted from all or most of the new inputs and technologies on his/her own *shamba*. Supervisors are paid a monthly salary and have motorcycles or transport available to meet with and manage the VBAs. However, the VBAs are not paid. They earn money by providing services, essentially adding a new livelihood and income stream to their farming and other businesses. By way of example, the VBAs earn income through poultry inoculation or selling small seed and fertilizer packets to farmers. In a root-crop multination program, the advisor is required to grow the crop and distribute cuttings for propagation of improved varieties; in exchange, the advisor gets to keep the entire tuber crop production from the demonstration plot.

The VBAs are also helping KARI and other NARCs reach out to farmers with new types of seed, technologies, and farming systems developed by the NARCs. The range of crops/varieties that FIPS-Africa currently promotes in Kenya with VBAs is in Table 4 below.

Table 4. New Varieties Promoted by Village-Based Agricultural Advisors

Crop	Variety	Partner
Maize	KH500-34A, 31A WH505 PAN691, 7M-97, 4M-19 DUMA41, Punda Milia 53, Simba61	Leldet Ltd Western Seed Co Pannar Seedco
Beans	KK8, 15, 22, 71, 72 KAT B1, B9, X56, X69	KARI-Kakamega KARI-Katumani, CIAT TL2
Cassava	Migyera Shibe Ndoro	KARI-Kakamega KARI-Mtwapa KARI-Katumani
Sweet Potato	SPK4, SPK13, Salyboro, Mugande KSP20	KARI-Kakamega KARI-Katumani
Cowpea	K80	KARI-Katumani, Leldet Ltd.
Pigeon Pea	KAT60/8	KARI-Katumani, Leldet Ltd.
Dolichos (lablab)	DL1002	KARI-Katumani

KMDP, with FIPS, has started a major initiative to add sweet potato to the cropping system of the poorest in Western province as a food security measure. They are also looking to add cassava as a food security crop in Makueni. Arguably, these are the two most important food security crops for Kenyan food security. They grow well in poor soils and are relatively drought-tolerant. Their commercial potential is great, yet, there is virtually no private sector interest in the provision of cuttings/seed of these crops. Smallholder farmers' access to improved varieties of sweet potato and cassava is minimal. Thus, KMDP makes improved varieties of sweet potato and cassava crops locally accessible and affordable by purchasing planting materials of new varieties from KARI's Regional Research Centers and delivers them to vulnerable farmers. A program of sweet potato cutting distribution by the VBAs and farmers has resulted in 32,000 farmers having sweet potato plots on their farms in Western Province, while cassava cutting distributions in Makueni have reached 3,000 farmers in just nine months since the initiative started.

Evidence of VBA Success

The results of KMDP project provide evidence of the successful upgrading of farm production in the value chain approach. Since most of the farmers where KMDP's FIPS component operates subsist at or near the poverty line and are often affected by food insecurity. The main target market for the staple crops grown on the farm is the farm households themselves and local markets in the district. Thus, the best measure of success is not the off-farm sale of tuber and other crops, but rather the on-farm consumption that complements maize and enhances or creates food security.

FIPS has taken up fully the VBA model in KMDP II. Recent successes under Phase II include the selling of fertilizer and seed in target areas in Western Province and in Eastern Kenya for the short rainy season (September-January).

Key Success Factors and Scaling Up – A Multifaceted Approach

The VBAs are the method by which KMDP puts in place the improved inputs and farming systems discussed above. The program and VBA success first rests on a methodology that meets the needs of the farmers to change their farming system. The local farmers, including the VBAs themselves, must easily and quickly recognize the benefits of the new technology. The VBA's work and motivation will be lacking if the inputs and system to grow more food are not clearly evident. The overall methods need to be low risk and empower smallholder farmers to experiment with the appropriate farm inputs and systems on their farms. Giving farmers choices is important to empowering them. VBAs are the delivery mechanism for the sustainable adoption of improved inputs and farming systems. Thus, features of the integrated approach are as follows:

- Demonstrations and choices: The most common outreach methods of FIPS are to have a small on-farm plot to demonstrate or test several new varieties or technologies. With root crops that can be propagated vegetatively, a small number of 20-30 pieces are given to the farmer. The farmer is required to pass more cuttings to his/her neighbors as the crop matures. Several different improved varieties may be included in the demonstration to give farmers the option of choosing the best variety for his/her farm.
- Affordable: Farmers with small plots of land are highly risk averse when it comes to experimentation. The VBA uses the small seed pack approach and small plot demonstrations to enable farmers to experiment with little risk. Commercially sold inputs are packaged into small, affordable units to encourage farmers to scale up after the demonstrations show success.
- Nothing is given for free: Free inputs are rarely used effectively, as they may be exchanged for cash and create dependency. Thus, seeds or cuttings are often provided without payment in cash for on-farm demonstrations and experimentation, but farmers are requested to repay seeds/cuttings on a 2/1 or 3/1 basis. The cuttings are passed back to the VBA for further bulking or on to fellow farmers who also promise to repay with cuttings on a 2/1 or 3/1 basis. This community-based seed-bulking scheme enables further dissemination of improved varieties at no additional cash cost.
- Locally accessible: The improved inputs and technology must be made available at the village level to enable farmers to put them to use. To this end, KMDP/FIPS promotes the development of new farm input suppliers and extension service providers at the village level through the VBAs.
- Private sector participation: KMDP/FIPS works closely with private sector companies along the farm input supply chain to ensure that the appropriate inputs are made locally available in affordable pack sizes. Once FIPS-Africa has developed the demand for inputs, the private sector continues to supply the market on a commercial basis.

- Inclusive outreach: Government extension services conventionally focus on farmer groups or farmer field days that depend on farmer participation. This leaves some farmers out and can create divisions within communities. Given that the MoA and MoLD have inadequate numbers of extension workers, some farmers will inevitably be without extension services for long periods. Distant communities off the roads have low participation rates in extension services. The VBA model follows a village-based approach that seeks to involve all farmers and have high percentages of them use the improved inputs and technologies. For the VBA to reach farmers, the advisor need only walk to his neighbors' farm. The success rate in some villages is as high as 85 percent. Adoption rates of 30-60 percent are the norm.

It is important to note that the factors of success in this program align with a value chain approach where the end markets are on-farm consumption and sales at neighboring markets. If farm surplus grows beyond what can be absorbed in local markets, then expanded marketing and value-added activities need to be included in the program. KMDP and FIPS are beginning to look at the option of facilitating local value-added processes and marketing beyond neighboring villages.

For much of KMDP I, Farming as a Business Training (FaaB) was the flagship training curriculum. The goal of Farming as a Family Business was to increase the incomes of rural smallholder farmers through a better understanding of business needs, skills, and systems. FaaB provides farmers with the skills to fully understand the commercial potential of small farm agricultural production and crop value chains. Under KMDP, the FaaB curriculum was revised in 2007 to include gender-sensitive decision-making tools and renamed Farming as a Family Business (FaaFB). Farming as a Family Business incorporated the roles of men and women in the decision-making process after studies in Uasin Gishu and Trans Nzoia indicated that male participants in training programs rarely shared information about improved farming practices and technologies with female household members. The revised Farming as a Family Business training curriculum reflected an integrated effort between men and women in the planning and managing of family farm enterprises to maximize household profits.

It is difficult to quantify the results, and the evidence of FaaFB success is qualitative. However, attesting to the efficacy of the Farming as a Business methodology developed by ACDI/VOCA, the MoA adopted the FaaFB curricula as its primary farmer enterprise development interface. KMDP trained a total of 105,000 farmers in FaaFB.

VERTICAL LINKAGES/MARKET LINKAGES

Improving market access through the Kenya Agriculture Commodity Exchange (KACE)

KACE developed a low-cost, multi-channel information system that is affordable to smallholder farmers and agribusiness operators, and is now widely used to discover prices and markets. SMS monthly use averages 30,000 requests and peaks at over 40,000 during the harvest season, showing that smallholder farmer use increases as market activity expands.

KACE has developed eight channels as part of a menu of information products to ensure wider geographical dissemination of market information to smallholder farmers in a timely manner. The platforms developed by KACE include: Market Resource Centers (MRCs), Mobile Phone Short Messaging Service (SMS), Interactive Voice Response Service (IVRS), Internet based Regional Commodity Trade and Information System (RECOTIS), its website, a Market Call Center, Soko Hewani Radio Program, and KACE Central Hub for information and commodity exchanges. KACE provides daily information such as market locations, prices, volumes, quality and sources of produce, weather forecasts, and types and names of buyers. A wide range of commodities are covered by the KACE systems. KACE embarked on a series of farmer trainings and by the end of September, 2011, 1,045 farmers had been trained on the concept of market, advantages of warehouse receipt systems, and the components of KACE Market Information System and Quality Standards.

Affordability of this multi-channel market information system enables smallholder farmers to gain access to price and market information in a timely, low-cost manner. The wide use of cell phones is important to the success of the most important channel – SMS. The KACE multi-channel information system has reached scale but use by smallholders can be further expanded through training smallholder farmers to proactively use market information to make informed decision on sales and purchases.

Promoting collective marketing and enhanced grain handling

KMDP promoted village aggregation centers as platforms for smallholder farmers to ensure quality standards in their grain, tap into high value markets such as the World Food Program Purchase for Progress (P4P) program, and store grain that could be sold at a later stage when grains are scarce. KMDP is also building farmer capacity to reduce post-harvest losses and store grain for longer periods without loss of quality.

KMDP assisted smallholder farmers in establishing 10 village collective grain-bulking stores and provided basic grain handling equipment that include probes, sieves, tarpaulins, and moisture meters. KMDP, in partnership with USAID's Market Linkage Initiative (MLI), trains traders to help operate the bulking centers. Some of the smallholder farmers' groups undertaking collective bulking of grains have successfully linked to large traders and processors, while others are supplying grain to relief agencies like the World Food Program under the Purchase for Progress (P4P) program.

Collective bulking is enhanced with the adoption of the warehouse receipt system. Many bankers were reluctant to finance agriculture where risk-mitigating mechanisms were poorly understood and rarely applied. For financial institutions, commodities in storage were not viewed as reliable security for loans; therefore, KMDP worked with innovative banks in collaboration with the EAGC to establish the first successful pilot of a Grain Warehouse Receipt System in the 2007-2008 season. It is operating under a collaborative venture between the East African Grain Council and private-sector operators like Lesiolo Grain Handlers Limited. The warehouse receipt systems have helped banks to understand grain storage and bring new financial products into the market, including collateralized inventory credit, insurance, and ultimately, a premium price paid on quality grain.

Evidence of Success

Smallholder farmers using the warehouse receipt system took advantage of the seasonal price differentials and, in 2008, thanks to 10,000 MT of maize aggregated collectively, they earned US$102,560 from holding grain past surplus harvest time. Improvements in maize quality are evident by farmer groups selling at higher prices and to the World Food Program.

Key Success Factors and Scaling Up

The ability of KMDP to link farmers together for this basic group marketing advantage is the key factor of success. To scale up the program, some sort of standard formal group structure would be advantageous to move the relatively low participation to scale. The bulking of the grain is just one advantage that could come from horizontal linkages of farmers in a system of more formal groups. Nonetheless, the increased number of smallholder farmers involved in collective aggregation of surplus grains and establishing village aggregation centers as well as linking farmers to the warehouse receipt system are all things that have worked well.

Business Fairs as an Approach to Improve Business Linkages

Business fairs bring together and enhance interaction among key players in maize value chains (up to 80 exhibitors and over 20,000 farmers per business fair) such as large and small-scale farmers; traders and assemblers; development partners; input suppliers; farm machinery service contractors and distributors; millers; irrigation service providers; the political class; and public sector institutions including research and extension services.

Financial institutions have increasingly participated in the annual business fairs while lending to smallholder farmers has risen. The business fairs offer an excellent opportunity for the private sector to obtain feedback from farmers, monitor product performance, and create the basis for research and development of mini- packaging and other smallholder-oriented solutions. The business fair is now one of EAGC's annual events, and the fair's sustainability resides in EAGC's ability to keep it focused on farmer involvement and the exchange of new technology.

Marketing Training

The Tegemeo Institute of Agricultural Policy found evidence of the importance of marketing training on-farm income and noted KMDP's impact. The report states:

The prices received by farmers selling maize in the same month and in the same village show a high degree of variability. This variation suggests that *marketing savvy* – the ability of farmers to negotiate prices and identify buyers – plays a significant role in their ability to obtain remunerative prices for their maize. Marketing savvy is shown to be enhanced through market skills training. Based on price data collected from participants in ACDI/VOCA's Kenya Maize Development Program (KMDP) and from nearby villages where training was not administered we find that KMDP recipients received 9.9 percent higher prices on average (22.1 shillings vs. 20.1 shillings per kg) (Tegemeo 44/2011).

ENABLING ENVIRONMENT – POLICY, PRACTICES, LAWS, AND REGULATIONS

While KMDP activities to improve the policy and regulatory environments were not a significant part of the program, two areas of collaboration have worked well to bring in policy, regulation, and the enabling environment. The program linked with Egerton University's Tegemeo Institute of Agricultural Policy Research and Development, which provided a good study and deeper understanding of many policy and practice issues within the maize sub-sector. It is difficult to measure the results of Tegemeo's work on policy and the enabling environment, but its work did bring KMDP back to the series of challenges that exist around the commercial maize market and the need for government reforms to make the end market of maize perform freely.

Second, KMDP and the USAID RATES program supported the EAGC in hosting the second African Grain Trade Summit in Nairobi in April 2007. The summit brought together leaders and organizations from around the continent, which led to the signing of a memorandum of understanding between the Common Market for Eastern and Southern Africa (COMESA) and EAGC, which tasked EAGC with improving the regional policy and trade environment for cereal value chains. KMDP's activities focused on institutional and technical support to EAGC to improve agricultural trade with key inputs directed at carrying out a successful pilot grain warehouse receipt system. The warehouse receipt program discussed above used EAGC guidelines and procedures.

SUPPORTING FINANCIAL MARKETS

Because of the increasing commercial viability of maize farming, banks now have more interest in lending to small farmers, albeit larger small farmers. During the 2008 long rainy season, KMDP reported that more than 7,702 individual farmers received loans amounting to US$1,097,101 from seven commercial banks through their farmer groups. In 2010, the number of farmers receiving bank loans rose by nearly 10 percent, to 8,300.

CROSS CUTTING AND OTHER ISSUES

Below are positive features of the KMDP in some important cross-cutting and other areas. We have generally tried to identify positive features that relate the areas in question to the value chain approach.

KMDP and the Post-Election Violence

KMDP was seriously affected by the post-election violence at the end of 2007 and early 2008. A geographical focus area for KMDP was the Rift Valley, where much of the violence took place. Although the program was seriously affected, it was able to provide relatively quick economic and, to some extent, relief support to the affected Rift Valley. The violence hit when the maize was ready to be harvested. KMDP's understanding of the maize market helped them shape a recovery response. Listed below are a few of the actions taken by KMDP and reported in the KMDP I final report. A more complete review that identifies the significant negative impacts on KMDP operations as well as their analysis and response to the post-election violence can be found in the KMDP I Final Report. A summary excerpt follows:

KMDP's value chain approach stimulated enabling business environments and strengthened stakeholder linkages to mitigate the aftermath of the post-election violence. Our approach allowed for ample risk mitigation and created flexible opportunities for implementing KMDP's work plan. These initiatives introduced peace promotion and conflict resolution into agribusiness development, and were an effective bridge between relief efforts started with Kenya's National Peace and Reconciliation Bill and development efforts in KMDP's geographic areas. KMDP built relationships with religious organizations working in emergency relief and public health programs to stimulate input supply, stop-gap agronomic extension and output marketing support, and created opportunities for farmer investment in alternative short-term crops.

KMDP played an important role in rebuilding shattered confidence and community solidarity in many areas that experienced post-election violence (KMDP I Final Report, p. 8).

Engaging Youth in Agriculture

KMDP I and KMDP II have focused on integrating youth in program activities through multiple approaches. KMDP supports Amiran's "The Next Generation Farmer Initiative." Amiran is a private company that manufactures and distributes seed and agricultural equipment. The Next Generation Farmer Initiative is designed to use the Amiran irrigation kit to address food insecurity in agriculturally marginal southeastern Kenya by providing training through secondary schools. ACDI/VOCA has partnered with youth representatives and participated in the USAID-funded "Yes Youth Can" Western Kenya Chapter. The program is intended to identify and intensify the youths' ability to engage in productive asset-building activities, including in the agricultural sector

Nutrition Integration

KMDP II has increased the focus on nutrition through its expansion into staple crops other than maize, thus diversifying the farmers' sources of calories, protein, and micronutrients. The orange-fleshed sweet potato variety promoted under the KMDP II has high carotene content and thus the vital vitamin A, which is a major deficiency in most foods. To underscore nutrition needs, at the 2011 Agriculture Fair, ACDI/VOCA partnered with Unga Ltd. to sell fortified flour and a special flour blend as a loss leader to promote the flour blends. The flours included blends of maize, wheat, millet, and sorghum.

Gender Integration

The percentage of women involved in farmer groups grew by 30 percent over the LOP, with women occupying leadership roles in many farmer organizations. Through KMDP's training programs, such as the Power of Attitude Change, and Farming as a Family Business, male and female attitudes toward the role of women in decision making are being altered.

Natural Resources Management and Adaptation to Climate Change

KMDP II is employing innovative techniques to improve natural resources management and adaptation to climate change in the program regions. This strategy was developed to respond to KMDP II's expanded geographical coverage relative to KMDP I, which includes more arid and semi-arid areas that are prone to frequent droughts. The frequency of prolonged drought, rainfall failure, and famine has increased in these areas recently due to climate change phenomena. KMDP II is providing farmers in southeastern Kenya with alternative staple crop options that are drought tolerant, such as cassava, sweet potato, cowpea, pigeon pea, and dolichos (lablab).

The project also provides options of growing high-value crops under irrigation or in moist valley bottoms. These include cabbage and tomato, deep-rooting fruit trees such as mango and avocado, and improved early-maturing maize varieties that are able to survive a moderate dry season.

The project is promoting improved conservation tillage methods that allow increased rainwater infiltration and deeper rooting, thus helping the maize crop to utilize available moisture from limited rainfall. Another technique is enhancing soil water uptake and retention of rain water in agriculturally marginal ecosystems through promotion of deep tillage systems using locally manufactured equipment and tied ridges technology. The model has been successfully pioneered in semi-arid Machakos and Makueni districts.

PRIVATE SECTOR DEVELOPMENT IN AGRICULTURE (PSDA) PROGRAM – POTATOES

COMPREHENSIVE VALUE CHAIN APPROACH

A Comprehensive Value Chain Approach to Potato Production in Kenya: Private Sector Development in Agriculture Program Interventions in the Potato Sector

The Private Sector Development in Agriculture (PSDA) program addresses underutilized agricultural potential and weak business linkages using a value chain approach. PSDA is implemented by the Ministry of Agriculture and German International Cooperation (GIZ, formerly GIZ), in cooperation with other partner ministries and private-sector organizations. The program has created a successful model for value chain development, mostly in medium and high-potential areas. Since the PSDA started in 2003, it has helped develop 10 value chains; potato is the focus of the discussion in this section.

In Kenya, the potato is the second most important food crop after maize and is both a staple and cash crop for many smallholder farmers. It is critical for food security. It grows in higher altitudes where maize does not grow well. It is high in nutrients and relatively low in cost and does not require expensive preparation to eat. More than 800,000 farm households produce potatoes, with average annual national production around 2.5 million tons. The MoA estimates that the potato sector is a direct and indirect source of livelihoods for approximately 2.5 million people. Potato offers high potential to improve smallholders' livelihoods and reduce poverty. Furthermore, it can provide a cheap but nutritionally rich staple food well suited to the demands of the fast growing cities in Kenya and East Africa in general.

The PSDA potato value chain intervention has worked well. Its success rests on a strong and comprehensive set of interventions across the value chain, thanks to a systemic approach with multiple interventions over time.

Below are the key actions that PSDA completed or substantially supported in the potato sector since 2004. The interventions have been grouped by value chain intervention types to better show their comprehensive nature.

Sector Mapping and Value Chain Strategic Planning

- To start, PSDA supported multiple stakeholder conferences and workshops to identify potato value chain challenges, and identify potential interventions to overcome those challenges.
- A potato market survey was completed in 2004. It included value chain mapping.
- A strategy for the Development of the Potato Industry was completed in 2006.
- A Potato Value Chain Development Committee was established in 2005, which has worked on a range of issues to strengthen the value chain and most importantly, the potato-sector enabling environment. The program also supported the National Potato Task Force.

Policy and Enabling Environment

- PSDA supported the government in developing a legal and policy framework. National potato policy is in place as well as legal notice No. 44 of 2005. Both have been forwarded with a cabinet memo to the cabinet for approval.
- No element of the potato sector had received earmarked funds in the GoK budget on its own. They have always been lumped with other root and tuber crops and thus did not get the share of the budget they

deserved as the second most important food crop in Kenya. PSDA potato has been instrumental in encouraging the GoK to allocate funds for potato-sector research and specific programs. The most recent allocation is for KShs 22 million.

- Packaging standards for marketing, processing, and production of potato have been developed and published, and now are being implemented.
- PSDA partnered with donors, the government, and CIP to complete the National Seed Potato Master Plan to pave the way for development of the potato sub-sector through 2014.
- The National Potato Council of Kenya, a multi-stakeholder forum for the potato sector/industry, has been established and launched. This public-private partnership facilitates planning, organizing, and coordination within the potato sector. Its first strategic objective is to create an enabling environment for potato value chain growth and development. The membership comes from all segments of the value chain, including the GoK and development partners.

Horizontal Linkage to Enhance Small Farmer Participation and Income

- Working with the Kenya Federation of Agricultural Producers, PSDA helped to establish the Kenya National Potato Farmers Association (KENAPOFA). The association is operational, but much remains to be done to make it effective in the horizontal linkage of potato farmers with the value chain. It does not have permanent staff yet, and is run by a volunteer board.
- PSDA has provided training and guidance for KENAPOFA and its member farmers and groups.

Improved Supporting Markets: Seed Supply

- In 2005 PSDA was one of the first to support the training of farmers and extension staff on clean and certified seed production, positive seed selection, and food potato production; more than 10,000 farmers and 250 extension workers were trained.
- The program has also supported basic seed production through research. Private sector (Genetics Technologies International Limited (GTIL), Kisima) and public sector (KARI Tigoni) actors have been supported in production of basic seed through aeroponics technology. Assisting aeroponics technology in the seed sector has led to the production of 160 tons of certified clean seed. Although not a direct partner with USAID's Public-Private Partnership, Tackling the Food Price Crisis in Eastern and Central Africa with the Humble Potato: Enhanced Productivity and Update Through the 3G Revolution, with the International Potato Center (CIP), PSDA complemented efforts to move the aeroponic technology forward and increase the availability of low cost, quality seed in Kenya.

Improved Supporting Markets: Finance

- After piloting a guaranteed risk fund scheme with Equity Bank in other value chains in 2008, PSDA has extended the facility to the potato value chain.

Market Linkages

- Working with KENAPOFA, PSDA has offered marketing services to its members and groups.
- A potato processing initiative to add value by opening new processing markets in the potato value chain is in the planning phase.

Vertical Integration and Cross-Sector Support

- PSDA supported registration of the National Potato Council of Kenya (NPCK) with the Attorney General's Office and then helped to register and launch the NPCK
- The program reviewed the constitution of the NPCK and helped with planning the AGM and national elections
- The program supported an audit and reviewed the NPCK work plan
- The program reviewed the NPCK strategy

An important aspect of GIZ's approach that is not captured above, but cuts across most of its value chain work is its very participatory nature that draws value chain actors together to discuss needs and relationships.

To understand and work well with the poor, PSDA draws from livelihoods models. These are highly participatory and draw stakeholders together to guide implementation decisions and actions. The value chain approach starts with the market — not the participants — as the driver of the program. PSDA remains a value chain program, but its participatory approach helps to keep its pro-poor objective at the center. Although it is difficult to find evidence that this approach makes PSDA more successful in reaching the poor, there is no doubt PSDA programs are reaching the poor through a value chain approach.

Evidence of Success

By the end of 2010, PSDA had assisted 14,000 potato farmers in improving their farming systems. These farmers experienced income increases of almost 300 percent compared to unimproved potato farms (PSDP report). The higher yields and revenues rest largely on using clean, selected, and certified seed, and better farm management practices to take advantage of the better seed. In addition, hired labor on the improved farms increased by about 60 percent. The creation of casual labor employment provides alternative income in areas where off-farm employment is minimal. A great deal of this success rests on the PSDA achievements in potato seed policy and other potato sector reforms and regulations. More details on the potato seed sub-sector are discussed in the next section. Farmer gains also rest on strong PSDA performance in stakeholder organization and capacity building. The support to farmers provided by the Kenya National Potato Farmers Association (KENAPOFA) and the activities of the National Potato Council of Kenya are major steps to assure the sustainability of the positive PSDA work and outcomes in the potato sector.

Success Factors and Scaling Up

Applying and using a systemic approach to the potato value chain is the success factor. The value chain is made up of robust systems that will help rural residents develop their farms as businesses. PSDA has reached a large number of farmers to date and its success demonstrates that a significant scale, say hundreds of thousands of farmers, can be reached. Yet, scaling up the potato seed initiative alone remains a major challenge. Sustained, systemic, and substantial support is required to transform the potato sector in Kenya.

TECHNOLOGY AND INPUT UPGRADES

Potato Seed Value Chain Improvements: A Program for Affordable Quality Seed through a Partnership of Donors, GoK, and Private Companies for Research and Seed Multiplication

From a collapsed public sector potato seed market at the start of PSDA, the program has partnered with an array of donors, private sector agents, government actors, and NGOs to re-establish a largely private-sector potato seed market. A value chain approach was used to make this happen.

In the 1970s and 1980s, the GoK and the International Potato Center (CIP) worked together to provide top quality seeds in Kenya. CIP maintained and supplied clean foundation seed to KARI Tigoni, while KARI Tigoni increased the production of basic seed and released improved varieties. The bulk of the seed multiplication was then carried out by Agricultural Development Corporation and several large-scale farmers. By the mid-1980s, most of the potato seed research, multiplication, and supply system collapsed, mainly due to political interventions that took land and other assets from the largely government-owned potato seed supply chain. Potato seed distribution stopped and potato production started to decline. KARI Tigoni was not able to release new varieties between 1982 and 1997; this led farmers to reuse their own seed, either from saved seed or that bought on the market from other farmers. Potato yields dropped dramatically, to 7 tons per hectare.

In 2004, the PSDA program completed the "Irish Potato Market Study," which had, as its first recommendation, addressed the seed constraint, and identified positive selection as an important intervention. The PSDA worked with the MoA to train farmers and extension staff on clean seed production and positive seed selection as a first step to re-establish a quality potato seed system for Kenya. PSDA then built a consensus for a new approach and in 2009 helped complete "Seed Potato Sub Sector in Kenya: A Five Year Master Plan" in conjunction with the MoA, KARI, USAID, and CIP. The recommendations of the study reaffirmed what PSDA and the other partners in the report had already started to do: build the potato seed sub-sector.

At the time of the Seed Potato Master Plan preparation, many of the same partners who worked on the master plan undertook an important research and potato seed multiplication program, which was a public-private partnership (PPP) funded by USAID. PSDA worked parallel to this endeavor. The new project was "Tackling the food price crisis in eastern and central Africa with the humble potato: Enhanced productivity and uptake through the '3G' revolution"— popularly referred to as "3G" (three generations). USAID awarded the International Potato Center a grant of US $2 million in September 2008, out of which Kenya received about 80 percent. The overall goal of the project was:

to secure and increase seed potato supplies by increasing the supply of basic starter seed potato entering the supply chain from a more diverse range of organizations, including the public and private sectors, and by identifying existing seed multipliers at the smallholder farm level…

The 3G PPP partners included Kenya Agricultural Research Institute (KARI), Ministry of Agriculture (MoA), Kenya Plant Health Inspectorate Service (KEPHIS), Agricultural Development Corporation (ADC-Molo), Genetics Technologies International Ltd.(GTIL), Kisima Farm Ltd., and Farm Inputs Promotions Africa Ltd. (FIPS-Africa). PSDA, working with the same partners with the exception of FIPS, promoted the 3G innovative seed strategy. The CIP PPP states the common objectives well:

To address the chronic seed potato bottleneck, the following six interdependent value chain interventions were carried out:

1. Increasing the capacity of national potato programs to produce and multiply mini-tubers at lower per-unit cost and a reduced number of field generations by adopting the 3G seed strategy. The 3G seed strategy envisioned producing large amounts of mini-tubers through one generation of a very rapid multiplication technology (RMT), thus allowing bulking of sufficient seed in only two field generations rather than the conventional five to seven. This reduces both the cost of production and build-up of diseases in the field.
2. Co-funding private sector initiatives to engage in mini-tuber production and field multiplication.
3. Promoting and distributing quality seed to secondary seed multipliers and smallholder food potato growers through approaches such as seed fairs and large-scale distribution of small quantities of seed in trial packs.
4. Disseminating and adopting new high-yield and disease-resistant varieties.
5. Securing farm saved-seed supplies on a nationally significant scale through positive selection (PS) and farmer awareness campaigns.
6. Constructing partly subsidized diffused light stores (DLS) and raising awareness of the importance of good seed storage.

Evidence of Success

The PSDA and 3G PPP have worked with large-scale farmers to produce quality seed through cost sharing to build aeroponics facilities, and by linking them to markets. In a new approach for Kenya potato seed, the private sector is a significant force in seed potato production and distribution. CIP reports that "out of the 1.2 million mini-tubers produced in Kenya over 80 percent were produced by the private sector in 2010 and 2011."

CIP completed yield gap analyses which showed that G3 seed out-yielded all other seed categories significantly. On average, it yielded 266 percent (213-352 percent) higher than the farmer practice seed now in general use.

Success Factors and Scaling Up

A program for affordable quality potato seed has been developed through a partnership of donors, the GoK, and private companies. The establishment of an enabling environment conducive for a largely private sector potato seed industry has been critical to the growth of the potato seed value chain. But an improved enabling environment alone is not enough. Donors, especially GIZ and USAID, have worked

Box 2. Important Principles of Promoting and Facilitating Chain Upgrading

Aeroponics: Growing Potatoes in the Air

Aeroponics is the process of growing plants in an air/mist environment without the use of soil or aggregate media. The roots of the plants are developed in a closed and dark container, empty of everything except air. Nutrients are provided periodically to the roots in the form of aerosol through nebulizers. Aeroponics boxes are made of simple materials such as wood, aluminum, Styrofoam, and PVC pipes. Aeroponics result in high multiplication rates of about 50:1 compared with less than 10:1 under the conventional soil-based system and has low water and energy usage.

Box and Picture Source: The 3G Seed Strategy: A Novel Innovation to Breaking the Seed Potato Bottleneck in Eastern and Central Africa – Key Project Achievements in Kenya, Rwanda and Uganda, International Potato Institute (CIP) Pamphlet, 2011.

closely with the government and private sector to jump-start potato seed production through aeroponics, a technology new to Kenya. (See box 2 above). The potato seed work is a separate value chain and a "supporting market" to the potato value chain itself. The potato seed value chain is emerging as a success because there are also new seed varieties that are high yielding and disease resistant, a new policy on quality standards, and strong public and private multiplication of seeds, including by smallholders.

Research and multiplication of potato seeds is an important government undertaking, but the system is driven more by the private sector. The demand for the new improved seeds is high. CIP notes that "Field multiplication of the mini-tubers is a financially attractive business for private farms in Kenya — namely Kisima, Milwar Stephen Chege, Kagia, Suera, and Africalla. Private sector participation brought in efficiency and timeliness within the seed potato subsector." On-farm positive selection of potato seed, as advocated by the GoK and supported by programs such as PSDA and FIPS, round out a multi-faceted program that is transforming the potato seed sub-sector value chain. The potato seed sector is scaling up fast.

TECHNOLOGY AND INPUT UPGRADES

Guaranteed Production for Value Chain Linkages through Contracted Potato Farming

Deepa Limited, a leading potato crisp manufacturer in Kenya, has entered into a contractual arrangement with potato farmers in Bomet County for year-round production of potato for its processing facility in Nairobi. Farmers, through their farmer groups and technical backstopping from MoA extension staff, have ensured that they meet their contractual obligation by producing quality potato and phasing their production so they can supply the 35 MT of mature potato per week on a year- round basis. Deepa Ltd. has field officers who work closely with MoA extension staff and farmer-group officials to ensure that supply.

Evidence of Success and Success Factors

The success of the contractual sales mechanism is evident from the fact that the farmers have supplied the needed 35 MT of potato per week throughout the year. Deepa is satisfied with the quality and quantity received. Farmers working through their farmer groups are receiving favorable prices under the contract. Currently, farmers are paid KES 1,850 per 110 kg bag of potato. A total of 142 individual farmers have entered into contractual arrangement with Deepa Ltd. through their respective farmer groups.

A number of factors contributed to the success of the contracted potato farming. The soil type and prevailing agro-ecological conditions in Bomet County are ideal for the growth of the *Dutch robjn* potato for crisp making. There is also a strong support to the market for potato seeds. Deepa Ltd. engaged major stakeholders in planning, signing, and implementing activities under the arrangement; they include officials from the potato farmer grassroots organization KENAPOFA, who ensured that the interests of the farmers were met. Collaboration between KARI, MoA, farmer groups, individual farmers and field officers for Deepa

Ltd. allowed ensuring farmer's access to the high quality seed potato of the Dutch robjn variety. KARI supplies basic Dutch robjn which is bulked by one farmer group and 48 individual farmers.

Scaling Up

The approach of contractual potato farming is still in its nascent stage in Bomet County and has potential for scaling. Apart from Deepa Ltd., one other potato processing firm (Norda Ltd.) is currently contracting for 4 MT per week of *Dutch robjn* potato for use in crisps manufacturing. Another is exploring options and looking for opportunities. With 142 farmers in the Deepa group, the opportunities for scaling up are not likely to reach a significant number of farmers from crisp processors alone. A value chain approach that looks at the end markets for raw potatoes, processed potatoes, frozen potatoes, and others appears to be a strong next step to make potatoes a leader in the agricultural transformation of Kenya.

NATIONAL AGRICULTURAL AND LIVESTOCK DEVELOPMENT PROGRAM

NALEP AND VALUE CHAINS

The goal of NALEP is to contribute to socioeconomic development and poverty alleviation by promoting the adoption of sustainable technologies for natural resource management in agriculture and livestock production. The NALEP II design was based on the lessons from phase I and the need for continuing government extension improvements in line with the National Agricultural Sector Extension Policy Implementation Framework (NASEP-IF). NALEP introduced a focal area approach that selects a location within which to concentrate extension activities for a year. Upon completion of the period, another location, not yet served, is selected and serviced for a similar duration. This is continued until all administrative locations in a target area have been serviced intensively. The idea is to concentrate extension services at a level that can create a positive change in the area.

NALEP is implemented by both the Ministry of Agriculture (MoA) and the Ministry of Livestock Development (MoLD) and is funded by the Swedish International Development Agency (SIDA), which provides some technical support to the ministries.

NALEP activities entail mobilization of communities of 2,000 to 6,000 households within the selected focal area. The community is encouraged to plan and implement projects of their choice, and to create fora for interaction with stakeholders from government ministries, NGOs, the private sector, and local CBOs. To reach its objectives, the NALEP undertakes a range of assessments and service delivery methods that include: (1) participatory appraisals to identify poor and vulnerable community members; (2) identification of opportunities relevant and appropriate to the needs of target beneficiaries; and (3) the formation and capacity development of local grass-root structures, including Stakeholder Fora (SHF), Focal Area Development Committees (FADC), Common Interest Groups (CIGs), and extension groups (EGs).

NALEP as a nationwide extension support program reached a significant number of farm households. Its reporting states that 4,722,960 farmers have received assistance through its various interventions from the start of the program through mid-2011. NALEP has also completed the following:

- Formation of 2,279 Focal Area Development Committees (FADC)
- Development of 2,279 Community Action Plans
- Formation of 35,953 Common Interest Groups (CIG)

- Formation of 2,757 Stakeholder Fora
- A total of 1,654,894 farmers received training on different aspects of agriculture, livestock, and community development.

NALEP was not designed to have the CIGs and FADC become part of a comprehensive approach to a value chain. In fact, the number of "enterprises" in which NALEP worked was large. NALEP reports identified 25-35 separate "enterprise value chains" in which NALEP was actively working with groups. The number varied by region and stage of NALEP implementation. What is important from a value chain perspective is that completion of the needed comprehensive value chain assessments and facilitative intervention in all of these value chains would have been a momentous challenge. Smallholder farmers in the CIGs would have benefited and value chain growth would have been achieved. Such value chain work was not a program plan or objective. However, there are certainly CIGs and FADCs that are successful enterprises in their respective value chains. The staple food crop team visited two that were successfully marketing potato seeds. It is also clear that many of the CIGs have failed; two reasons stood out from interviews and the NALEP's own set of evaluation documents. They are explained below.

OVERCOMING WEAK MARKET LINKAGE

First, the team found — and NALEP staff and program reviews reinforced the finding — that marketing is a major constraint to CIG success. The lack of available markets for the CIG products was a major cause of group failure and breakup. The addition of market-led value chains to the NALEP II follow-on program, Agricultural Sector Development Support Program (ASDSP), is an essential part of the new program design. The lessons learned from this value chain method evaluation clearly directs the implementers of the ASDSP to take a comprehensive value chain approach that starts with a strong understanding of the entire value chain sector. To get the project right and keep sector support on track, a strong and continuing understanding of the crop/enterprise value chain is required. This is especially true for the new program, ASDSP, where pro-poor and rights-based impacts are of such high importance. The challenge of moving forward with many different crops each with their own value chain, as was the case in NALEP II implementation, is a major start-up issue in the ASDSP.

INFORMAL STRUCTURE OF CIG

Value chain and other projects have used a wide range of legal, social, and market structures to horizontally link smallholder producers. CIG and FADC organizations need more formal organizational structures as CIGs expand their business operations. NALEP II has a five-step ladder of increasing formal structure and action for CIGs as they commercialize. It has not yet been generally applied as a practical guide to direct CIGs organization.

For the ASDSP, the GoK and SIDA should examine this CIG organization structure ladder and link specific organizational support to CIGs as they move toward increasing commercialization. The program needs to answer how and when commercial and organizational technical support is needed to facilitate CIGs becoming viable companies or other commercial types of organizations.

On the positive side, a study on improving the viability of Common Interest Groups identified constraints, recommended appropriate practices to build farmers' entrepreneurial capacity, and led to the design of market development models for use by service providers. The study found that not all farmers understand the benefits of collective organization to improve their market positions in terms of quality and quantity, nor its importance for bargaining power for better prices for inputs and products. New program interventions have been established to enhance market access, promote commercialization, and strengthen value chain actor

linkages along the horticulture, dairy, and livestock value chains. However, the follow-on program to NALEP II is not a comprehensive value chain approach that starts with end markets and builds support for the smallholder farmer from a strong understanding of the entire value chain needed to reach end markets. A complete value chain approach for a select few CIG crops should be added to the NALEP follow-on project, Agriculture Sector Development Support Program, to determine if such a value chain approach can be added successfully to the extension-centered base of the NALEP approach.

UPGRADING FARMER SKILLS AND KNOWLEDGE

The NALEP/SIDA evaluation noted that maize is the main crop grown by approximately 75 percent of NALEP farmers, but very few CIGs in the district visited reported working on maize. The CIGs were not generally in maize because they were to focus on income-generating areas (animal production, beekeeping, tomatoes, beans, kale, and the like). In many of the districts we visited, maize was the food crop and often a risky crop. We consistently heard that maize was covered by the "extension" group, which consisted of 1,000 farmers or so. Each extension officer was trained on key topics – maize being one of the most important. The combination of the extension and CIG work of NALEP on maize and other food crops showed results. NALEP's evaluation reports noted consistent increases in maize and other food crop productivity by the NALEP-assisted farmers. This broad-based and extensive support for farmers clearly showed the success of NALEP in living up to its name as a national agriculture and livestock extension program. This is further reinforced by the strong extension staff training and logistics support to get staff on to the farms and into the community. Nearly all extension staff raised this as a success of NALEP. As upgrading is an important part of value chain growth and transformation, NALEP's assistance to upgrade farm production and crop systems is an important contribution to the GoK strategic goals of farmer commercialization and transformation of the agricultural sector.

CONCLUSIONS AND RECOMMENDATIONS

SUCCESSFUL PRACTICES AND GENERAL CONCLUSIONS FOR VALUE CHAIN PROGRAMS FOR THE STAPLE FOOD CROPS IN KENYA

In the previous two sections on value chain program design and implementation, the team identified lessons learned and successful value chain elements – essentially what has worked well. The obvious conclusion is to use these in the design and implementation of future value chain activities. In fact, this recommendation is essentially the evaluation's main objective. These successful elements fall into what may be called the essential lessons of value chain design and implementation. These essentials are listed below – basically a summary of what has and will work for value chain growth and development.

The Identification of the Right Value Chain Starts with End Markets

The markets for the selected value chain can drive or limit value chain program impact and sector transformation. A value chain is only as good as its end market. The goal is to work in value chains that have strong demand and can be reached by the target groups. Where markets are small or there is government interference or another limiting factor, value chain programs may want to pass over that particular value chain. That is a judgment call.

The evaluation team found strong end markets for potatoes, potato seed, and crops complementary to maize for food security. The farmer demand for maize as a food security crop was very high. The commercial market for maize in Kenya has a level of government interference that has made some marketing in the value chain unpredictable. However, the decision of USAID to move forward with the KMDP acknowledged the

central importance of the maize sector to food security and did select maize for a value chain program. KMDP and the PSDA-Potato programs built from strong end markets.

Understanding the Value Chain: A Requisite to Getting the Project Right

A strong understanding of the selected value chain is required to get the value chain program right at the start and continue to adjust it as the markets and the chain evolve. Strong value chain assessments were done by both KMDP and PSDA-Potato at the start of implementation. This value chain knowledge has been central to program implementation and the results achieved.

The value chain is a system that requires a review and understanding of the need to work at various points in the system/chain at differing times. The PSDA decision to focus on the potato seed supporting market is a good case study of understanding the potato value chain system and selecting and facilitating a high-impact intervention.

From a value chain point of view, the maize sub-sector can be divided into two inter-related parts. The first is a subsistence food value chain that is driven by farmer-level food needs and preference for maize as the staple food crop. For many small farmers, maize is grown primarily for household consumption with market sales a secondary objective. There is also a large commercial market for maize that can be described as a balanced governance network where firms cooperate and no firm is dominant. However, there is government and parastatal firm involvement that often distorts the market and makes buy and sell decisions difficult at times. The balance of power and advantages in the maize sub-sector changes with the government and parastatal pricing and import duty adjustments.

The examples of KMDP and PSDA are discussed as comprehensive value chain approaches in Section 3.2.1 for KMDP and 3.3.1 for PSDA.

Donor Programs Intervene in the Value Chain to Enable, Incentivize, and Sustain Positive Change

Donor programs are not and should not engage as actors in the value chain. They need to find ways to facilitate improvement in the value chain without disrupting the incentives, markets, and flow of goods and services in the value chain system. The donor program should not provide a service or function that private actors in the value chain can deliver. However, there are many cases where the private-sector service or function is weak or non-existent. A value chain project then has to facilitate the development of the upgrading of the weak service or function in a way that builds sustainable service providers in the private sector. Effective facilitation does not disrupt the markets and leaves the "ownership" of the service or good in the hands of market actors.

All of the three programs reviewed sought to intervene in the crop sectors without subsidy or direct delivery of services. The case of maize and other seed interventions that enabled farmers to access improved varieties at affordable prices through private seed companies is an example of donor facilitation for value chain growth. (See Sections 3.2.3 and 3.3.3 on Technology and Input Upgrades.) The sustainable provision of fertilizer to smallholders is a second example. In the potato sector, PSDA assistance to private agribusiness firms to help re-establish a potato seed supporting market for potato sub-sector growth is a strong example of smart subsidies. Details can be found in Section 3.3.2 on PSDA potato sub-sector technology and input upgrades.

Public/Private Consultation and Collaboration to Improve the Potato Enabling Environment

PSDA, working with potato sector stakeholders, supported the government in developing legal and policy frameworks. This same group went on to successfully advocate for the GoK to allocate funds for potato sector research and specific programs. The most recent allocation was KShs 22 million. PSDA partnered with donors, the government, and CIP to complete the National Seed Potato Master Plan to pave the way for further development of the potato sub-sector through 2014. The National Potato Council of Kenya, a multi-stakeholder forum for the potato sector, was recently established and launched, representing a very significant achievement for PSDA. This public-private partnership facilitates planning, organizing, and coordination within the potato sector. Its first strategic objective is to create an enabling environment for effective and efficient potato value chain growth and development. The membership comes from all segments of the value chain, including the GoK and development partners. Finally, a program for affordable quality potato seed has been developed through a partnership of donors, the GoK, and private companies. The establishment of an enabling environment for the largely private-sector potato seed industry has been critical to the success of the potato seed value chain.

Value Chain Upgrading: Learning as You Go

From the standpoint of value chain actors, donor value chain programs need strong monitoring and evaluation that reach beyond the donors' M&E needs to the actual functioning and dynamics of change in the value chain. The government/donor programs, and eventually the value chain actors themselves, need to have the capacity to adjust and learn as the value chain evolves. All three evaluated programs would benefit from stronger learning and a value chain knowledge management base.

A second aspect of this "learning as you go" process is that the value chain interventions change as programs and markets evolve. The evolution of the KMDP/FIPS provision of inputs highlights the fact that facilitation is an iterative process. FIPS moved from demonstration plots to small packets of seeds and then on to add fertilizer in small sizes as well. When fertilizer prices jumped, it worked to have the private sector re-blend the fertilizer to make it more affordable. When KMDP/FIPS turned to root crops, the small number of vines and cuttings to farmers and on-farm demonstrations remained, but the distribution of the cuttings and vines directly from farmer to farmer was new. PSDA contributions to the development of the potato seed sub-sector also demonstrated learning as the program conceived and developed an innovative, mostly private seed sub-sector.

GoK Extension Services and Village-Based Agricultural Agents

The FIPS' Village-Based Agricultural Advisor (VBA) system complements the higher skilled work of the government extension officers in the Ministry of Agriculture and other ministries. The GoK extension workers, as the team found from its review of NALEP, are capable of reaching farmers with technical advice and linkages to government programs. On the other hand, the VBAs and the related components of the input promotion system by FIPS, a KMDP partner, has proven to be a cost-effective, quick approach to increasing farm production and food security. The two approaches are complementary on the production side, but both face challenges in the marketing aspects of commercialization of smallholder farms. For production, the VBAs are more successful in bringing the private seed and fertilizer providers to the smallholders as well as helping the KARI and the NARCs reach out to the smallholder farmers with improved varieties and farming systems.

NALEP II Follow-On Project

The follow-on program to NALEP II is not a comprehensive value chain approach that starts with end markets and builds support for the smallholder farmer from a strong understanding of the entire value chain needed to reach end markets. A complete value chain approach for a selected few of the CIG crops should be added to the NALEP follow-on project to determine if such a value chain approach can be added successfully to the extension base of the NALEP approach.

Value Chain Program Support to Smallholder Farmers is Driving Systemic Changes in Value Chains

In reaching smallholder farmers directly or in groups through technology, improved inputs, and market access, smallholder farmers are gaining power as they grow food for their households and markets, and strengthen the value chain. KMDP's work with smallholders has increased their productivity and improved their linkages to other actors in the value chain. In addition, with maize and root crop productivity increases, farm household food security – a critical systemic change – has improved in some areas. PSDA work on potato, especially in the seed area, is starting to expand potato as a food and commercial crop. A similar pattern is just beginning for sweet potato as a food security crop. The examples of small-scale farmer organization changing the value chain in staple food crops are not yet robust, but there are positive movements in the sector. The methods and approach of KMDP partner FIPS are the most promising in terms of bringing improved food security to selected village farmers.

FEED THE FUTURE

An additional task in the scope of work is for the evaluation team to inform and guide the design and implementation of USAID/Kenya activities financed under Feed the Future (FtF).

The KMDP II ends in mid-2012 and USAID main staple food crop activities will be awarded under the planned FtF grants or contracts that are now in the planning stage. Presented below are recommendations for the design and implementation of the new FtF awards. These recommendations are based on the evaluation team findings and conclusions on what has worked well in the maize and staple food value chain programs reviewed. The team also reviewed the *Kenya FY2011- 2015 Multi-Year FtF Strategy for Kenya* to help place program recommendations in the strategic framework of FtF Kenya.

The team findings have led to a set of recommendations for a comprehensive program to address small-scale farmers who have faced food insecurity in the recent past. These include those who have land but their food production is so precarious that any farm or family-level shocks or problems of poor weather or other agricultural disruptions cause food insecurity. This most often results in the provision of food aid and other emergency support. Household malnutrition and stunting of children is a likely consequence if food aid and other support are not provided.

RELEVANT FINDINGS FROM THE MULTI-STAKEHOLDER EVALUATION

Complementary Food Crops to Maize

The starting point for an FtF program for food-insecure farmers is an evaluation finding about the importance of food crops complementary to maize. There are varieties of potato, sweet potato, cassava, beans and cowpeas, pigeon peas, and more that can be grown on small farms as a complement to maize. The crops complement maize in different ways. Sweet potatoes complement maize in areas where poor soils limit maize production without fertilizers. The new sweet potato varieties are disease resistant and do well without fertilizers. The crop is important for food security when maize yields are down. It also has potential for sale in local markets and beyond. The varieties of cassava available are disease and drought-resistant and grow well in

dryer areas. Farmers can "store" the crop in the ground and choose when to harvest. However, cassava is a poor source of protein, minerals, and nutrients. It is best used in Kenya as a short-term complement to maize, beans, and traditional crops if a production shortfall occurs. Legumes, sorghum, and to some extent potatoes, are other complementary crops with various potentials. In summary, several staple food crops can be grown as complements to maize by the food insecure in various agro-climatic zones. This will contribute to household food security and, in some cases, lead to marketable crops.

Few farmers are ready to give up maize as their basic staple food, so maize crop improvements will need to continue but with emphasis on the complementary crops added to the maize-based farming system to provide increased food security. Promotion of maize production in the form of improved seed, better fertilization, and soil management must be part of a food security program.

There are locally available improved varieties, many of which have come through KARI as we have seen in KMDP and PSDA. KMDP, with its partner, FIPS, have been facilitating the addition of these crops to smallholder farming systems. They are discussed above in Section 3.2.3 on VBAs and new inputs.

Adoption of New Crops and Farming Systems: Addressing Farmer Risks

Any program has to address farmer reluctance to try new crops and systems. In recent years, farmers have faced drought, ethnic violence in the post-election period, and escalating prices for farm inputs. They are risk averse. KMDP, primarily through FIPS, has developed a set of interventions that provide on-farm demonstrations of the value of new crops and farming systems. These demonstrations are the first step in overcoming farmer risk aversion. They have experience in all the complementary crops to maize listed above, and presently have an expansive program in root crops.

Ensuring ease of access to inputs and their affordability is the next step in the introduction and expansion of the food security crop. Affordability is a necessary step in overcoming risk aversion. Sweet potato and cassava cuttings are passed from farmer to farmer at no cash cost to farmers under the FIPS system. Fertilizer is not part of the farming system. Thus, these food security crops are affordable and farmers are adopting the sweet potato, cassava and potato as complementary crops. Cassava and sweet potato are moving quickly on to smallholder farms largely because of the farmer to farmer based system of distribution of the cuttings and vines. In Western Kenya, more than 34,000 farmers now have sweet potato plots (see footnote that describes the multiplication and promotion system and how the target of 360,000 farms in the poor soil areas of western Kenya will be achieved).[4] There is also a piece on the plans to disseminate improved cassava varieties. These dissemination and promotion systems can be applied throughout Kenya to reach hundreds of

[4] Each VBA identifies 2 sub-VBAs (i.e. a sub-VBA in each of 2 neighboring villages). In October 2011, each VBA supplies 1 sub-VBA with 20 bags of vines: 10 bags to establish a new multiplication site, and 10 bags (10,000 vines) to be directly disseminated to 333 farmers (30 vines/farmer). In October 2011, FIPS-Africa supplies 20 bags of vines (from KARI Outgrower) to the other new sub-VBA to establish a new multiplication site, and 10 bags to be disseminated to 333 farmers (30 vines/farmer). Sub-VBAs make money from selling tubers from their multiplication sites, and contract glyphosate spraying services to assist farmers in land preparation. Each sub-VBA is to pass 20 bags of vines to each of 2 new sub-VBAs the following season: 10 bags to establish a new multiplication site and 10 bags for direct dissemination. Remaining vines (ca. 20 bags) are to be disseminated to the remaining 667 farmers in the Village. Outcome: 90 new self-employed sub-VBAs with multiplication sites in Kakamega South district benefiting 90,000 farmers in their villages by September 2012. This model to be replicated in Vihiga, Siaya, Butere-Mumias, Ugenya and Bungoma districts to benefit an additional 360,000 farmer families by December 2012 (Source: Review and Planning of dissemination of improved varieties of sweet potato in Western Province, October 2011, Farm Inputs Promotions (FIPS), Africa).

thousands of food insecure farm households. KMDP and FIPS are also continuing their maize improvement promotions for the food insecure. These types of demonstrations and promotions linked with affordability measures will need to be part of an FtF program focused on the smallholder farms that are food insecure.

Facilitating the Adoption of Food Security Crops

A key implementation challenge will be determining how best to reach smallholder farmers with maize, root crop, and other crop improvements that will bring food security. Again, FIPS with its VBAs has what the team judged to be the most successful approach to reaching farmers, and promoting new crops and farming systems. Other options are through the MoA extension system or through existing groups that could be a channel to reach a large number of farmers quickly. But again what has worked well is the FIPS based VBAs program. It is community based, low cost and scaling up, although not immediate, can be expanded relatively quickly with the right supervision as demonstrated in its Western Kenya operation. The details and main parameters of this system were discussed in Section 3.3.3. The group based approach could complement the VBAs where such groups already exist. Creating new groups would require considerable time and effort up front before the food security activities could be initiated.

The Food Value Chains and On-farm Markets

In this value chain method evaluation, it is appropriate to end with a focus on the value chains for food security. The value chain is directly out of the farmers' field into the farm huts to meet household food needs. It is a short value chain with strong demand for maize, root crops and legumes. For those crops where farm level surplus and market potential emerge (e.g., sweet potatoes), a comprehensive value chain review needs to be completed early on the FtF program.

In summary, the findings and conclusions of this evaluation led the team to recommend a new FtF program based on food crops complementary to maize that build on the success of FIPS and other KMDP actions to address farmer risks through on-farm demonstrations and affordable input provisions. The approach to reach out to the smallholder farmers that has worked best is the village based structure set up by FIPS. Group approaches may also work.

The team proposes an FtF program for food security that would introduce to the food insecure smallholder farmers new seeds, other inputs and farming improvements to increase production of crops that grow well when maize production is low. These crops (largely root and legumes) will add a level of food security to the target food insecure farmers. Farm level demonstrations and promotion techniques will overcome smallholder reluctance to adopt the improvements. Village based change agents perhaps coupled with group outreach and maybe extension officer involvement will be the means to address farmer risk aversion to the new farming systems. The local VBA will also play a key role in the actual distribution of inputs and demonstration and adoption of new techniques. The detailed plans for scaling up the program to the target farmers will be an important and challenging step. The program should be implemented over a five year period, but significant results can be achieved in the third year.

THE FTF STRATEGY

The last piece of the proposed food security initiative to reach the food insecure smallholder farmers is to look strategically at the program as outlined above.

First, the cost is enormous to the Kenyan government, economy, and food aid donors of continuing to feed those who cannot feed themselves. The Kenyan government cost of maintaining a strategic reserve of food at NCPB is over $15 million this year alone. The U.S. Government's emergency food aid and other humanitarian assistance during drought and disruptions averaged over US$61 million per year for the 10-year

period, 2000-2009. See Table 5 below for details. FY 2011 expenditures for Kenya emergency food aid has been $77.47 million.

The food security initiative described in the previous section will not solve all food insecurity in Kenya, but will be able to substantially reduce the numbers in need. Pastoral, urban, and arid areas will not benefit from the proposed food security initiative and some emergency food assistance will be needed even if the initiative described above succeeds. However, a conservative estimate of reduced food and other humanitarian aid would be in the 40-50 percent range, thus USG savings of $25-30 million per year could be achieved if a fast action food security program can be put in place at the start of the new FtF program in 2012. The humanitarian and relief benefits are enormous.

Table 5. USG Humanitarian Assistance to Kenya (FY 2000–2009), in US$ Millions [5]

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total	Yearly Avg.
OFDA	5.7	6.0	1.5	0.2	0.3	2.2	5.6	1.4	11.3	24.2	38.4	3.84
FFP	22.8	38.7	4.7	12.1	30.1	34.9	82.4	80.1	64.6	133.7	504.1	50.41
Other USG	70.7	56.4	21.1				11.5	2.4	24.0	32.1	70.0	7.00
Total	99.2	100.1	27.2	12.3	30.4	37.1	99.5	83.9	99.9	190.0	612.5	61.25

During many food shortages, people cut back their daily food intake, maybe eating only one meal per day. Child stunting and other growth and health problems arise. The costs of these negative consequences are often hidden in lower productivity, higher health costs, and poorer health care outcomes. School performance and learning are likely to drop as well. All of this adds up to the need for a tactical FtF intervention to end food security for as many as possible as soon as possible.

The geographic focus of the FtF strategy is a plus, since many of the farming food insecure live in the FtF focus areas of SA2 and HR1. Yet, it also makes sense to reach out to any districts with high numbers of food insecure and where crops complementary to maize can increase food security. Successful FtF food security initiatives that can achieve success in a relatively short time (3-5 years) would save the government and donors the cost of a food emergency over the longer term. For the GoK and some donors, these "savings" can be used to expand efforts to transform the agricultural sector. For the USG, where funds are not transferred from food aid and emergency accounts to development accounts, we can say there will be a net saving to the USG in general. Thus, some flexibility in the geographic focus of FtF is desirable. One way to explore this option would be to look at the district level rather than the eight agro-ecological zones reviewed in the FtF strategy with food insecurity and complementary crop filters. These filters are analogous to the FtF sub-region filters of poverty and food production. With this added geographical review, the efficiency of working outside the FtF strategic geographic areas for a one-time food security program could be re-evaluated, especially considering the potential savings that could be available in the mid to long-term to transform the agricultural sector.

[5] FY 2000-2009 figures from USAID/FFP Information System. USAID/FFP funding only includes emergency food assistance. Between FY 1999 and FY 2008, USAID/FFP allocated additional food commodities and funds for development activities in Kenya. Other USG assistance can include humanitarian assistance from USAID's Bureau for Africa, USAID's Office of Transition Initiatives, the U.S. Department of Agriculture, and the U.S. Department of State's Bureau of Population, Refugees, and Migration.

Transforming the agricultural sector – the goal of FtF – and the GoK's *Vision 2030* becomes more difficult to achieve if there is a continuing need to feed millions of individuals as climatic and other shocks disrupt agricultural production. Eliminating the need for much food aid and emergency support through improved agricultural production for the small-scale, food-insecure farmers early in the FtF program would potentially bring millions of dollars in savings to the USG, other donors, and the GoK. Finally, and perhaps most importantly, the program would bring enormous humanitarian and relief benefits that will come from bringing so many households out of food insecurity in the near term.

ANNEX B.1: PROGRAM REVIEWS BY EVALUATION QUESTIONS CONTAINED WITHIN THE SoW

One of the requirements of the Multi-Stakeholder Evaluation of Agriculture and Livestock Value Chain Activities in Kenya is for the evaluation report to respond to the areas and questions listed below, which was taken from the SoW. The objective in responding to these questions is to ensure that the evaluation report examines key areas of value chain programs. Individual maize and staple food crop team members prepared discussions and answers to the questions. The PSDA and KMDP Sub-Reports are presented in separate sections following the questions. NALEP was discussed in the dairy and horticulture sections of the evaluation.

ANNEX B.1.1 PSDA POTATO VALUE CHAINS PROGRAM

Overview

To identify the best approaches for donors to use in designing and implementing agriculture and livestock value chain development activities in the context of Kenya's MTIP, the evaluation team concentrated on examining successful donor-supported Kenyan agriculture and livestock value chain activities, and determining why those activities have been successful.

Although the project aims at private-sector driven development in agriculture, there is a balance among public, private, and civic organization participation in implementing the project. Most production and bulking of clean potato seed that reach the final beneficiaries is done by two public institutions: Kenya Agricultural Research Institute (KARI) and Agricultural Development Corporation (ADC). Private participation in the form of GTIL and Kisima Farm contribute proportionately less volume of produced basic seed and what is bulked for distribution to farmers. Coordination and provision of public services is mainly done by civic society stakeholders; in this case, KENAPOFA and the Potato Council. PSDA has also created an initiative to develop the capacity of farmers to participate in improved potato production through the provision of grants to service providers for capacity building. However, this initiative does not necessarily target the private sector as the service providers, but rather is open to all. The initial approach in jump-starting interventions was such that the project sought and got political support from the political class in major potato-growing areas. The project also employed the support of the farmer umbrella organization (Kenya Federation of Agricultural Producers-KENFAP) as the launching pad for the two civic society organizations that are promoting and coordinating project activities: KENAPOFA and the Potato Council. This approach ensured ease of buy-in by both policymakers and key stakeholders.

Design

The selection of the value chains was guided by identified constraints in the potato sector. These revolved around standardization of packaging units for use in the exchange process, pests and diseases, and their relationship to source and cleanliness of planting material and husbandry practices. An analysis of the sector in 2004 identified the constraints on the value chains. Implementation of the value chains was expected to result in meeting the unmet market demand for clean and certified seed potatoes; draw experience for the institutional arrangement from the success story of the Kenya Flower Council; improve incomes through selling potatoes in standard 110 kg bags instead of the current bags with no standard measure; and build the capacity of service providers to develop the skills of farmers and other stakeholders in improved husbandry practices.

Value chain analysis for the potato sector resulted in the identification of primary actors and supply channels for implementation of activities aimed at addressing constraints in the value chains. PSDA teamed up with USAID, political stakeholders, and umbrella farmer organizations to fast-track the formation of the Potato Council and KENAPOFA, the two civil organizations that are coordinating implementation of the identified value chains in the sector.

Enactment of Legal Notices to guide the packaging of potatoes, coupled with empowerment of private and public sector actors to participate in clean seed potato production, were selected and employed as market-based solutions to value chain constraints. Local government authorities were mandated to operationalize the Legal Notices. A combination of public and private sector actors were provide directives to implement activities aimed at production and bulking of clean seed potato. For instance, KARI Tigoni research center and Agricultural Development Corporation (ADC) Molo (both public institutions) produce clean basic seed that is linked to selected farmers or farmer groups for bulking of clean planting materials, which is then

connected to the farmers through private sector market intermediaries. ADC has large-scale farms on which it supplements bulking of clean planting materials that it links to markets after adding value through sorting, grading and packaging in 50 kg bags.

Seed potato is bulky, and there is a need for market-based solutions to address the constraints caused by the production of clean planting materials in areas distant from centers of demand, which lead to additional transport costs. PSDA has circumvented this constraint through interventions that facilitate large-scale farmers and farmer groups in main producing areas to take an active role in bulking of clean basic seed into adequate volumes to satisfy farmer demand with sanitary and phytosanitary services provided by the Kenya Plant Health Inspectorate Services (KEPHIS). Through this arrangement, initial clean mini-tuber basic seed from GTIL, Kisima Farm, KARI Tigoni, and ADC Molo can be bulked and linked to markets through individual large-scale farmers and/or farmer groups.

PSDA has brought together a number of implementation partners that range from civil society through the political class, farmer groups, individual farmers, public institutions, development partners, and private sector operators, each with specific and/or complementary roles in support of the potato sector. Civil society players such as the Potato Council and KENAPOFA play a key role in advocacy and ensuring that regulations are adhered to aim at enhancing efficiency and securing benefits for all players. Private sector players such as value-added processors, clean seed potato producers, farm input suppliers, and market intermediaries ensure a steady supply of inputs and linkage of final produce to markets for immediate consumption or value addition into other value-added products such as potato crisps for local and export markets (e.g., Deepa Ltd.). Public sector stakeholders, such as KARI and ADC, play a key role in research for improved varieties and production of disease-free mini-tuber seed potato for bulking. The political class from major potato-producing areas was important in ensuring GoK buy-in for registration of civil society players, enactment of relevant Bills to govern the sector, and operationalization of the regulations resulting from the Bills by relevant arms of the GoK. Private farmers or farmer groups support bulking clean potato seed, sorting, grading, packaging, and linkage to markets. Public sector extension staff gives the required technical knowledge on appropriate husbandry practices and, in certain cases, play important roles in mobilizing and organizing farmer groups involved in the bulking of clean potato seed and participating in the design and signing of contractual arrangements with buyers/value-adding private operators.

Technical Approach

PSDA interventions in the potato sector were initially aimed at addressing the problem of farmers' lack of access to adequate quantities of clean potato planting material; lack of standard bags for packaging; and poor husbandry practices. This was informed by the results of an initial baseline survey conducted in 2003. The interventions aimed at promoting production, bulking, and distribution of both certified and clean potato planting material. They also partnered with Ministry of Agriculture extension staff to facilitate messaging on appropriate husbandry practices. The project worked closely with the political class from the main potato growing areas to fast-track enactment and operationalization of Bills that were aimed at streamlining standards for packaging potato at points of sale. An international research institution, the International Potato Center (CIP), a member of the Consultative Group on International Agricultural Research (CGIAR), brought in Aeroponics technology for the production of mini-tuber seed potatoes. PSDA has established a value chain capacity-building grant fund that targets private-sector service providers. There is approximately US$100,000 to pilot the initiative. PSDA aimed to support both public and private sector participation in solving the identified constraints in the potato sector value chain. However, during the facilitation process, value chain issues surfaced such as support for registration and empowering civil society actors to spearhead advocacy issues as well as partnerships among stakeholders ranging from input suppliers, producers, private-

sector market intermediaries, and public-sector service providers. This resulted in effective value chain participation by all key stakeholders in the potato sector.

Governance

In line with the Schmitz and McCormick definition of value chain governance, activities under PSDA can be described as a combination of market-based and integrated governance, depending on the segment of the value chain under consideration. Governance in production and marketing of clean planting seed is market-based as decisions on transactions are market-driven and prices are determined with no formal cooperation among participants. Clean seed-bulking stakeholders produce and market their seed individually without reference to other players in the market. Likewise, the farmers source their seed from the most desirable market source without reference to each other. Governance in the contracted production of potatoes for linkage to value addition by processors is integrated; as the processors "own" various functions along the value chain through contractual arrangement (350 farmers are involved in this). For instance, they determine the variety that is planted, the level of maturity at harvesting, and the buying price as part of the conditions in the contract.

Inclusion/Access

Participation in the potato value chain is generally inclusive with regard to gender, youth, natural resource management, poverty reduction, and cultural factors. Both women and men participate in the production and marketing of potatoes. Youth participate in capacity building, production, value addition, and marketing. By planting various varieties depending on taste and preferences and value addition demands, participants in the potato value chain ensure that genetic diversity is conserved and perpetuated. Bulking clean potato seed and linkage to farmers through market intermediaries along the potato value chain ensure enhanced productivity and thus, improved food security and reduced poverty. The potato value chain developed under the PSDA project ensures availability and access to potatoes to satisfy cultural preferences for potato-based food products among various communities in Kenya. CIP and PSDA say there is a tremendous amount to do. Certified, clean, and farmer-selected seed still amounts to less than five percent of the need.

Private Sector

Activities under PSDA have led to the emergence of a number of private-sector actors that provide market-based solutions to producers in the potato value chain. These range from producers of mini-tuber basic potato seed using Aeroponics technology, such as GTIL and Kisima farm; private sector clean potato seed-bulking service providers that include farmers and farmer groups; market intermediaries for linking clean potato seed to farmers; market intermediaries that link harvested potato tubers to local and urban markets; and private sector value-addition processors that link products to local and export markets. Contractual arrangements between farmers (less than 400 out of 800,000) and potato processors have facilitated farmer access to a credit facility from private sector financial institutions. Potato production benefits from reliable input supply from private sector agro-dealers.

Competitiveness

There is a combination of vertical and horizontal inter-firms cooperation in the production of certified and clean seed potatoes, depending on the participant. The ADC produces both mini-tuber basic seed and links it to their bulking units before sorting, grading, packaging, and linkage to markets in a vertical arrangement. KARI produces mini-tuber basic potato seed that is linked to individual farmers and ADC for bulking and supply to farmers through market intermediaries in a strict horizontal arrangement. Individual farmers bulk clean seed potatoes either for own use (vertical) or linkage to markets (horizontal). The market for certified or clean seed potato is large and varied; however, the number of trained farmers participating in bulking is

currently estimated at 20 of the original 120 who were trained under PSDA. This can easily compromise competitiveness in terms of supply of clean seeds to the farmers. Large public sector operators in clean seed potato production and distribution such as ADC can, on the other hand, act as a buffer for the likely monopolistic practices by a few private participants in seed potato production.

Production and marketing of food potatoes for consumption involves a large number of farmers; hence, there is near perfect competition in the output market. Introduction and use of the less bulky mini-tuber seed potato technology as a source of bulking material has reduced the transportation cost for the bulking material. In the major producing area of Bomet County, contractual farming for a potato variety suitable for crisps production has grown; in the span of three years, the number of companies has risen from one to three. This offers farmers alternative market outlets in contractual arrangements.

Partnership

Implementation of PSDA activities in the potato sector has helped establish and operationalize partnerships that cut across categories of stakeholders. At the level of development partners, the sector is benefiting from partnerships with the USAID-supported and Fintrac-implemented Kenya Horticulture Competitiveness Program (KHCP); USAID-supported and ACDI/VOCA-implemented Kenya Maize Development Program through Farm Inputs Promotions in Africa (FIPS), and IFAD-supported ShoMAP. As far as public sector partnerships, KARI, ADC, and the Ministry of Agriculture are key partners in clean seed potato production, bulking, and provision of extension service in appropriate husbandry practices. Private sector operators in the potato value chain range from basic seed production (GTIL and Kisima Farm), through clean seed potato bulking, market intermediaries, and value-adding processors.

Enabling Environment

Value chain upgrading opportunities for the potato sector have benefited from the prevailing enabling environment. The PSDA program, through the support of GIZ and the Government of Germany, has helped implement support activities that range from capacity building, development and enhancing of partnerships, and institutional support. Support services from government institutions and departments such as research and supervision from KARI and KEPHIS, respectively, and bulking and distribution of seed by ADC, have served to upgrade value chain opportunities in the potato sector. Enabling a free market environment has given opportunities to private sector operators to take active roles in bulking and distribution of clean seed potato, linkage of potato produce to markets, and value addition to desired end products such as chips.

Monitoring and Evaluation

Monitoring and evaluation was important for effective implementation of PSDA. This was achieved through conducting an initial baseline survey that informed identification of constraints and prioritization of interventions, development of monitoring and evaluation work plans, training of monitoring and evaluation officers on PM&E systems, and regular surveys to inform the M&E process throughout the project lifespan.

Short- and Long-Term Achievements

The stated PSDA objective was to promote private sector participation in potato value chain development in partnership with other stakeholders in the sector. To this end, PSDA has been able to support registration and operationalization of activities by the Potato Council and KENAPOFA; played a key role in networking stakeholders in the potato sector in sharing synergies in potato value chain development; and mobilized and catalyzed private sector participation in potato value chain development at various segments of the chain. The anticipated long-term achievement of PSDA are empowered and active private sector participants in clean

seed potato production that are spread in all major potato growing areas of Kenya with the associated impact of enhanced productivity of the potato sector.

Sustainability

By its very design, the PSDA targets private-sector participants in potato value chain development, which are by and large, driven by profit-making objectives. By encouraging public-private partnerships in potato value chain development, there is a high probability of synergy in operations with enhanced chances of sustainability of specific interventions and positive impacts on potato value. Lack of adequate clean seed potatoes has been a major constraint in potato production and value chain development in Kenya. By addressing these constraints, PSDA project activities will contribute toward sustainability of value chain development.

Lessons

The major lesson learned from the approach and implementation of PSDA activities is that partnerships and a multi-stakeholder approach in addressing constraints in a sectoral value chain development bring together inherent strengths from each of the partners for overall achievement of the desired project goal in the most cost-effective manner.

ANNEX B.1.2 KENYA MAIZE DEVELOPMENT PROGRAM

GOVERNANCE: What were the principal agriculture and livestock value chain governance issues, and how were they addressed?

The most vulnerable actors in the value chain are smallholder farmers who are scattered, engaged in a few enterprises that have low productivity, and have small market surpluses to earn cash to address pressing family needs. To ensure that smallholder farmers influence the pricing decisions of inputs and outputs as well as enjoy economies of scale within the value chain, KMPD, in partnership with CGA, has been promoting the formation of groups, while KACE provides market information and linkages on a daily basis using eight multi-channel platforms. The groups are trained to ensure proper group cohesion and management. Through the groups, the smallholder farmers are encouraged to undertake collective bargaining for better prices of inputs and outputs. Some of the successful groups have formed collective bulking centers and sell to urban traders or processors. Some of the more aggressive ones have even ventured into warehouse receipt systems, where they have earned better prices. The individual smallholder farmers who sell their produce through the Market Resource Centers (MRCs) can negotiate prices through the assistance of MRC managers. Whereas prices of inputs and outputs are market driven, the final outcomes are determined without any formal contracts. In a nutshell, within the KMDP value chain, the vulnerability of the smallholder farmers was tackled by promoting group formation, collective purchase of inputs, and bulking of surplus commodities and was augmented by KACE providing market information and linkages.

INCLUSION AND ACCESS: What approaches were most effective in increasing participation in agriculture and livestock value chains?

During the implementation of KMDP, ACDI/VOCA engaged three (3) main partners: FIPS, CGA, and KACE. FIPS adopted an all-inclusive village approach, reaching out to all members in villages where FIPS operates, cutting across cultures and gender and other social barriers. On the other hand, CGA implemented the KMDP activities through groups, which limited access to services provided to group members only. KACE offered market information and linkages that were channeled through eight platforms; users cut across the social barriers, with major limitations to access undermined by user fees charged on specific KACE services.

KMDP promoted business fairs that attracted large populations regardless of social class, since these were open invitations extended to any member of the community. The young people are always attracted to the business fairs.

The FIPS' village approach and business fairs captured sizeable numbers of both women and youth. FIPS' soil management experiential demonstration using improved technologies and the introduction of sweet potatoes with adequate ground covering as good practices for positive natural resource management through soil and water management, reduced erosion, and enhanced biodiversity. FIPS, working with private seed and fertilizer companies, has been experimenting with adaptable seed varieties and has promoted adoption and use of blended fertilizers for enhanced biodiversity and improved productivity.

PRIVATE SECTOR: What was the role of the private sector in activity design and implementation?

KACE provides market information and linkages, and is a private company implementing KMDP in partnership with ACDI/VOCA. Private seed and fertilizer companies provide seed to FIPS for demonstration, and directly sell seeds to farmers and through business fairs as well as KACE market resource centers. The transporters carry seeds, fertilizers, and produce, while the traders collect and bulk produce from

rural areas. Some of the processors directly purchase produce from the smallholder farmers, especially those engaged in collective bulking, maize processing, and blending the flour into high-nutrient end products.

COMPETITIVENESS: How did the activity increase producer and enterprise access to agriculture and livestock financial services?

At the input level, KMDP has increased competition within the value chain. FIPS technology upgrades exposed smallholder farmers to seed supplies from other companies, thus breaking the monopoly of Kenya Seed Company. Private fertilizer companies have blended their fertilizers and introduced varying packaging sizes for increased competition in the market. The smallholder farmers engaged in collective purchase of inputs have enjoyed lower prices through discounts provided on large volume purchases. At the output level, smallholder farmers engaged in collective bulking of surpluses have successfully utilized market information and linkages, and they have diversified market outlets and influenced price setting from the hitherto position of price takers to the current position where they arrive at a selling price from an informed position. The smallholder farmer groups that have utilized the warehouse receipt system have been able to access financial services from Equity and Cooperative Banks using inventory as collateral, and even obtained better prices for the surplus output.

PARTNERSHIP: Who were the most important collaborators and cooperators, how were they engaged, and what was their contribution to success?

ACDI/VOCA implemented the KMDP with three local partners: CGA, which was involved in farmer mobilization and group capacity building; FIPS technology upgrading; and KACE market information and linkages. EAGC was formed as a result of maize stakeholders' collaboration and has been instrumental in the nurturing of structured maize trading through warehouse receipt systems. KMDP, through CGA, collaborated with WFP to promote direct purchase of surplus grains from smallholder farmers under the Purchase for Progress (P4P) program. The private seed and fertilizer companies have supplied seeds and fertilizers used in trade fairs and other demonstrations, while government departments and research institutions have supported the KMDP throughout its period of implementation.

ENABLING ENVIRONMENT: What were the effects of GoK policy and the enabling and regulatory environment on implementation and investment?

Government liberalized maize trading and processing by breaking the monopoly of the National Cereal and Produce Board (NCPB), although it occasionally interferes through the provision of subsidized fertilizer and setting maize buying prices for NCPB, which in most cases is used as the standard to guide prices offered by other buyers. Throughout East Africa, maize standards and grading procedures have been harmonized and are being enforced at all levels through coordination of EAGC in collaboration with country-specific standards institutions and the East African Community Secretariat, which has led to improved quality of the maize and stimulated increased investments into moisture meters and proper storage facilities. Government supported the small packages for seeds and fertilizer as well as the blending of flour and fertilizer.

SUSTAINABILITY: What factors were most important in achieving the activity goals and objectives and sustaining impact?

The introduction of packaging inputs into small volumes and experimental learning by smallholder farmers on their plots has triggered utilization of certified or improved seed varieties, inorganic fertilizers, and better farming practices. The blending of fertilizers by local companies has reduced the need for farmers to buy different kinds of fertilizers. The introduction of small size packages by seed and fertilizer companies and blending of fertilizers have exposed smallholder farmers to alternative high-yielding seed varieties and varying sizes of blended fertilizer which has resulted in enhanced competition in the productivity-enhancing inputs market.

The multi-task roles of the Village-Based Advisors sustain technology diffusion and business linkages, which make them useful value chain actors with their respective villages of operations. In addition, the market resource centers will ensure a continuous flow of market information, and the provision of trade facilitation and trade linkage services to the users using internally generated resources, unlike the initial activities by KACE that were supported by donor funds.

APPENDIX C. DAIRY SUB-TEAM REPORT

EXECUTIVE SUMMARY

BACKGROUND

The Kenyan dairy industry contributes to the livelihoods of many people engaged throughout the value chain, and to the nutritional well-being of both urban and rural communities. The sector employs more than 500,000 people along the value chain, and more than 750,000 in supporting services in addition to the estimated one million smallholder producers (Ministry of Livestock Development).

Kenya has roughly 3.6 million head of dairy cattle, of which approximately 50 percent are purebred dairy breeds and 50 percent are crossbred mixed breeds. In Kenya's dairy sector, approximately one million smallholders produce 80 percent of marketed milk and have, on average, 2-3 dairy cows. Kenya also has about 200 large-scale dairy producers.

Annual milk production from the dairy herd is estimated at 7 million liters per day, with average production per cow estimated at 1,800 liters per year (4-7 liters per day). About 40 percent of smallholder milk production is consumed by the household or used to feed calves.

The dairy value chain has two principal segments (see Figure 1). Approximately 20 percent of marketed milk production is sold through the formal market to urban consumers as pasteurized milk and processed dairy products. The remaining 80 percent is sold to both urban and rural consumers through informal markets as raw milk.

INTRODUCTION

This evaluation seeks to identify lessons learned from successful dairy value chain activities to inform and improve the design and implementation of future efforts. It is focused on finding out and summarizing what has worked and why. It was undertaken as a collaborative, multi-stakeholder learning process with the guidance of the Kenya Development Partners and the evaluation team.

The team evaluated five different dairy projects/activities that are being implemented in Kenya with donor support and funding: EADD, KDSCP, NALEP, SDCP, and PSDA. Our data-collection techniques included: short structured interviews, focus group discussions (FGDs), most significant change (MSC) exercises, and an interview checklist. The team also compared the information collected with information from third parties and from other sources in order to synthesize findings in a uniform framework.

FINDINGS

The following is a summary of our findings for each of the activities evaluated, based on the information collected and the success criteria contained in the SoW.

Kenya Dairy Sector Competitiveness Program (KDSCP)

KDSCP facilitates market-based services solutions and supports action-oriented policy research to overcome constraints to competitiveness at key points along the dairy value chain. It employs a market-driven value chain approach using a BDS methodology to promote embedded service delivery by providers.

The team found the KDSCP implementation approach appropriate and effective at providing practical solutions to problems. It has increased milk productivity by training farmers and helping them adopt new technologies. Interviews confirmed that farmers who participated in KDSCP capacity building exercises had

higher per-cow milk production than those who did not. KDSCP also helped beneficiaries improve incomes from the sale of milk, with cumulative increases up to 30 percent.[6]

KDSC has reached a cumulative total of 248,275 households, and has helped beneficiaries increase their dairy income to an average of KShs 5,200 per month. Beneficiaries report that their gross margin of KShs 10.05/liter has doubled, primarily due to the increased prices received as a result of milk bulking. KDSCP has also helped 57 dairy enterprises meet national certification standards, and trained a total of 90,434 producers.

KDSCP has helped link farmers with financial institutions to facilitate the development of their dairy enterprises. It has helped 42,814 farmers access credit, with 37 percent of them being women. These farmers have accessed a total of US$ 977,000 (KShs 88 million) from financial service providers. KDSCP has also helped establish 124 SBOs since inception, linked about 120,000 farmers and 80 farmer groups to BDS SPs, and helped install a total of 616 biogas digesters. Overall, KDSCP is working with about 600 service providers, 80 percent of whom are youth, and has leveraged about US$3.4 million in non-program funds.

In summary, KDSCP demonstrates that successes in dairy value chain activities are possible without subsidies, and within a short time. It also demonstrates that success is built upon well designed and targeted interventions, and results-oriented implementation.

The East Africa Dairy Development Program (EADD)

EADD seeks to double the dairy income of 179,000 farming families by 2017 through knowledge-based interventions that enhance dairy production and improve market access. The EADD design was informed by detailed background studies and the incorporation of lessons from similar projects by Heifer International Kenya.

EADD is focused on building structures to enable broader diversification of dairy business services and develop sustainable dairy hubs. EADD facilitates commercial financing arrangements between chilling plants (CPs) and banks, improved corporate management of CPs, legalizing the status of dairy businesses, and entrenching sustainable extension service provision within the hub system.

EADD has increased dairy-related income among poor farmers by expanding access to formal and informal marketing channels. Given the limited capacity of traditional markets to absorb increases in milk production resulting from its activities, EADD emphasis was placed on promoting access to under-developed consumer markets, particularly those in urban and peri-urban areas.

EADD has helped 21 dairy farmer business associations become private companies, cooperatives, or public companies. EADD has 110,480 registered dairy farmers, with more than 80,000 actively selling milk through CPs. Daily CPs intake is averaging 213,500 liters of milk. EADD has leveraged farmer investment of more than KShs 340 million in chilling plants and hub related services, including: Agrovet stores, milk tankers, milk collection trucks, Financial Services Associations and SACCOs providing Front Office Savings (FOSA) services for its members. In three years of operation, EADD beneficiaries have earned more than US$36 million from the sale of more than 106 million liters of milk and generated about 983 BDS employment opportunities.

In summary, EADD also demonstrates that success in dairy value chain activities is possible with few subsidies, and within a short time. It also demonstrates that success is built upon well designed and targeted interventions, and results-oriented implementation.

[6] 2010 KDSCP Annual Report

Smallholder Dairy Commercialization Program (SDCP)

The goal of SDCP is to increase the incomes of poor rural households that depend on the production and trade of dairy and dairy products. SDCP design was based on previous interventions and knowledge generated in the sector by other programs, and used comprehensive stakeholder consultations, including visits to all program target districts.

SDCP has reached a cumulative total of 17,463 households (537 dairy groups), and a total of 95,200 beneficiaries. Beneficiary milk productivity has improved from 4 liters/cow/day to 10.6 liters/cow/day and production costs/liter has been reduced by an estimated 23 percent.

SDCP is working with 224 dairy groups consisting of 3,755 dairy group members who are collectively marketing their milk, which has resulted in higher prices paid by the processors. At present, farmers are paid a KShs 7 premium by selling collectively, and receive an additional bonus of KShs 1/liter for delivering chilled milk. A total of 2,437 group members have accessed KShs 34 million in credit from financial institutions.

Private Sector Development in Agriculture (PSDA)

PSDA activities seek to improve market access for small and medium agribusiness players along selected value chains. The target group is market-oriented farmers and medium and small enterprises involved in agribusiness. The PSDA dairy goat value chain activity seeks to build the capacity of groups of producers to upgrade their local goats through the purchase and rearing of improved dairy goats.

PSDA was designed in cooperation with the GoK. Consultations were held during the design with relevant ministries and stakeholders in the target districts. The design also benefited from a baseline survey of farm households, input dealers, service providers, and processors conducted between December 2003 and February 2004 in the eight selected districts in the target area.

The dairy goat value chain is particularly relevant among rural communities in the medium and high-potential areas with limited agricultural land and fodder for sustaining dairy cows. The allure of the PSDA dairy goat activity has been the high milk productivity of the improved or purebred goats and the fact that they demand less fodder than do dairy cattle. However, increased household income in the dairy goat activity is attributed more to the sale of live goats than from milk. Concerns about the authenticity of goats being sold as dairy goats has led to a demand for registration services with KLBO, and for records of milk production.

In PSDA, more than 16,500 smallholder dairy goat farmers who are also members of DGAK have benefited from the dairy goat activities, with cumulative sales of dairy goats and products amounting to KShs 910 million. Beneficiary goat milk production has improved from less than 1 liter/day to 2.5 liters/day. In addition, 20 private AI providers are now available, 21 farmers and 9 AI providers have been trained in artificial insemination of goats, and 75 HIV/AIDS peer educators have been trained under the program.

In summary, PSDA activities have increased household income from increased production of goat milk as well as from the sale of improved goats.

National Agriculture and Livestock Extension Program (NALEP)

The goal of NALEP is to contribute to socioeconomic development and poverty alleviation by promoting the adoption of sustainable technologies for natural resource management in agriculture and livestock production. Both the Ministry of Agriculture (MoA) and the Ministry of Livestock Development (MoLD) implement NALEP with support from the Swedish International Development Agency (SIDA).

The design of NALEP phase II was based on lessons learned from phase I, and on the need for continued government reform programs within the framework of the National Agricultural Sector Extension Policy Implementation Framework (NASEP-IF).

The NALEP approach involves selection of a location or focal area within which to concentrate extension activities for a prescribed period of time. Upon completion of the prescribed period, another location is selected and serviced for a similar duration. This is continued until all administrative locations in a target area have been serviced intensively.

A September 2009 Mid-Term Evaluation (MTE) of NALEP found that "NALEP II has very successfully promoted (1) an empowered community demanding quality extension services, and (2) a Forum of Stakeholders, mutually supportive and being provided with relevant extension services for crops, livestock, fisheries and value-added activities as well as funds and expertise for important infrastructure such as sub-surface dams and water harvesting structures, rural access roads and rural health centers."

The MTE also reported that approximately 1,800,000 households have been reached through Common Interest Groups (CIGs) and farmers' field days since the start of NALEP II (January 2007), and that farmers have been able to increase their production of crops, livestock, and processed agricultural produce as a result of the application of improved practices and technologies. The impact was reported to have been very significant, with some members of CIGs increasing their income by a factor 2 to 4 within two years, and improved the nutritional, health, and educational standards of their families. Men, women, and youth have also benefited, with the empowerment of women and civil society in general being the most remarkable result.

A study of the NALEP implementation process by Martin Mudar Hill of Jönköping University observed "the biggest strength of NALEP has been the formation and capacity building of grassroots farmer organizations in form of the Common Interest Groups (CIGs). Through these groups the farmers have been able to survive difficult challenges and increase their individual incomes."

LESSONS AND CONCLUSIONS

In general, the design of the dairy activities evaluated was more informed by previous interventions (projects) than by value chain methodology. All the dairy value chain activities seek to improve smallholder access to markets for milk. They recognize that for the smallholder dairy producers to benefit from market access and reliability, collective action to facilitate bulking and selling in commercially viable quantities is necessary. And collective action requires facilitating, building, and strengthening farmer organizations. All the dairy value chain activities were designed to use a commercial approach (sales of milk) to increase household income and/or reduce poverty, even though two of them stated they had pro-poor approaches.

Clearly established criteria for identifying beneficiaries and target areas are essential for a successful dairy value chain activity. Specifically, targeting must be based on identified factors that facilitate or inhibit marketing. The process for targeting must be clearly laid out from the beginning, and not alienate or divide the communities served. The approach to poverty reduction must also be clearly defined from the start.

The activities varied slightly in their implementation approach. For example, the KDSCP approach was to intervene in a milkshed which is defined as an area with the potential to produce 50,000 and 100,000 liters of milk/day. It then used a stepwise methodology to identify the constraints and opportunities to competitiveness along critical nodes in the value chain; identify market-based solutions to competitiveness constraints that can be overcome utilizing identified commercial BDS providers; and assess the most viable and priority solutions in the target area. SDCP also used a stepwise approach, but based it on building group

capacity to move them through three levels of development. EADD works with existing groups to facilitate capacity building, access to financial services and the milk market, and both horizontal and vertical linkages.

All the projects used partnerships of some sort. EADD appears to be the best model for partnership development and planned coordination of different actors. The partners have clear mandates and roles and offered different expertise. The program also provides the best working model for adoption in terms of exit strategies.

All the programs did well in facilitating smallholder participation in the dairy value chain, and used groups as the entry point for interacting with beneficiaries. This created the strong horizontal linkages needed for success. NALEP and SDCP assisted in-group formation, while KDSCP, EADD, and PSDA used existing groups.

KDSCP, EADD, and SDCP also did well in facilitating milk production, and increasing sales and rural household incomes. They and PSDA have also materially improved dairy value chain productivity and competitiveness. The EADD approach works particularly well in facilitating milk hubs and chilling plants as models for learning business efficiency, providing new integrated services, and accessing new technologies.

The team concluded that the assessed dairy value chain activities are successful and replicable, with some modification depending on target groups and objectives. These activities are effective in facilitating milk producer participation in the dairy value chain. However, future growth in participation will require more attention to vertical linkages and alternative market channels.

Very little has been done to address marketing issues faced by the processors. The processed dairy products market seems to be limited, and the so-called formal market only handles about 20 percent of Kenya's total milk production capacity. Increasing the productivity of producers without a similar increase in the capability of processors may see the effort come to naught. KDSCP seems to be the only program with some activities targeted at commercial milk processors (mainly on milk quality improvement). There has also been very little effort to address value chain issues related to the marketing of raw milk, which constitutes 80 percent of the marketed milk production.

RECOMMENDATIONS

Each of the activities assessed had particular strengths. For example, the stepwise approach used by the KDSCP model was effective in ensuring beneficiary ownership of the process, and hence success and sustainability. The EADD hub approach works well in improving market access, particularly with regard to the relationship with processors. The SDCP approach is better suited for pro-poor dairy value chain interventions at the producer level. Future activity designs can productively borrow from any and all of these approaches.

In terms of future activities, it is essential that they go beyond current efforts to specifically address vertical linkages. Further growth in smallholder dairy production will depend upon the health of milk processors, and their ability to increase the sales (both local and export). This will require more concerted efforts to promote increased local consumption of milk and high-value dairy products such as cheese. Future activities must also seek to address issues in the marketing of raw milk, the portion of the value chain through which the bulk of marketed production flows.

The last comprehensive Kenya dairy value chain analysis was undertaken more than 10 years ago (by the Smallholder Dairy Research and Development Project), and the dynamics of the national and global dairy markets have changed since then. Therefore, the team strongly recommends undertaking a joint dairy value

chain analysis, incorporating both the processed and raw milk markets, with particular attention to processor issues, future demand and consumption patterns, and raw milk marketing. The results of this analysis are essential to adjust ongoing activities and inform the design of future dairy value chain interventions.

REPORT STRUCTURE

Following this Executive Summary, the Dairy Sub-Team Report is divided into the following sub-sections: Background, Introduction, Summary Description of the Projects Evaluated, Findings, Lessons/Conclusions, and Recommendations.

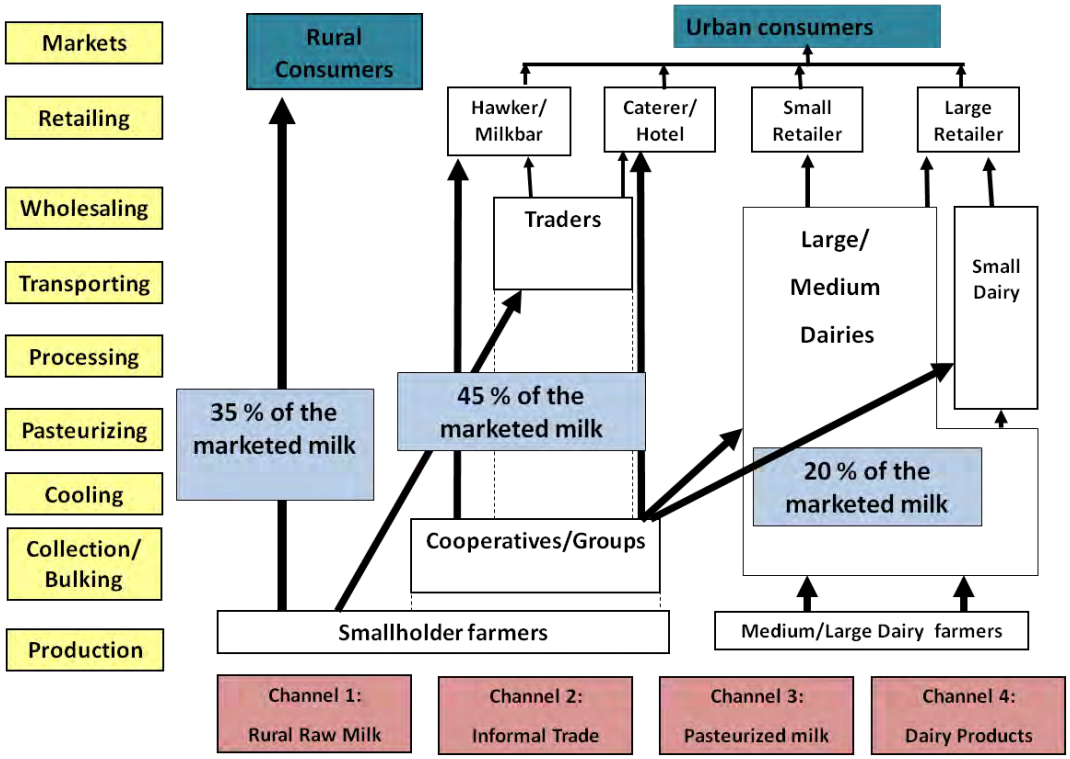
BACKGROUND

The dairy industry's main importance to Kenya's economy is its contribution to the livelihoods of the many people engaged throughout the value chain and to the nutritional well-being of many rural communities. Dairy production constitutes 30 percent of livestock GDP and more than 22 percent of the gross value of marketed livestock products. The Kenya dairy sector employs more than 500,000 people along the value chain and more than 750,000 in support services, in addition to the one million smallholders who produce milk (Ministry of Livestock Development).

Kenya has a dairy herd of roughly 3.6 million head of dairy cattle, of which approximately 50 percent are purebred dairy breeds and 50 percent are crossed mixed breeds. Kenya also has roughly 14.1 million zebu cattle, 3 million camels, 200,000 head of dairy goats, and 27 million meat goats (extrapolation from 2009 Census).

The focus of this evaluation is on dairy production and marketing, as represented in the following schematic of the Kenya dairy value chain, but more so on activities within the SoW.

Figure 1: Kenya Dairy Value Chain
Source: Modified from William Grant presentation (USAID)



In Kenya's dairy sector, approximately one million smallholder dairy producers produce 80 percent of marketed milk and have, on average, 2-3 dairy cows. Kenya also has about 200 large-scale dairy producers. Annual milk production from the dairy herd is estimated at 7 million liters per day. Individual cows produce on average an estimated at 1,800 liters per year (4-7 liters per day). Roughly 40 percent of milk production is consumed by the household or used to feed calves.

There are actually two dairy value chains in Kenya (Figure 1). The formal dairy value chain encompasses about 20 percent of marketed milk, which has been processed. The informal dairy value chain is a complex system that handles the 80 percent of marketed milk sold raw. In the informal dairy value chain, unprocessed milk is sold in the neighborhood or marketed directly to consumers through cooperatives, shops, and kiosks.

In the formal dairy value chain, the milk processing sector has consolidated greatly in the past 10 years, with one firm (Brookside) acquiring most of the other private competitors and emerging as the largest milk processor in Kenya. The other main competitor is KCC, a government parastatal cum farmers/cooperative processor.

The policy and institutional environment for the dairy industry in Kenya has improved in the last decade. However, much remains to be done, especially in the involvement of stakeholders in policy and regulatory decision processes. Policy is also lacking in dairy business ethics and contracting. Smallholder producers and market actors have not been adequately mainstreamed in the policy and decision-making process.

INTRODUCTION

OBJECTIVES, KEY ISSUES, AND ASSESSMENT QUESTIONS

This evaluation seeks to identify concrete lessons learned from selected successful dairy value chain activities to inform and improve the design and implementation of future efforts. The evaluation is focused on finding out what has worked and why, and is organized such that designs can be readily derived from what has been proven to work.

The evaluation was exploratory and descriptive, and geared toward learning. It was undertaken as a collaborative, multi-stakeholder learning process with the guidance of the Kenya Development Partners and the evaluation team.

The criteria that were used to assess the success of the activities evaluated are as follows:

1. agriculture and livestock value chain productivity and competitiveness;
2. smallholder producer participation in value chains;
3. agricultural production and sales;
4. rural household income;
5. private investment;
6. employment generation;
7. involvement by women and youth; and
8. environmental and economic sustainability.

METHODOLOGY

This evaluation assessed five different dairy projects/activities being implemented in Kenya with donor support and funding: EADD, KDSCP, NALEP, SDCP, and PSDA. The team formulated a number of key questions to guide information collection, categorized into 13 major areas: design; technical approach; governance; inclusion and access; private sector; competitiveness; partnership; enabling environment; other considerations; monitoring and evaluation; results; sustainability; and lessons learned.

The evaluation did not rely on a single method. Data collection techniques included: short structured interviews, focus group discussions (FGDs), most significant change (MSC) exercises, an interview checklist, and extensive review of program documents and other literature. The consultants compared the information collected with information from third parties and from other sources in order to synthesize findings in a uniform framework. This triangulation advanced the learning experience and, in a number of cases, provided more layers of perspective, explanation, and learning.

FOCUS AND LIMITATIONS

The evaluation was designed as a collaborative learning exercise with frequent and intense interactions among partners involved in dairy sector development. Due to the approach used and tools deployed in the evaluation process, the emphasis was on gathering qualitative information and complementing it with quantitative information made available from donors and project implementers. This approach somewhat limits the precision of the analysis.

In some cases, there were problems with semantics in the 'pre-designed' character of the study. It proved challenging to organize interviews with relevant people, and the lack of quality time at the level of implementing organizations was sometimes a serious issue. Time constraints caused the degree of triangulation to vary from project to project. In general, the evaluation was ambitious, complex, and challenging in terms of its scope, the involvement of multiple stakeholders, the number and variety of projects and organizations involved, and the time framework. The evaluation team believes it has done justice to the terms of reference in spite of these limitations.

SUMMARY DESCRIPTION OF THE PROJECTS EVALUATED

The team evaluated five dairy value chain activities. A summary description of the five is provided, as follows:

KENYA DAIRY SECTOR COMPETITIVENESS PROGRAM (KDSCP)

KDSCP is a five-year effort to improve the competitiveness of Kenya's dairy industry and transform it into a globally competitive regional market leader. Its goal is to increase smallholder household income from the sale of quality milk, targeting more than 300,000 farmers and more than 250 dairy industry service providers per year. It employs a market-driven value chain approach, utilizing a Business Development Services (BDS) methodology.

KDSCP seeks to strengthen and upgrade key points along the dairy value chain to meet growing domestic and regional demand for safe, hygienic, and affordable milk and value-added dairy products. It has three broad programmatic components: i) upgrading the capacity of the dairy industry to compete in local, regional, and international markets; ii) transforming smallholder dairy business organizations into viable enterprises that supply quality milk to the market and facilitate access to critical services and inputs to farmer-members; and iii) strengthening support markets, increasing the availability and utilization of market-link dairy business development services, inputs, and technologies provided by business service providers to dairy enterprises. It also integrates gender balance and environmental sustainability.

KDSCP started in 2008 and is implemented by Land O'Lakes with financing from USAID. KDSCP contributes to the USAID Strategic Objective 7.0: "Increased Rural Household Incomes." It is also aligned with Kenya's development agenda and its goal and objectives reflect national and regional priorities.

THE EAST AFRICA DAIRY DEVELOPMENT PROGRAM (EADD)

EADD is a four-year effort to move smallholder dairy farmers out of poverty by delivering farmer-focused, value-chain activities that are implemented simultaneously to stimulate dairy farm production, dairy sector services, business development, and dairy market pull. EADD's vision is to transform the lives of 110,000 smallholder farm families by increasing average household dairy income from $1 per day to at least $2 per day within 10 years.

EADD uses an integrated industry support approach, focusing on the creation of sustainable dairy farmers' business associations (DFBAs), and incorporating interventions in dairy production, market access, and knowledge application. It helps farmers and their associations assess the feasibility of setting up milk chilling plants and develop business plans to guide the operations and investment required. Other activities include interventions in the entire dairy value chain to increase farm productivity and the quality of milk produced.

EADD started in 2008, and is implemented by a consortium of five organizations led by Heifer International in Kenya with funding from the Bill and Melinda Gates Foundation. The partner organizations are the International Livestock Research Institute (ILRI), TechnoServe (TNS), African Breeders' Service Total Cattle Management (ABS-TCM), and the International Center for Research in Agroforestry (ICRAF).

THE SMALLHOLDER COMMERCIALIZATION PROGRAM (SDCP)

The goal of SDCP is to increase the income of poor rural households that depend substantially on production and trade of dairy products for their livelihoods. This will be achieved through two objectives: i) improving the financial returns of market-oriented production and trade activities by small operators through improved information on market opportunities, increased productivity, cost reduction, value adding, and more reliable trade relations; and 2) enabling more rural households to create employment through, and benefit from, expanded opportunities for market-oriented dairy activities, particularly as a result of strengthened farmer organizations.

SDCP targets 120,000 people in approximately 24,000 households through 600 groups in nine districts. It started in 2006, and is implemented by the GoK and the local community with funding from the International Fund for Agricultural Development (IFAD), GoK, and beneficiaries.

THE NATIONAL AGRICULTURE AND LIVESTOCK EXTENSION PROGRAM (NALEP)

NALEP operates in line with the National Agricultural Extension Policy (NASEP). It is coordinated jointly by the Ministry of Agriculture and the Ministry of Livestock Development. Phase I of the program started in 2000 and ended in June 2005, and Phase II started in July of the same year.

The key pillars in NALEP II are demand-driven strategies, pluralism, professionalism, and a participatory approach in the delivery of extension services, and transparency and accountability in the planning and implementation of program activities. The built-in, bottom-up planning and delivery of extension services remains the cornerstone of the program. Collaboration and partnerships with other service providers contribute to the improvement of the livelihoods of the small-scale farmers.

The NALEP approach is strongly focused to vulnerability, gender mainstreaming, community empowerment, combating HIV/AIDS, rights to utilize natural resources, creating awareness of democratic governance, and

transparency and equity, with an aim at poverty reduction and livelihood improvement. NALEP II has a strong poverty focus and targets the poor at the individual and group levels.

THE PRIVATE SECTOR DEVELOPMENT IN AGRICULTURE PROGRAM (PSDA)

PSDA addresses the problems of underutilized agricultural potential and weak business linkages using a value chain approach. The overall goal of PSDA is to generate sustained economic and pro-poor growth, and improve rural and urban livelihoods; the objective is to increase rural income and create employment, and thus mitigate poverty. The objective can also be stated as "the owners of small and medium sized agricultural production and processing enterprises realize their production, market and employment potential in an ecologically sustainable manner." The intended exploitation of production, market, and employment opportunities should contribute to overall economic growth through reduction in poverty and an increase in employment from agriculture. To achieve this sustainability, PSDA has three components: (1) improvement of policy framework conditions for private sector development in the agricultural and food economies, (2) development of value chains in the agricultural and food economies, and (3) promotion of resource-friendly technologies.

PSDA is focused on the development of 10 value chains: mango, passion fruit, Irish potatoes, sweet potatoes, smallholder dairy goats, local poultry, beef, Omena fish, biogas and energy-saving stoves. Activities include the creation of favorable political, legal, administrative, and economic framework conditions; capacity building; value chain analysis and strategy development; enhancing business linkages; and strengthening stakeholder organizations, including farmers' associations and providers of business development services.

PSDA began in 2003, and is implemented by the Ministry of Agriculture, Kenya and German International Cooperation (GIZ, formerly GIZ), in cooperation with other partner ministries and private sector organizations.

FINDINGS

The evaluation findings are presented by the project based on the 13 questions and the success criteria in the SoW. Where there was no substantive material to deal with the question, the report is silent.

KENYA DAIRY SECTOR COMPETITIVENESS PROGRAM (KDSCP)

KDSCP Design and Implementation Approach

KDSCP design was built upon the successes of the predecessor Kenya Dairy Development Program (KDDP). It is designed to strengthen and upgrade key points along the dairy value chain to meet growing domestic and regional demand for safe, hygienic, and affordable milk and value-added dairy products. KDSCP seeks to increase incomes for smallholder dairy farmers and stakeholders throughout the value chain while incorporating gender balance and environmental sustainability.

KDSCP is implemented by facilitating market-based services solutions and supporting action-oriented policy research to overcome both industry-level and enterprise-level constraints to competitiveness at key points along the dairy value chain. Utilizing the value chain competitiveness approach presented below, KDSCP engages key industry stakeholders to identify competitiveness constraints and employ market-based solutions by strengthening supporting markets for services and inputs provided by commercial service providers, industry associations and, to some extent, government service providers.

The design of the interventions was built on the lessons from the implementation of KDDP and background studies. This identified technical gaps that limited the competitiveness of the dairy value chain, including:

- poor dairy genetic/breeding material;
- poor feeding strategies;
- inadequate dairy commercialization support services (extension information services and systems such as clinical services and financial services);
- low quality of milk and low milk production (inadequate bulking);
- poor dairy markets access and opportunities; and
- inappropriate dairy commercialization enabling environment.

KDSCP implementation employs a market-driven value chain approach, utilizing a BDS methodology and promotion of embedded service delivery by service providers. Overall, this methodology is effective in addressing the technical constraints identified along the dairy value chain and contributing to the increased commercialization and competitiveness of the value chain.

KDSCP has identified eight milksheds to facilitate the provision of dairy value chain services, and utilizes a group approach where it organizes dairy farmers into dairy groups, cooperatives, or federations to spearhead the provision of the dairy-related commercialization services. The steps KDSCP follows to implement its activities can be summarized as follows:

- Identification of key constraints and/or opportunities to competitiveness at critical points in the value chain (farm, MBC, and processing plant).
- Identification of market-based solutions to competitiveness constraints that can be overcome utilizing the identified commercial BDS providers.
- Assessment of the most viable, and prioritization of the most critical, solutions in the target area.

The team found the KDSCP stepwise approach to implementation appropriate and effective, providing practical solutions to fully analyzed problems. The team also identified the following as the key implementation success features:

- KDSCP uses a "light touch" approach, with no direct technical assistance and training, other than capacity building to groups and government regulatory agencies. This approach leverages significant resources to facilitate market-based solutions, eliminates the dependency syndrome, and builds sustainability. It also promotes local solutions and resource mobilization among beneficiaries.
- KDSCP uses local human resources mobilized through a competitive sub-awards program to supply project beneficiaries with the necessary BDS and financial products required to catalyze market growth and foster industry competitiveness. This builds capacity at the grassroots level and ensures sustainability and future access to services.

Box 3. Process for Prioritization and Selection of Market-Based Solutions

1. Decide which services are cost-effective and needed by the clients.

2. Determine if the SBO has or can get the capability to provide the service through its own operations (personnel) or whether it should align with an external provider to perform that function.

3. Determine if the service should be provided as a discrete service that is paid for on a fee basis or as an embedded service that is part of the overall basket of value that the organization provides its members.

- KDSCP mainstreams gender, youth, HIV/AIDS, and environmental conservation into its interventions. Mr. Timothy Kinuthia, a KDSCP model dairy farmer in Tetu, Central province, is an example of youth in dairy production.

The KDSCP method of addressing dairy commercialization at both industry and enterprise level is appropriate and effective, and it contributed to the achievement of economies of scale critical for the viability of processors and SBOs. The enterprise-level engagement also facilitated the expansion of embedded services and input delivery through SBOs, SPs, and processors as well as the development of innovative and appropriate technologies, management practices, and financial services through commercial BDS. This has strengthened vertical and horizontal business-to-business linkages. The development of the MIS in conjunction with the Kenya Dairy Board (KDB) is an indication of positive industry-level engagement contributing to commercialization.

KDSCP industry-level engagement and consultations also led to the formation of the Dairy Task Force, and contributed to strengthened competitiveness-enhancing policy reforms; industry quality standards; innovative competitiveness-enhancing technologies; and industry best practices.

KDSCP has increased household incomes from the sale of quality milk, primarily because of the effectiveness of the implementation structures put in place. KDSCP has eight milksheds spread in the Rift Valley and Central provinces of Kenya. Each is managed by a competitively sourced milkshed coordinator under the supervision of a team leader. A unique feature of the approach is that the team leader is engaged on a performance-based renewable contract basis, and the coordinator is a full-time competitively sourced employee. At the national level, KDSCP receives guidance from the Kenya dairy sector competitiveness Dairy Task Force (DTF), with membership drawn from farmer representatives, the private sector, processors, service providers, development organizations, and GoK officials. This model is creating a competitive environment among the teams, allowing for individual innovations necessary for profitable dairy commercialization. The partnerships and collaborations created during the implementation process contribute to the success of the project. In particular, the team noted effective collaboration with the Ministry of Livestock Development, KLBO, KDB, and the Dairy Training Institute (DTI).

Governance Issues

KDSCP facilitates the organization of dairy farmers into groups (SBOs) and federations to address market access constraints, exploit market opportunities, and drive competitiveness in the dairy value chain. The main governance issues identified in the KDSCP groups are related to farmer organizations (e.g., legality, business/power relations, management structures, roles/responsibilities, membership requirements).

KDSCP helped organize farmers into working groups, facilitated the legalization of some of them, and trained officials in effective financial and human resource management. This helped eliminate concerns about conflicts among the membership.

KDSCP capacity building also provided the platform for elections in some SBOs and federations. These elections brought in officials ready and willing to lead the groups into profitability. Administrative, personnel, and financial procedures are improving, with more active and informed secretariats. There is also evidence of responsibility assignment and role identification within the SBOs, further confirming the effectiveness of capacity building provided to the groups by KDSCP.

Overall, the KDSCP approach has helped strengthen the governance of SBOs, thereby improving sector interactions both horizontally and vertically.

Private Sector Involvement and Increased Stakeholder Participation in the Dairy Value Chain

The involvement of beneficiaries in intervention design is assured by their participation in the value chain diagnostic and background studies. The participatory processes used in developing targeting frameworks also fostered a sense of inclusion among participants. Involving private sector players in the delivery of embedded services and capacity building of the SBOs also provides a platform for inclusive value chain development.

KDSCP used implementation arrangements to involve the private sector in training (KLBO-trained livestock inspectors), extension services delivery (with private BSPs), and financial linkages (Equity, Family Bank). KDSCP also engaged different types of private sector players at various levels of the value chain, including individual business entities, private consultants, input providers (agro-vets), milk processors (Githunguri Dairies), milk transporters, farmers' organizations, and national-level dairy lobby groups (DTF).

KDSCP's use of participatory approaches in project design and the BDS approach to implementation – which relied upon private sector service providers for dairy value chain services and training – also contributed to increased private sector participation.

In summary, the involvement of the private sector in KDSCP has increased the competitiveness of service providers, improved service quality, enhanced business volume especially in relation to bulked milk, improved financial services for farmers, and enhanced technology adoption.

Increased Producer and Enterprise Access to Financial Services through KDSCP Activities

KDSCP worked with financial sector service providers to develop specific dairy-related products for farmers. For example, KDSCP engaged Family Bank to develop a number of products; Family Bank then helped dairy groups access negotiated user-friendly interest rates. As a result of this effort, farmers have accessed a total of KShs 88,000,000 so far.

The increased availability of financial services has also reduced transaction costs by eliminating the need to travel long distances to established towns. In addition, the establishment of local, farmer-owned financial services associations such as Githunguri Farmers SACCO has helped KDSCP beneficiaries provide guaranteed payment for services to BDS suppliers. Use of credit has also increased over the project period, as has cash flow to the dairy farmers. This has helped increase the accessibility of inputs and dairy-related services. Innovations have also been reported in credit provider attempts to gain farmer clients. Loans for dairy-related activities are now reported among financial facilities products, and have generally improved the business environment for dairy commercialization. Farmer knowledge of financial services has also improved, thereby "raising the bar" in terms of quality of financial products offered to dairy farmers.

Partnerships

KDSCP has established working relationships with the Dairy Task Force (DTF), Regional Working Groups (RWGs), and the Milkshed Working Groups (MSWGs) to identify sector challenges and opportunities. This has enabled the program to design appropriate solutions to sector challenges and take advantage of existing opportunities. The BDS approach to implementation has also helped the program reach a relatively high number of beneficiaries via partners/facilitators and service providers. Overall, KDSCP has enhanced collaboration among dairy industry players, and strengthened both horizontal and vertical linkages necessary for a more competitive and profitable dairy value chain.

The livestock and veterinary departments have been actively involved in the KDSCP activities. KDSCP's annual report (2009) highlights the contributions these departments made during design and implementation, with technical personnel helping develop site and beneficiary selection criteria. Local-level ministry staff is

also participating in activity implementation. Local extension agents are empowered with new knowledge and skills that make them valued resources to client farmers, and they create awareness among smallholder dairy producers about the value of such services. BSPs also organize smallholder training sessions in partnership with MoLD district extension officers for innovative "farmer field schools" (FFS) that raise producer skill levels and awareness of new technology and management practices.

KDSCP has also partnered with research institutions. It helped initiate financing for operational and market development research, training, and technical assistance activities in direct support of program objectives. It developed grant modules and organized training for interested beneficiaries to facilitate equal understanding of the research grant award process, build grant application skills, and assure that awardees are capable of meeting reporting and accounting requirements.

Extension service is provided by a chain of formal and informal partners, including food science and business management professionals, community-level "stockists" or "agro-vets," and small-scale feed manufacturers, agro-vets, feed and pharmaceuticals manufacturers, and other veterinary and artificial insemination service providers. Some of these BSPs give technical advice to farmers directly, or through the agro-vets.

KDSCP has helped develop a market for dairy-oriented BDS by working collaboratively with private sector genetics firms and farmer-owned milk bulking/cooling businesses, trained business service providers, and deployed them in milk catchment areas to provide smallholders with extension services and inputs. A majority of the BSPs are trained animal health technicians who advise farmers on cow health issues and provide first aid, vaccinations, and pharmaceuticals.

Enhancing Adaptation to Climatic Variability and Gender Mainstreaming

KDSCP was required to undertake environmental effects assessments in line with USAID procedures. It performed a detailed pesticide evaluation of all activities that involved the use or handling of pesticides, and developed a corresponding safe use action plan. KDSCP has implemented a series of recommendations arising from the initial environmental screening and a pesticide evaluation and safe use action plan (PESUAP) conducted at the start of the program. Notable practices included training on proper use, storage, and disposal of pharmaceuticals; the installation of energy-saving devises in farmers' homes; silage production and training of SP on acaricides use; and integration of environmental issues into farmers' training in the use of fodder trees. Other practices relate to sustainable livestock techniques with the adoption of zero grazing units, and hence the shift from grazing to stall feeding, use of dairy cattle waste to generate biogas, etc. KDSCP's training also targeted milk collection and transportation by encouraging them to use bicycles and donkeys, as they are both affordable and environmentally friendly, and by encouraging the KDB to stamp out unscrupulous traders who adulterate milk, thereby endangering consumers.

Box 4. Empowering Women through SBOs

Through the USAID-funded KDDP program, Land O'Lakes carried out gender awareness activities at the field level to increase women and youth participation in farmer groups in terms of active membership and representation in leadership positions. A partnership approach to the dairy business has been emphasized and men are encouraged to attend training with their wives and to share proceeds from sales. The management of farmer groups has also been sensitized on gender awareness for greater appreciation of women's role in group affairs.

KDSCP also facilitated the active participation of different groups — women, men, and youth — in activity implementation. KDSCP worked with the Greater Access to Trade Expansion (GATE) project to identify gender constraints, continuously design interventions to address those constraints, and track the impact on gender throughout the life of the program. Building on the achievements of the

KDDP, KDSCP examined all its activities for their gender sensitivity and undertook a baseline study that incorporated sex- and age-disaggregated data on all relevant activities. KDSCP also analyzed data for gender differences that have the potential to undermine program performance, designed program activities, developed appropriate gender mainstreaming strategies to address gender disparities, and developed a monitoring system that tracks both technical and gender-related outcomes. Throughout its implementation, KDSCP adjusts program activities and approaches as appropriate, based on on-going monitoring to capture and reflect gender issues.

KDSCP has also supported the productive involvement of youth by providing adequate dairy training. Youth have proven extremely open to adopting new knowledge, practices, and skills that support development efforts, including the sound management of dairy animals and other dairy business opportunities.

Monitoring and Evaluation

The KDSCP monitoring and evaluation (M&E) framework integrates both an M&E plan and a specific Performance Management Plan (PMP). KDSCP uses market development indicators in the PMP framework to monitor changes in the market as a result of program interventions. Monitoring data are gathered from program records or from a performance measurement framework survey. There are two levels of data gathering and analysis: the program level, which assesses the outreach of the BDS program itself, and the market level, which assesses the development of the broader market that the program may be influencing. The indicators developed by KDSCP effectively capture the three objectives of the project. The M&E framework also provides for internal and external evaluations.

Synthesis of Best Practices and Successes from KDSCP

Impacts attributable to the KDSCP include increased milk productivity by training farmers and helping them adopt new technologies to increase milk output. Interviewed farmers indicated that those who participated in the KDSCP capacity-building exercises had higher per-cow milk production than those who did not. Positive impacts were also noted in improved incomes from milk, with cumulative increases up to 30 percent.[7] Beneficiary farmers have also improved animal husbandry.

KDSCP Achievements and Success Areas

KDSCP has recorded significant overall achievements. It has reached a total of 248,275 households cumulatively since project inception. Incomes in the dairy sector have also increased, with cumulative dairy income of KShs 5,199.65 per month during the period under review, representing an increase of 154 percent compared to baseline, and surpassing the target increase of 60 percent. KDSCP has also helped 57 dairy enterprises meet national certification standards against the target of 40. It has trained a total of 90,434 people since the beginning of the project.

KDSCP has recruited and trained a total of 882 service providers, surpassing the target of 350. A total of 28 dairy processing companies have registered and listed their products in the e-marketplace; SBOs, veterinary centers, veterinary officers, AI service providers, banks, and insurance companies are also users of the e-portal.

Service providers and collaborators registered a total of 12,193 dairy cows with the KBLO. During this period, KDSCP strengthened the Dairy Traders Association (DTA) to enhance quality milk consumption by the public. DTA has expanded its membership tremendously in order to reach more members.

[7] 2010 KDSCP Annual Report

KDSCP has helped increase dairy production to 8.9 liters/cow/day, which is 63.6 percent of the target. It has also promoted feeding regimes that reduced the cost of production by 20.4 percent against the 20 percent program target.

The gross margin reported by dairy farmers of KShs 10.05/liter is an increase of more than 100 percent compared to the baseline values, surpassing the target of 32 percent. This is primarily due to improved prices as a result of milk bulking, and increased levels of productivity and availability of inputs by the service providers. Program data shows a marked increase in the proportion of farmers using AI as reported by 87 percent as compared to the baseline proportion (39.9 percent).

KDSCP has helped link farmers with financial institutions to develop their dairy enterprises. The program has introduced 42,814 farmers to credit facilities against a target of 36,000, with 37 percent of them being women. A total of KShs 88 million was accessed by dairy farmers in the program area from financial service providers enabled through program links.

The program has also helped establish 124 SBOs since inception, and installed a total of 616 biogas digesters. Farmers whose biogas plants are complete reported that they were satisfied with the work and the output of the same.

KDSCP Sustainability and Innovations

Partnership and service delivery through local SPs ensures that the activities will survive beyond the life of the program. The milkshed approach to dairy value chain development focuses dairy value chain development activities in a homogeneous geographical and social setting, ensuring continuity after the program ends. The initiation of the Market Information System (MIS) and other e-dairy related systems is also an innovation to increase the efficiency of information provision to farmers.

The BDS methodology is sustainable as it involves local private sector stakeholders. The business approach also ensures sustainability of the various services embedded within the milkshed. In addition, the capacity-building provided to the BSPs will enhance profitability and continuation of their activities.

Lessons Learned and Best Practices for Replication

The successes attributable to KDSCP provide lessons for future project design as follows:

- The project has reached and surpassed its targets for implementation to date, indicative of the application of sound design and implementation approaches.
- The organization of farmer groups into business organizations enables dairy producers to increase their bargaining power with the processors. The formation of federations has resulted in increased milk prices at the farmer level while also qualifying members for premiums/bonuses given by processors.
- KDSCP has successfully demonstrated that a community-based approach to targeting is crucial to the success of interventions.
- Beneficiary and location targeting must be elaborated and guided by agreed-upon criteria guidelines.
- Beneficiary mobilization must be carried out before the actual targeting to make them aware of procedures and requirements relating to the project.

Conclusion

KDSCP design and implementation are clearly successful. It has:

- Increased milk production levels from 6.4 to 10.0 liters/day/cow
- Reached almost 250,000 households
- Introduced 42,814 farmers (37 percent women) to credit facilities
- Helped establish 124 SBOs that market their milk collectively and earn a bonus.

Market access is critical for successful value chain development. Bulking milk and selling in large volume pays and earns a bonus. This is an incentive for value chain players to work together through collective action or forming groups to benefit from scale economies or earn premium price as a result of volume sales.

Recommendations

KDSCP has ensured smallholder participation in the milk value chain, improved dairy productivity at the farm level, facilitated increased rural household incomes, helped producers sell milk at a premium price through a group approach, and ensured involvement of women and youth in the dairy value chain. The milkshed approach to delivery of milk chain development activities appears to allow for success and it seems to be a good model to replicate.

KDSCP demonstrates that success is built upon a well-designed and targeted intervention, and that success in dairy value chain activities is possible without subsidies and can happen in a short time span. The value chain approach to development in the dairy sector works. However, further growth will require an updated value chain assessment and attention to the informal (raw milk) dairy value chain.

EAST AFRICA DAIRY DEVELOPMENT PROJECT (EADD)

EADD Design

EADD seeks to double dairy-derived income among 179,000 farming families by 2017 through knowledge-based interventions that enhance both dairy production and market access. EADD design was informed by detailed background studies and the incorporation of lessons from similar projects by Heifer International Kenya. The background studies included *The Dairy Value Chain in Kenya*, consisting of a market survey of services intended to identify problems in the BDS market and allow for a better understanding of market opportunities, weaknesses, and constraints to the sustainable supply of and demand for BDS.

EADD focuses on building structures to enable broader diversification of dairy business services and development of sustainable dairy hubs. EADD facilitates commercial financing arrangements between chilling plants (CP) and banks, improvement of corporate management of assisted dairy business CP, conversion of legal status to public companies for all dairy businesses, and entrenching sustainable extension structures within the hub systems.

EADD, in partnership with ILRI, undertook objective selection of project sites. It characterized potential sites according to a range of criteria, including opportunities for production increases within individual milksheds (population of farmers and livestock), physical and social infrastructure, and access to dairy markets. EADD then used a scoring system to rank each potential site according to selection criteria. Sites with the highest scores participated in more detailed feasibility studies. The process of site and beneficiary selection also involved other stakeholders, and was effective in identifying the right beneficiaries and project areas.

EADD Dairy Value Chain Issues and Implementation Approach

EADD identified key areas for developing a vibrant dairy value chain capable of expanding dairy markets and market access for farmers. Activities focus on increasing dairy productivity, increasing competitiveness, improving the quality of dairy products, improving dairy genetics, improving dairy-related support services, and improving feeding systems, general husbandry practices, and the enabling environment for dairy commercialization. The program is addressing these gaps through the development of the hub model utilizing a BDS approach.

EADD uses a group approach to implement its activities in the identified dairy hubs. By combining research, technological improvements in livestock feeding, breeding practices, and business training, EADD seeks to deliver direct economic benefits to rural farming households in Kenya.

To increase milk productivity, EADD promotes AI, Community-Based Animal Health Workers (CBAHW), and improved feeding. It helps organize dairy producers to form dairy farmer business associations (DFBAs) and develop a dairy hub central to the provision of most of the services that are required by small-scale dairy farmers. The project identifies and trains local SPs and volunteer trainers who then train farmers, and seeks to integrate private-sector providers of veterinary services and animal medicines into the hubs. EADD encourages DFBAs to set up a milk chilling plant (except for traditional markets), which eventually becomes the central component of the hub services. EADD facilitates the establishment of new CPs or rehabilitates existing CPs to effectively bulk milk. This is done by pre-financing approximately 50 percent of the cost, then linking DFBAs with a financial institution from which the DFBA can secure a long-term loan and repay the loan from EADD. The other common services provided by a hub include an agro-vet shop, artificial insemination (AI) services, feed services, and a savings and credit cooperative (SACCO).

A fully functioning dairy hub is a dynamic cluster of services and activities that generate greater income for dairy farmers. The chilling plant creates a sustainable demand for milk in the locality, providing consistent income, improving the quality of milk, and providing credit against the milk supplied to the plant so farmers can buy other services. Farmers can access veterinary services, drugs, and feed on credit from the agro-vet shop, use AI, or take out a small loan.

Figure 2: EADD Dairy Hub Model

It also links dairy farmers through their DFBAs with processors to create higher demand, leading to better terms of trade for producers. The group approach and the linkages facilitated by EADD are effective in mobilizing the farmers to increase market access.

EADD Group Approach and Their Governance

EADD facilitates the organization of farmers into DFBAs, and helps them register with the relevant legal setup. EADD is then able to deal with the underlying organizational issues, including the legality of status, business and power frictions, management weakness, and others. EADD training gives farmer groups the capacity to make DFBAs operate as profitable dairy enterprises. They are then able to effectively define roles and responsibility of their officials, manage common group conflicts, and increase their membership as they see fit. The focus of EADD assistance to the groups is to subsequently form them into cooperative companies running their activities profitably as a business.

Generally, DFBAs integrate into value chain activities at the hub level. There is strong interaction in the dairy hubs involving various players, including input suppliers, dairy processors, etc. Most of the assisted organizations have clearly articulated vision statements, and some have been able to develop business plans. A number have also developed strategic plans, building in financial and reporting procedures. Information and communication channels are also encouraged.

Community members trust the DFBAs' executive committees, which is a major factor in the hubs' governance. Community "peer pressure" from other existing cooperatives and government officials also contribute to the development of stronger governance structures.

Increased Participation in EADD Dairy Value Chain Activities

EADD management structures focus on increasing the cooperation, collaboration, and partnerships of stakeholders in the dairy value chain. EADD emphasizes upgrading strategies and an enabling policy environment for the development of a competitive dairy value chain. The program also facilitates increased advocacy and other membership services; enhanced initiatives and involvement in reducing costs and inefficiencies; improving quality; dairy market promotion; provision of inputs and services; and investment promotion.

The technical support provided has helped participating farmers achieve a greater understanding of opportunities to improve their livelihood security through the production of high quality milk. Milk production has increased dramatically, quality is improving, and the milk value chain approach has increased farmer access to dairy markets. Chilling plants are learning business efficiency, business hubs are providing new integrated services, and farmers now have access to new technologies, including the means to make the transition from traditional to modern breeds through artificial insemination. Farmers are rapidly adopting improved feeding practices and animal health care, and gender-inclusive approaches have encouraged women to participate in the DFBAs as managers and shareholders, and to take part in technical training.

Private Sector Involvement in Dairy Commercialization

EADD design is based on developing robust private-sector services providers as the basis for viable CPs and DFBAs. EADD works with private sector players and actors, including individual business entities, private consultants, agro-vets, milk processors, milk transporters, farmers' organizations, and national-level dairy lobby groups. EADD involves these groups in design and implementation. Private sector players involved in EADD activities include milk processors (New KCC, Brookside, Molo Dairies), transporters (Buzeki), individual animal health technicians, and AI technicians. By and large, EADD has fostered a strong working relationship with private sector interests, contributing to the competitiveness of the value chain.

Increased private sector involvement in EADD activities are due to an elaborate *BDS methodology* and other differential strategies and approaches. The EADD "differential" approaches seek to provide private sector products or services that are "unique" and valued by its clients. EADD differential strategies include the following.

- Facilitating improvements in the dairy value chain, and building on innovative capabilities as it seeks to achieve competitiveness.
- Facilitating adoption of the hub model with embedded integrated dairy services that provide farmers with access to new opportunities for experimentation and participation.
- Promoting market-based approaches that demonstrate better client solutions in partnership with other players in the value chain.
- Adapting to and being responsive to private sector procedures and initiatives.
- Peer education and gender mainstreaming approaches.
- Participatory approaches to enhance private sector participation in EADD activities.
- Creating a symbiotic and respectful relationship among projects and government and private-sector players.
- Incorporating lessons learned from similar projects.

The private sector players contributed to the following.

- Increased business volume at milk collection and chilling centers.
- Increased number of loans accessed through program-linked financial institutions.
- Development and adoption of appropriate technologies in feed formulation and conservation.
- Increased animal husbandry, general extension, and breeding service provision in the project areas.
- Strengthened dairy business organizations.
- Increased awareness of price formulation by the processing organizations.
- Reduced production costs, increased incomes, generation of employment opportunities, and the creation of an enabling business environment.

Improved Competitiveness in EADD Activities

EADD has facilitated increased access to financial services for farmers and service providers associated with the dairy hubs. The initial project proposal stated EADD's intention to create 19 farmer-owned financial service associations (FSAs) to support viable dairy businesses among DFBA members and SPs. In addition to reducing the transaction costs, the establishment of local, farmer-owned FSAs provided financial leverage for EADD beneficiaries by guaranteeing payment for services to BDS suppliers through the "check-off" system. This enables farmers to access services by withholding payment from monthly milk delivery credits. The financial products facilitated by the project have resulted in increased accessibility of dairy inputs and services, and hence, more profitability.

EADD supported and facilitated farmer access to financial products tailored for dairy farmers and developed with micro-finance institutions (MFIs). The financing model is based on a formula whereby member farmers contribute 10 percent of the capital required for CP procurement through share purchase. EADD, in conjunction with contracted micro-finance institutions, finances 30 percent of CPs at zero interest, and the remaining 60 percent of funds are financed through commercial bank loans. The financing for CP procurement also include a facility of US$5 million investment fund to "pre-finance" the procurement of CPs as farmer's equity is mobilized.

Some examples of credit uptake: Fina Bank signed a contract with Kabiyet Dairies to take over the KShs 9,000,000 (US$115,384) loan in 2011; Cooperative Bank is presenting offer letters to Metkei Multipurpose and Lelan Dairies for commercial loans valued at KShs 8 million (US$102,000) and KShs 9.4 million (US$120,000), respectively; KDA extended KShs 20,000,000 (US$259,740) as interest free loans to nine DFBAs. Overall, DFBAs have raised more than US$443,468 though the financial facilities. There are other innovative ways to increase financial support, including targeted financing of input supplies, equipment leasing, insurance products, and third-party credit facilities accessible through dairy processors.

EADD also undertook a Financial Value Chain Assessment (whose results were shared with financial institutions) and mentored financial service providers to develop products suitable for producers and dairy enterprises. The hub model, in which DFBAs act as the nucleus for integrated dairy services, provides centralized embedded services over and above the financial services. The training and facilitation in business planning also enhances access to credit facilities.

EADD support has improved access to financial services and products. EADD facilitated the acquisition of more than 20,000 credit products from the financial institutions (mainly in kind, in the form of dairy inputs). Overall, the dairy credit facilities focused mainly on short-term needs and provided the dairy farmers with tailor-made products with relatively affordable interest rates. The farmers are thus able to secure the credits to facilitate input acquisitions.

Enhanced Collaboration and Partnerships

EADD design and implementation enhanced collaboration with and interest from government institutions, research institutions (ILRI, KARI), private firms (TechnoServe, ABS-TCM) and private processors (New KCC, Brookside, Molo Milk, etc). Interactions with individual consultants and SPs also improved. Collaboration was especially noted between the project and Ministries of Livestock Development, Cooperatives, and Culture and Social Services; Kenya Dairy Board; Dairy Training Institute; Kenya Livestock Breeders Organization; breeding service providers, e.g., Central Artificial Insemination Service (CAIS), World-Wide Sires (WWS), African Breeders' Service Total Cattle Management (ABS); finance institutions (Fina Bank, Family Bank, etc.); local consultants; processors (Brookside, Githunguri, and Molo Dairies); and transporters (Buzeki). This collaboration greatly contributed to the project achievements, especially on the development of value chain linkages.

Table 6: Milk Quality Parameters Achieved (2010)

Quality Parameters	Achieved
Farmers trained on quality	28,702
Milk graders trained (by DTI)	186
CP staff trained	103
TOT accredited by Kenya Dairy Board	94
Samples analyzed by Analabs	82
% rejection	0.16
Aluminum cans purchased in the year	6,285
Transporters trained	328

The government played a facilitative and consultative role through its relevant departments and ministries in overall EADD implementation of the value chain activities.

Table 7: 2010 Milestones and Achievements

Milestone Planned	Project Target	Achieved 2008	Achieved 2009	Achieved 2010	Total Achieved	% of target achieved
Feeds inventory completed	1	1			1	100%
Stakeholder inventory completed	1	1			1	100%
1. Farmer-trainers recruited to teach farmers improved feed practices	257	107	219	737	840	327
2. Farmer-trainers trained in improved feed practices, including 18 fodder-selling farmers	196	36	219	737	992	506
3. On-farm demonstrations established	235	93	219	748	1,060	451
4. Training of extension-providers in high-quality feed production and use	13	1	6	48	55	423
5. Extension providers trained in high-quality feed production and use	167	33	81	680	794	475
6. Stakeholder meetings held to promote high-quality feeds	12	1	7	45	53	442
7. Farmers using high-quality feeds	100000	2000	42318	39621	83939	84
8. Farmers selling fodder	10000		520	1320	1840	18

Research institutions, particularly ILRI and KARI, were involved in the development and roll-out of technologies, services, and products that facilitated development of a competitive dairy value chain.

There is also a strong presence of private sector SPs offering dairy extension services within the EADD implementation area. EADD-trained SPs are linked to the milk hub and receive their payment through a milk "check off" system (payment to SPs is deducted from earnings from milk delivered to the cooling plants). This system has proved effective and acceptable to the farmers. It has therefore led to improved dairy services delivery and increased dairy productivity.

Enabling Environment

The policy environment in Kenya is conducive to dairy value chain development, although more needs to be done. The enabling environment supports a level playing field; quality standards, inspection, and testing of products and services along the value chain; development of market infrastructures; and availability of BDS for the dairy value chain.

Mitigation of Climate Change

Some aspects of climate change mitigation incorporated in program implementation include forestation activities; biogas units; and fodder establishment, management, and preservation. The climate change mitigation is also incorporated into the SP training on conservation, agro-vet sensitization; feeding methods training; housing and dairy structures development; milk transportation and handling; vector control-biological/traditional tick control; and bulking/cooling center operation.

EADD activities also include training on proper use, storage, and disposal of pesticides/acaricides; acquisition of the PCPB certification for drug stores; training of SPs on acaricide use; encouraging environmental campaigns; integration of environmental issues on farmer field schools (FFS) curriculum; minimizing pesticide use; use of fodder trees; use of gabions; and safe storage of animal feeds.

Other livestock climate change mitigation practices include the shifting from grazing to stall feeding; using cattle manure for biogas and fertilizer; proper location and construction of cattle crushes and soak pits; encouraging the use of pour-on's; discouraging use of plastic containers; encouraging milk transporters to use bicycles and donkeys; and encouraging the KDB to stamp out unscrupulous traders who use harmful chemicals to preserve milk.

Synthesis of Impacts and Successes by EADD

EADD has facilitated the formation of 21 dairy farmer business associations, with 110,480 farmers registered and more than 80,000 actively selling milk through the chilling plants (CPs). CPs averaged a daily intake of 213,500 liters of milk in 2011. Farmers have invested more than KShs 340 million in chilling plants and hub-related services, including agro-vet stores, milk tankers, milk collection trucks, financial services associations, and SACCOs providing Front Office Savings (FOSA) services for their members. In the three years of operations, participating farmers have earned an additional US$36 million by selling more than 106 million liters of milk (Table 8).

Table 8. EADD Chilling Plants Progressive Achievements (2008 – Sept. 2011)

Milk Chilling Plants Business Summary	2008	2009	2010	By Sept. 2011	Total
Chilling plant sales US$	3,687,905	6,382,000	11,537,217	20,088,618	41,695,740
Money paid to farmers US$	3,252,339	5,616,753	10,027,429	17,591,412	36,487,933
Total milk sold by farmers Kg	11,862,172	18,588,344	40,312,943	36,066,725	106,830,184
Employment - BDS providers	0	485	254	244	983

EADD has been effective in achieving gender balance among project staff, executive committees, and dairy service providers. Women are included in DFBA membership for the first time in many areas. Female participants in almost all areas directly receive technical training in dairy skills, participate in cross-visits, and act as model farmers and trainers. EADD has also elevated the participation and influence of women through executive committee membership and recruitment of female staff and trainers.

The EADD has increased dairy-related income among poor farmers by expanding access to formal and informal marketing channels. Given the limited capacity of traditional markets to absorb increases in milk production resulting from EADD activities, emphasis was placed on promoting access to under-developed consumer markets, particularly those in urban and peri-urban areas. TechnoServe led the market access activities, including CP procurement and financing.

EADD also worked to expand markets and improve market access by forming partnerships with private dairy processors to provide farmers with reliable buyers. Other dairy market expansion efforts have largely focused on helping CPs negotiate contracts with private processors; encouraging private processors to increase processing capacity; consumer education/promotion campaigns; and seeking opportunities to improve the position of small-scale producers in the dairy value chain.

Milk production increases resulting from EADD activities have attracted the interest of private processors and government stakeholders. Private dairy interests, including New KCC, Nestle, and Tetrapak (milk packaging) have entered negotiations with EADD regarding longer-term, fixed-price supply contracts, and are planning investment in increased processing capacity.

SMALLHOLDER DAIRY COMMERCIALIZATION PROGRAM (SDCP)

Design and Implementation Approach

The goal of SDCP is to increase the incomes of poor rural households that depend substantially on production and trade of dairy and dairy products. It was designed through comprehensive stakeholder consultations and built on previous interventions and knowledge generated in the sector by other programs. Other considerations included the GoK national and agricultural sector policy environment, and the IFAD Country Strategic Opportunities Program (COSOP).

The program has five components:

1. Organization and Enterprise Skills
2. Technical Support to Smallholder Dairy Producers
3. Development of the Milk Marketing Chain
4. Support to Policy and Institutions
5. Program Management and Coordination

SDCP is designed to be implemented through a Market Oriented Dairy Enterprise (MODE) approach, which has three steps. The approach is characterized by a stepwise movement of dairy groups (DGs) toward becoming successful business enterprises that are primarily concerned with milk or dairy products.

SDCP is a pro-poor program for areas where dairy activities are semi-commercial. It adopts an inclusive approach to improve the quality of the DGs dairy herds and build their capacities to participate in dairy marketing activities. Value addition is achieved through promotion of small-scale milk processing enterprises linked to dairy groups working in the project areas. Policy and legal framework reviews are embedded in the project design to support the participation of the smallholders in the dairy value chains. Links with other institutions in the dairy sector are established to improve the delivery of project outputs.

Implementation structures are designed to enable the participation of the target groups, policy and legal institutions, and public-sector frontline staff. Monitoring activities are built in to ensure quick feedback and the resolution of implementation challenges.

SDCP is implemented at the divisional level through focal areas called Dairy Commercialization Areas (DCA). A DCA consists of between 500-800 dairy farmers and can cover a whole division or two or more locations, depending on the concentration of dairy farmers in a division. Each district has three DCAs, meaning 1,500-2,400 dairy farmers per district or 13,500- 21,600 for the whole program coverage.

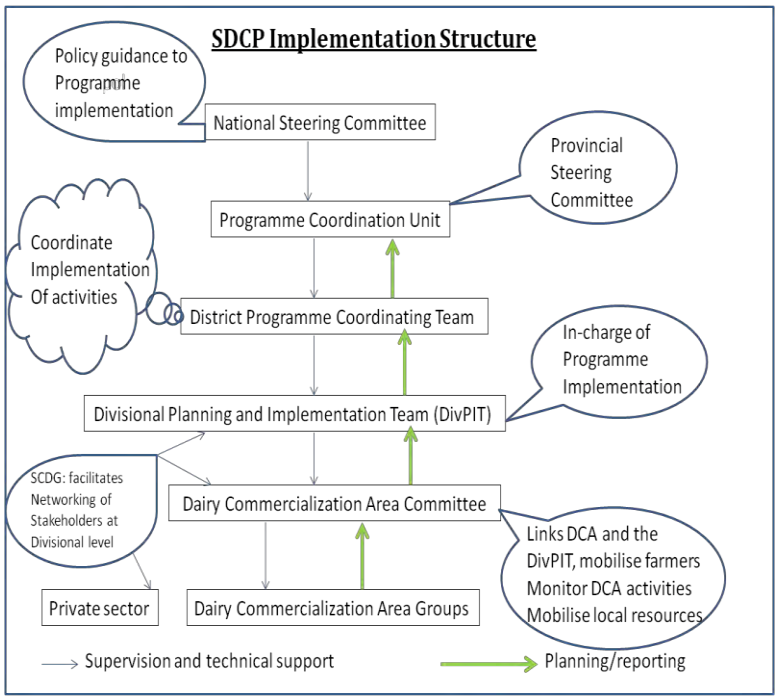
As part of the program implementation start-up, a Participatory Rural Appraisal was conducted in each DCA to identify community needs and challenges. This was followed by the development of community action plans (CAPs) for addressing the identified challenges.

SDCP design recognizes the need for a strong policy and legal framework to sustain smallholder dairy and supporting institutions. The objective is to create policy and legal environments that encourage the economic development needs of smallholder dairy producers, small-scale milk processors, and small milk traders, and to support key institutions to ensure sustainable capacity development and delivery of specialized training for smallholder dairy producers in MODE development.

At the central level, the National Steering Committee (NSC) provides policy guidance to overall program implementation. A Program Coordination Unit (PCU) was established to coordinate the field execution of activities and to handle program administration and financial management (Figure 3).

Specialized assignments and tasks are carried out under contractual arrangements with service providers recruited on a competitive basis with the PCU responsible for supervision.

Figure 3: Smallholder Program Implementation Structure



The design of SDCP and the implementation structure has a good approach in that activities cut across breed improvement, production management, milk production and handling, marketing, and value addition. The management structures at the divisional level also include players from across the value chains.

Dairy Value Chain Development Consideration at Design

Issues to be addressed included poor genetics, poor feeding practices, and poor milk handling by the target groups. Capacity-related issues addressed under this component include: providing beneficiaries with the appropriate technical skills, and supporting them to participate in and

benefit fully from market-driven commercialization of milk production, processing, and trading. Training under this component includes animal husbandry practices, forage establishment and management, animal health, clean milk production, handling and processing, and artificial insemination.

To capture gender-disaggregated data as required under IFAD Results and Impact Monitoring Systems (RIMS), the program, in consultation with IFAD, agreed to harmonize the typology of existing groups in the field with that reflected in the appraisal report. Henceforth, the program reports will reflect the following types of groups: women, youth, self-help, common interest, farmer field school, community-based organizations, and cooperative societies.

Inclusion and Access

SDCP design included criteria that specifically targeted resource-poor farmers. Districts were selected based on a poverty index so that districts with more than 425 of the population below the poverty line were selected. Within the districts, the focus was on dairy-producing areas with resource-poor farmers. Within these areas, target areas were identified using the following criteria:

- milk production and production potential;
- market access; and
- poverty index.

The program design envisioned that a large number of groups and households would benefit directly from project interventions. The implementation approach was therefore designed to achieve the project targets as per the design. The use of a group approach based on DCA, community mobilization, and capacity-building activities improved community participation in the program. Program implementation envisioned group-based activities such as construction of milk collection centers, with beneficiary groups raising 35 percent of the total cost first and the project providing the balance once that amount was achieved.

For extremely poor and vulnerable groups, the project included a dairy goat component which was given to individuals through groups. Beneficiaries within the groups were required to pass on the offspring to other members until each member benefited from a dairy goat. The groups were also provided with bucks for upgrading the local goats through cross-breeding. For a member to qualify for a goat, s/he had to have constructed a housing unit and planted fodder for the goat. Seeds for the fodder were provided by the project.

SDCP provides an excellent pro-poor approach. The identification process is complex, but if conducted well, it ensured good targeting of the poor. The inclusion of a dairy goat component to support extremely poor households with limited parcels of land was helpful to more vulnerable groups.

Private Sector Involvement, Partnership, and Farmer Group Competitiveness

The private sector participated in design through consultation with the appraisal team and workshops to discuss the project design and focus. There have also been concerted efforts to link producer groups with private milk processors which has led to firms signing contracts with producer groups supported by the project for delivery of milk at agreed prices and volumes.

Key areas of private sector participation include capacity building, provision of AI and clinical services, and consultancy services. The program has also linked groups with financial service providers and, more recently, with an insurance firm that offers livestock insurance products. So far, groups have been granted access of up to KShs 34 million in loans from financial institutions.

The linkages between the dairy producers and large-scale processors exist, but are complicated. The large processors have the upper hand in determining the structure, content, and conditions in the contracts they sign with dairy producers. The conditions include ceilings (upper and lower) of milk to be delivered, the price to be offered, and penalties that may be applied in case of breach of contract. The structure of the contract was the same for all the groups we visited who were delivering milk to New KCC. New KCC has also unilaterally downgraded the volumes to be delivered by all the groups, and lowered the price and the length of the contracts from six months to one month.

Collective action has been emphasized as a means of improving returns to farmers through economies of scale in accessing inputs, access to markets, and bargaining power. This has seen the number of dairy groups engaged in collective marketing rise from 122 to 330, thereby creating 2,978 new jobs.

Linkages with financial service providers continued, with the total funds accessed rising from about KShs 31 million in the year 2009/2010 to more than KShs 34 million in the reporting period (2010-2011 annual report), when 2,437 group members benefited from the loans.

The key partners in the implementation of the project were: Kenya Dairy Board (KDB), Dairy Training Institute (DTI), Kenya National Federation of Agriculture Producers (KENFAP), Ministry of Cooperative Development and Marketing (MoCD&M), Ministry of Gender, Culture and Social Services (MoGC&SS), Ministry of Agriculture (MoA), and private service providers.

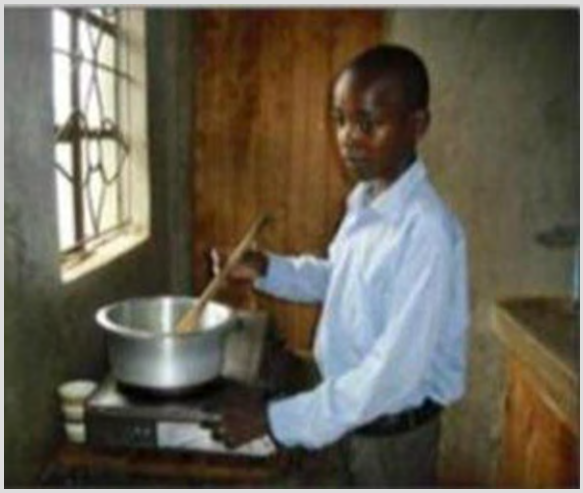
KENFAP has been of great support in biogas activities, where funding from GIZ has been provided to construct biogas demonstration units at the DCA level. Within the program districts, 22 biogas demonstration units have been constructed. KENFAP has also been instrumental in providing a subsidy of KShs 25,000 to individual farmers wishing to construct biogas units.

Enabling Environment

The GoK policies — Vision 2030 and ASDS, among others — clearly demonstrate a move toward commercialization, application of value chain approaches, and value addition in line with project objectives. The program funding arrangement included a grant to support policy and legal reviews within the livestock sector critical for enhancing smallholder participation in the dairy sector.

The program also had funds to support key dairy institutions to enable them to improve support to dairy sector development, especially the smallholder dairy. This includes support for the development of a strategic plan for the Central Artificial Insemination Station (CAIS), and strengthening of the Kenya Dairy Board (KDB) and the Dairy Training Institute (DTI).

Box 5. Mr. Samuel Sitienei (right), a farmer from Moi's Bridge showing his biogas unit and his son (left) cooking using the gas.



Mr. Samuel Sitienei is the chairman of Natwana Muungano Dairy Group in DCA 2 Moi's Bridge, Uasin Gishu District. The biogas unit constructed through the support of the program serves as a demonstration to other farmers. Many farmers are keen to establish the biogas units, although the initial investment cost is a major constraint. Mrs. Sitienei was happy with the cleanliness and use of biogas. It has reduced the time she spends fetching firewood and cooking. She now has more time to spend on other socioeconomic activities. She is excited about the changes in gender roles, as her son sometimes helps prepare meals!

Other Considerations

The program had no specific activities to deal with climate change issues, but looked at potential environmental impacts and mitigation measures. Some activities were implemented to support environmental conservation such as biogas units and energy-saving jikos implemented in collaboration with KENFAP and GIZ (PSDA). So far, 22 biogas demonstration units have been constructed on a cost-sharing basis. Many more have been installed by individual farmers. For example, in Nakuru DCA 2, seven farmers have installed biogas units at their own expense after the initial demo biogas unit was installed. KENFAB provides a subsidy of KShs 25,000/per biogas unit.

The program also promotes the use of dung as manure to improve soil fertility and minimize the use of chemical fertilizers, and promote alternative fodder resources.

Monitoring and Evaluation

SDCP incorporates different levels of monitoring procedures including regular supervision missions by the funding Agency (IFAD); quarterly supervision missions by the Program National Steering Committee and the Provincial Coordination Committee; and field-level implementation supervision through regular visits to project districts by PCU staff to interact with implementing partners. SDCP also designed a community-level monitoring tool for beneficiaries to monitor progress toward the achievement of objectives. It contains dairy group characteristics, production and marketing records, rural finance linkages, cost of labor, skilled jobs, and community contribution. This tool is important in gauging group movement along the MODE. Independent reviews such as Medium Term Review (MTR) have also been built into the program design.

Synthesis of SDCP Success

The use of dairy commercialization groups and registration into producer marketing groups linked to commercial processors through contract arrangements ensures sustainability of the groups and the dairy enterprise. Farmers have realized that they are able to get higher prices and recognition by large processors if they bulk and sell milk together rather than as individuals. Group linkages have also enhanced capacity-building as individual farmers get the opportunity to learn from more experienced farmers in their groups and also through exchange visits/tours.

SDCP is reaching 17,463 households (537 dairy groups) through capacity building, 75 percent of the target of 24,000 households. The program has reached 95,200 beneficiaries against a target of 120,000. Milk productivity in target districts has improved from an average of 4 liters per cow per day to 10.6 liters per cow per day through the introduction of good feeding practices and the improvement of dairy herds. The cost of milk production has gone down by an estimated 23 percent. The increase in milk productivity at lower cost is associated with better feeding approaches, increased production and conservation of fodder by the target farmers, and increased knowledge of on-farm feed formulation by target farmers.

SDCP marketing efforts include 224 dairy groups consisting of 3,755 DG members with collective marketing arrangements, resulting in higher prices paid by the processors. At the time of the review, farmers were getting KShs 7 above the normal market price for selling collectively. Those delivering through groups that own a cooler were getting a chilling bonus of KShs 1/liter. In addition, a total of 2,437 group members have accessed credit from financial institutions in the amount of KShs 34 million.

The program has also trained a core team of community based AI service providers and linked them to dairy farmer groups to provide service at a commission. Other community-level technical persons trained include biogas unit constructors. Currently, an AI service provider is paid a commission of KShs 100 per AI provided.

The analytical work was key to ensuring a well-structured and focused program. It was particularly important in targeting beneficiaries geographically to achieve program objectives.

Implementation structures from the national to divisional level and support to institutions in the dairy sector to build capacity helped ensure that project components received the technical and institutional support needed to succeed. Linkages with other relevant institutions and programs ensured efficiency in project implementation.

The group approach and collective actions by the target beneficiaries improved market access, which was critical for the achievement of program objectives. Delivery of capacity building was also more efficient through groups.

PRIVATE SECTOR DEVELOPMENT IN AGRICULTURE (PSDA)

Design and Implementation Approaches

PSDA seeks to improve market access for small and medium agribusiness players along selected value-adding chains. The program target group is market-oriented farmers and medium and small enterprises involved in agribusiness.

PSDA was designed as cooperation program between GoK and GIZ. Consultations were held during the design stage with relevant ministries and stakeholders in the target districts. The program design also benefited from a baseline survey conducted between December 2003 and February 2004 in the eight selected

districts in the target area. The survey targeted sample farm households, input dealers, service providers, and processors.

The design team used a combination of regional and commodity value chain approaches to minimize transaction costs and stay focused on specific value chains. In selecting the commodity value chains, the design team identified and used 13 criteria options including gender, market access, value addition, HIV/AIDS, and governance, among others.

The main PSDA entry point in the dairy goat value chain is the Dairy Goat Association of Kenya (DGAK). Other associations supported by the project include Meru dairy goat breeders association of Kenya and Kitui/Mwingi dairy goat association initiated by Farm Africa. DGAK is the largest dairy goat association in Kenya and is an umbrella of most of the dairy goat groups from Central, Eastern, Nyanza, and Western Kenya. PSDA has provided funding to groups for capacity building (training), importation of semen, training of goat AI providers, milk supply cans, and transport.

PSDA promotes farmer-to-farmer extension through exchange tours by identifying and training a farmer within the group who then becomes the trainer and service provider for the other farmers within and outside the group. All interventions by the project emanate from stakeholder workshops facilitated by the project. The program also avoids the provision of subsidies to ensure that farmers only invest in areas they consider a priority.

Technical Issues Addressed through Design

PSDA was designed to promote the upgrading of local goats to increase the value of milk productivity. Local goats were selling for between KShs 4,000 and 6,000, while the improved does would fetch between KShs10,000 and 15,000, and bucks between KShs7,000 and 12,000. In terms of milk production, local goats were producing an average of one liter per day versus an average of 2.5 liters per day for improved breeds.

Other areas addressed by the project include the introduction of improved dairy goats for the upgrading of local breeds, provision of AI services, and provision of registration of improved breeds with Kenya Stud Book (KSB) through collaboration with Kenya Livestock Breeders Organization (KLBO). Capacity building of farmers included feeding, disease control, treatment and de-worming, milking, housing, and marketing.

PSDA provides equipment to KLBO and DGAK, and supports groups with tattooing inputs. PSDA has helped DGAK import 1,000 doses of semen from France, and has trained 36 farmers as multipliers, each with at least 5 does of Appendix and pedigree. DGAK will purchase the kid bucks at KShs 15,000. PSDA has also helped DGAK construct three milk collection sheds.

Group Governance

The goat value chain is implemented through DGAK, a national umbrella of dairy goat producer groups. DGAK is an example of a well-managed and functioning farmers association that promotes value chain approaches. Its annual accounts are audited and they conduct regular elections as per the constitution. In the last two years, the organization has posted surplus accounts. DGAK has established critical links with other relevant institutions such as Kenya Livestock Breeders Organization (KLBO), which are critical for its business.

At the project level, the design provided for a project steering committee at the national level composed of GIZ, the project management, a farmers' representative, and key sector ministries. This committee was to provide policy guidance and supervision of program implementation.

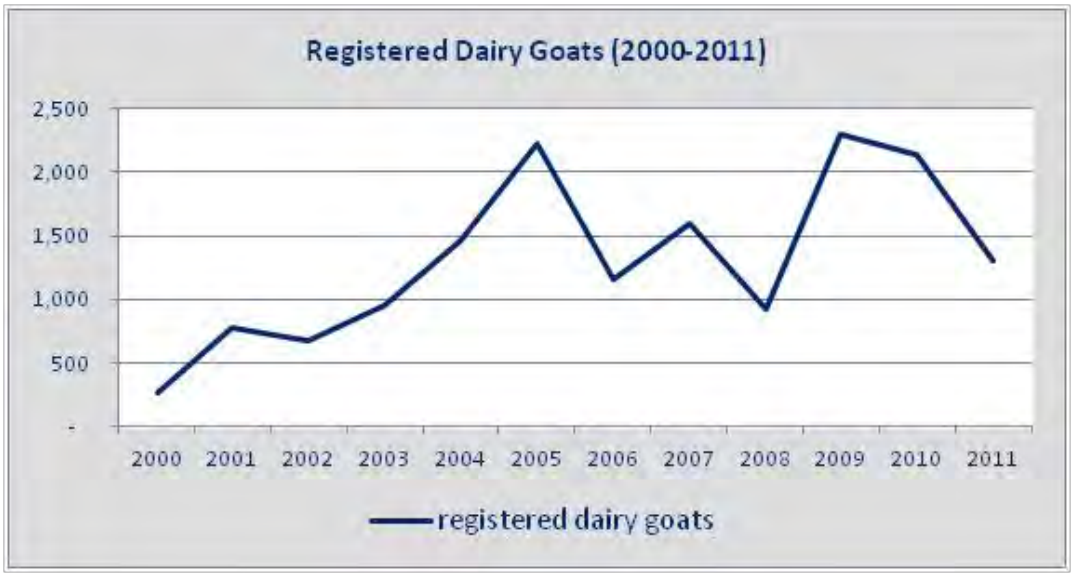
Inclusion and Access

The project is designed as pro-poor and aimed at improving rural livelihoods through increased incomes and employment. The dairy goat component is aimed at helping land resource-poor families to access milk and income as the goats require less land to rear compared to dairy cattle. PSDA uses service providers to build capacities of the value chain players as well as subsidizing some of their activities through small grants. Women and youth are important targets of the dairy goat value chain.

Private Sector

PSDA has helped build the capacity of DGAK and its affiliate member groups and branches as part of its private sector farmer group development. PSDA has also supported activities aimed at registration of dairy goats in the Kenya Stud Book and also in the development of milk recording cards. Between 2000 and 2011, KLBO has registered 15,802 dairy goats (Figure 4).

Figure 4: Source: KLBO



The private sector has played a major role in implementation. DGAK is a private member farmer association that PSDA uses to provide capacity building in dairy goat production. The program has also supported the training of private service providers who are working with DGAK to provide services such as training and animal health to dairy goat farmers.

Partnership and Competitiveness

The main partners for the PSDA project are KLBO, KENFAP, associations (mainly the DGAK), and the MoLD and CAIS. CAIS plays an important role in AI services support in the country; semen supply and storage; and liquid nitrogen supply. KENFAP, KLBO, DGAK/Meru Dairy Goat Breeders Association (MDBA), and MoLD play important roles in extension and training.

KLBO is an important partner in the dairy goat development work through registration of bucks and does. Registration is vital for ensuring that the bucks and does are of the highest quality and important when selling/purchasing the goats. Records of milk production and the lactation period are also important factors in determining the quality of the goats since they are reared for purposes of milk production.

While PSDA and DGAK promote dairy goat activity as a milk-oriented intervention for income generation, the bulk of the income comes from the sale of improved stock to NGOs and individual farmers. A few entrepreneurs are producing milk for sale to hospitals, but the quantities are very small.

Internal impact studies estimate additional goat milk production in 2010 at 11,300 tons. The total additional income generated in phase III by approximately 42,500 improved enterprises with impact attributable to PSDA in the 8 "agricultural" value chains amounts to an estimated KShs 3,017 million (23.2 million Euro). To this total, *smallholder dairy goats contribute KShs 910 million in additional income in the third phase of the project implementation (2008-2010) generated through 10,500 households reached by the PSDA program.*

The dairy goat enterprise as implemented under PSDA through DGAK generates employment at various levels. First, the program promotes use of community-based service providers trained and equipped by the program to provide certain services at a fee. Service providers are able to inspect goats which must be done for registration purposes.

The promotion of resource-friendly technologies has improved health, productivity, and income of the target groups by reducing dependency on and increasing savings from consumption of fuel and charcoal. At the production level, the dairy goat value chain is promoted in a way that it generates manure for use in the household farm to improve crop productivity.

Synthesis of Success in PSDA

The PSDA dairy goat value chain is implemented through groups and aims at building their capacities to upgrade their local goats or to outright purchase and rear dairy goats. The selling point has been the high milk productivity of the improved or purebred goats and the limited fodder necessary to raise them compared to dairy cattle. It is therefore critical to retain the purity of the dairy goat in terms of milk production.

Dairy goat farming has been more successful in the sale of improved animals than with the sale of milk. Concerns have been raised about the authenticity of some of the goats sold as dairy goats as they performed below expectations in terms of milk production. This has led to demand for registration services with KLBO and also recording services of milk production. The program has also provided funds for the importation of semen to avoid potential inbreeding, which could jeopardize the entire intervention.

The dairy goat value chain will remain relevant among rural communities, especially in the medium and high-potential areas facing increasing subdivision of their agricultural land as population expands with limited fodder for sustaining dairy cows, as they need to produce high quality milk for home use with a surplus for sale. There has been remarkable improvement in milk production, from an average of 1 liter to 2.5 liters per goat; the value of goats has also more than tripled, especially when collaborating with KLBO to register the dairy goats under the Kenya Stud Book. In addition, 21 farmers and 9 AI providers have been trained to artificially inseminate goats, and 75 HIV/AIDS peer educators have been trained and are targeting 13,000 group members.

More than 16,500 smallholder dairy goat farmers who are members of DGAK have benefited from dairy goat activities. Sales of dairy goat products reached KShs 910 million between 2008 and 2010. The goats fetch more than twice the price of the local goats. PSDA has also trained community-level service providers, who are earning daily income from the provision of services such as group capacity building, clinical services, and recently, AI services.

Lessons from PSDA Approach and Activities

PSDA capacity building and promotion of producer businesses have been successful. The linkage of the project with KLBO-facilitated registration of bucks and development of tools for milk recording and tagging has increased the value of the goats. The development of strong farmers' associations with a good national network and governance structures has improved farmer confidence in dairy goat activities. Training of community-based service providers paid on a commission basis has ensured sustainability of the interventions and service provision

NATIONAL AGRICULTURE AND LIVESTOCK EXTENSION PROGRAM (NALEP)

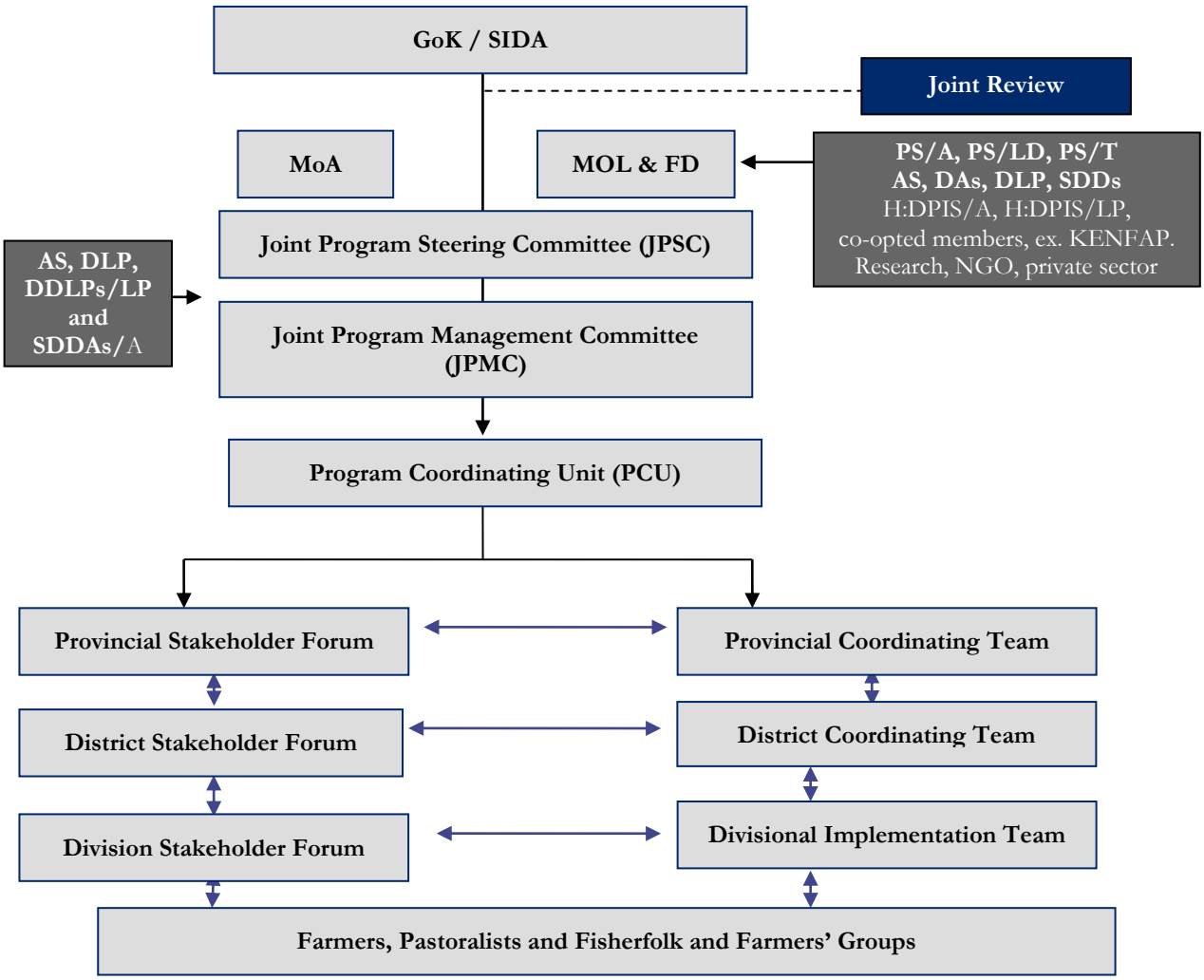
Design and Implementation Approach

The goal of NALEP is to contribute to socioeconomic development and poverty alleviation by promoting the adoption of sustainable technologies for natural resource management in agriculture and livestock production. NALEP II design was based on the lessons from phase I and the need for continuing the government reform program within the framework of the National Agricultural Sector Extension Policy Implementation Framework (NASEP-IF). The design was informed by surveys, studies, and wide stakeholder consultations.

The NALEP approach (Focal Area Approach) involves selection of a location or focal area (FA) within which to concentrate extension activities for a prescribed period of time. Upon completion of the prescribed period, another location, not yet served, is selected and serviced for a similar duration. This is continued until all administrative locations in a target area have been serviced intensively.

NALEP is implemented by both the Ministry of Agriculture (MoA) and the Ministry of Livestock Development (MoLD) with support from the Swedish International Development Agency (SIDA) through technical assistance (see NALEP II organization structure).

Figure 5: Organizational Structure of NALEP II



Actual activities entail mobilization of communities of about 2,000 to 6,000 households within a selected area. The community is encouraged to plan and implement projects of their choice, and to create a forum for interaction with stakeholders, including development agencies (DA). Delivery methods include: (i) participatory appraisals in targeting poor and vulnerable community members; (ii) identification of opportunities relevant and appropriate to the needs of target beneficiaries; and (iii) the formation and capacity development of local grass-roots institutions, including Stakeholder Fora (SHF), Focal Area Development Committees (FADC), Common Interest Groups (CIGs), and Extension Groups (EGs).

Monitoring and Evaluation

The NALEP II revised document (February 2010) noted that "weak M&E lacking participatory component hamper(ed) feedback into the planning and the monitoring of impacts" and that "monitoring and evaluation was weak during NALEP Phase I. It is now a major priority by both ministries to put in place a comprehensive M&E system that embraces participatory M&E. The PM&E system will support technical divisions in both ministries to make sure that all staffs implementing NALEP are well trained and equipped for self-evaluation in implementation of planned activities. Issues on rights, gender, advocacy, governance and environment will be mainstreamed into the PM&E system."

In addition, annual reports, mid-term reviews/evaluation (MTE 2009) and specific studies (Impact on Productivity and Income, August 2011) provide continuous monitoring and evaluation.

Other Considerations

NALEP evolved in 2000 out of the National Soil and Water Conservation Program, which had been supported by Swedish International Development Cooperation Agency (SIDA) since 1974. At the time there were reforms needed in agricultural extension services. NALEP II followed NALEP I as an innovative approach to demand responsive and holistic extension. The Impact Study recommended an extension of the program to the whole country and identified areas where more work should be done to reach the poor, enhance the quality of extension, focus on farming as a business, and include advice on value-added activities. NALEP has detailed information on how to mainstream some of the cross-cutting issues such as gender, HIV/AIDS, drug and other substance abuse, rights and governance, and environment and impact monitoring.

The current NALEP approach of concentrating service delivery in a focal area for one year is considered too short and inadequate for sustainability of the CIGs. Program management and leadership are strongly correlated and contribute to the success or failure of a program. Flexibility during program implementation is at times necessary to correct for any design shortcomings.

Synthesis of the Findings

A Mid Term Evaluation (MTE) in September 2009 found that "NALEP II has very successfully promoted (1) an empowered community demanding quality extension services, (2) a Forum of Stakeholders, mutually being supportive in providing relevant extension services for crops, livestock, fisheries and value-added activities as well as funds and expertise for important infrastructure such as sub-surface dams and water harvesting structures, rural access roads and rural health centers."

The MTE also reported that NALEP II has reached 1,800,000 households through CIGs and farmers' field days since it began. As a result of the application of improved practices and technologies, farmers increased their production of crops, livestock, and processed agricultural produce. Some members of CIGs have increased their income by a factor of two to four within two years, and have moved out of poverty and improved the nutritional, health, and educational standards of their families. Men, women, and youth have benefited. The empowerment of women and civil society in general is the most remarkable result achieved in the program.

Some of the NALEP successes are summarized in the table below:

Table 9: NALEP Successes

	Element	Success observed
1	Approaches to extension	Through Community Action Plans (CAPs), communities in the Arid and Semi-Arid Lands (ASAL) have addressed the lack of reliable water resources by financing rain water harvesting, water pans, and sub-surface dams.
2	Appropriate extension technologies	Partner cooperation in the stakeholder forum has made appropriate and productive technologies available, which are pro-poor and in line with the needs of vulnerable groups, and it has developed a number of productive value-added enterprises.
3	Collaboration among stakeholders strengthened	Promotion of value-added activities such as processing and marketing has been encouraging, and positive results have been achieved with regard to linking farmers to credit institutions.
4	Mainstreaming of cross-cutting areas	NALEP started mainstreaming cross-cutting issues and developing NALEP as a rights-based development program, empowering the communities to demand public services, which resulted in well-managed CIGs and stakeholder fora.

The MTE also has identified the following lessons which the review mission thought to be significant for the planning of future development programs:

- NALEP is cost-effective. This leads to greater sustainable because it is affordable, and therefore replicability without assistance from SIDA.
- The bottom-up planning process with the formation of Focal Area Development Committees, preparation of CAPs, and formation of CIGs, is not adequate to reach the resource-poor, landless young people, who nevertheless have a good opportunity to move out of poverty once they are included in NALEP activities.
- NALEP has empowered communities, particularly women and youth.
- The transformation of household agricultural practices to become drought tolerant is a long-term challenge.
- The potential of the NALEP approach is not fully realized, but the MTE has observed that NALEP is in the process of becoming a learning organization that has the capacity to gradually learn from its mistakes and improve its performance. However, it was also noted that this change is rather recent and perhaps a result of individual qualities in the present NALEP (daily) management team.
- NALEP benefits may not all have become sustainable at the end of the Program Period 2011.

A study of the NALEP implementation process by Martin Mudar Hill of Jönköping University observed that "the biggest strength of NALEP has been the formation and capacity building of grassroots farmer organizations in the form of the CIGs. Through these groups the farmers have been able to survive difficult challenges and increase their individual incomes."

During an interview with Ms. Ema Mbutu, the District Animal Production Officer for Meru Central, she said that the grass-roots institutions (i.e., divisional stakeholder fora and the CIGs formed through NALEP) are sustainable.

LESSONS AND CONCLUSIONS

All the dairy activity designs were more informed by previous interventions (projects) than by value chain methodology. Although two of the assessed programs had pro-poor approaches, all the dairy value chain activities were designed to use a commercial approach (sales of milk) to increase income and/or reduce poverty.

Development of clear criteria for the identification of the project areas and/or beneficiaries is a necessary step in the development of successful dairy value chain activity. Although it is common to select project areas based on administrative boundaries, like the case of the Smallholder Dairy Commercialization Program, the administrative targeting must follow an agreed-upon criteria based on prior identified facilitating/inhibiting factors for dairy commercialization. The process for targeting must be clearly laid out in guidelines at the start of the project; it must not become a process in its own right and it must not lead to unnecessary delays. It can never be perfect, but it must neither alienate nor divide the communities the project intends to serve. It is also necessary to clearly define from the start whether the program is pro-poor.

All the programs assessed had partnerships of some sort, but of all them, the EADD model is good model for partnership development and planned coordination of different actors. The partners have clear mandates and roles and offered different expertise. The program also provides the best working model for adoption in terms of exit strategies.

The KDSCP implementation structure, with each milkshed managed by a full-time employee (coordinator), under the supervision of the PCU through a privately appointed milkshed team leader, was somewhat successful. It is, however, necessary to do a more in-depth study of how the model worked and the cost-benefit of such an arrangement.

The stepwise process partly contributed to the realization of the overall KDSCP outputs, as it provided a good approach to cause-effect analysis, leading the program to simulate and later develop working solutions using the BDS methodology. The approach proved to be innovative and helped to enhance credit provision to farmers and contributed to the program's achievement of its strategic objective of competitiveness. Increased collaboration greatly contributed to the achievement of the projects' activities, especially on the development of stronger vertical and horizontal linkages by the actors within the value chain, although the vertical linkages are not as firm as the horizontal linkages.

The facilitative approach adopted by KDSCP during the implementation of the program was effective in triggering the self-sustaining mechanisms by the service providers (SPs). This approach, with no direct interventions other than capacity building, leverages significant non-donor resources to facilitate market-based solutions.

The KDSCP designs incorporate local Kenyan resources mobilized through a competitive sub-awards program to supply project beneficiaries with the necessary BDS and financial products required to catalyze market growth and foster industry competitiveness.

The orientation of the projects toward stimulating investment in research and dissemination of new market-based services, inputs, and technologies that directly increase the competitiveness of dairy enterprises along the value chain and ensure environmentally sustainable commercial dairy practices is also more pronounced with KDSCP, although it is common to all.

The EADD milk hubs and chilling plants work well as models for learning business efficiency and providing new integrated services where farmers are able to access new technologies, including the means to make the

transition from traditional to modern breeds. It is important, however, that the beneficiary community be more committed to the idea through a greater contribution at the beginning. The approach to monitoring of project inputs has to be streamlined and made more systematic within and between partner organizations to avoid unnecessary administrative overload on field staff. This is clearly exemplified in the EADD project.

A more systematic approach to results monitoring needs to be adopted by projects to ensure that a baseline reference is developed and similar indicators contribute to reviews and evaluations of the projects, and that a broader picture of the interventions can be developed for assessing overall impact and institutional learning. Again, this is clearly seen in the EADD project.

All the programs assessed score high on facilitating smallholder participation in the dairy value chain. The use of groups as the entry to program interaction with beneficiaries creates strong horizontal linkages. Some programs (e.g., NALEP and SDCP) put effort into forming groups, while others (e.g., KDSCP, EADD, and PSDA) use existing groups. KDSCP, EADD, and SDCP have performed better in facilitating milk production and sales, and in increasing rural household incomes. These three and PSDA have also contributed to dairy value chain productivity, and to some extent, to competitiveness. Employment generation exists in KDSCP and EADD and, to some extent, the SDCP activities. All the programs are pro-women and support youth participation and all have built-in monitoring systems to ensure that women and youth are involved.

The existence of markets for and access to milk and inputs is critical to the success of the dairy value chain. For smallholder dairy producers to benefit from reliable market access, collective action to facilitate sales of commercially–viable quantities is necessary.

The five assessed programs varied in their implementation approach. For example, the KDSCP approach was to intervene through a milkshed, defined as an area with the potential to produce 50,000 to 100,000 liters of milk per day, and use a stepwise methodology in which it first identified the constraints and opportunities to competitiveness along the critical nodes in the value chain. This was followed by identification of market-based solutions to competitiveness constraints that can be overcome utilizing commercial BDS providers. Lastly, it assessed the most viable and priority solutions in the target area. The SDCP also used a stepwise approach, but based it on capacity building of the groups to move them through three levels of development. EADD works with existing groups and facilitates capacity building, access to financial services and the milk market, and both horizontal and vertical linkages.

We conclude that the assessed dairy value chain activities are successful and can be replicated, with some modification depending on target groups and objectives. These interventions were, to a large extent sustainable due to the level of community participation, the participatory nature of the process, and the support of a large array of dairy stakeholders. However, future growth in dairy value chains will require more attention to vertical linkages and alternative market channels.

KDSCP seems to be the only project with some activities targeted toward commercial milk processors and that focuses mainly on milk quality improvement. The programs are doing a good job in facilitating milk producers' participation in the dairy value chain, but there is almost nothing in the assessed activities that is addressing the issues of market access by processors.

The processed dairy product market seems to be limited and the so-called formal market only handles about 20 percent of the total marketed milk production capacity of the country. Increasing productivity of the producers without similarly boosting the capability of processors may see the effort come to naught.

There is also very little effort to work with the so called "informal" dairy value chain, which handles roughly 80 percent of marketed milk production. This market is essential to the future growth of the dairy sector, and as a contribution to increased household income and child nutrition.

RECOMMENDATIONS

The assessed activities were influenced by past interventions and lessons learned from them. It is therefore important for the future designs of new project activities to learn from the current activities in the value chain.

The KDSCP model seems to provide the most lessons based on the conclusions above. This includes the stepwise approach in which it first identified the constraints and opportunities, competitiveness along the critical nodes in the value chain to ensure ownership by the beneficiaries, and then success and sustainability. Illustrative solutions include utilizing commercial BDS providers, and assessing the most viable and priority solutions in target area. This approach is therefore worth future consideration.

The EADD hub approach works well in commercialization of the dairy value chain at the producer end. This is recommended for future use. It works well with the formal dairy value chain, but it should also be tried with the informal market.

The SDCP approach, the Market Oriented Dairy commercialization, is better suited for pro-poor dairy value chain interventions at the producer level. This facilitates participation of rural farming poor who have no dairy (grade) cattle; however, it may require subsidies for it to work. It is worth consideration when a program is targeting the very poor of the farming communities.

It is important to have some future dairy value chain development interventions address vertical linkages beyond the milk producer; that is, facilitate the processor's ability to increase sales (both local and export) and also have activities and interventions to increase local consumption of milk and high-value dairy products such as cheese.

We recommend a joint dairy value chain assessment, covering both the formal and informal markets, as the basis for designing future interventions. The last comprehensive Kenya dairy value chain analysis was conducted more than 10 years ago. With the dynamism in the national and global dairy market, designing interventions without current information may cause a lot of harm to the design and result in ineffective interventions.

Formulation of future projects should ensure greater involvement of the private sector in the design, development, and implementation of dairy activities for sustainability after cessation of donor funding. Specifically, all dairy value chain stakeholders should:

- Define the roles, activities, responsibilities, and outputs for each partner;
- Set priorities and agree on the implementation approach;
- Come up with strategies for resource mobilization and agree on how to conduct joint planning;
- Agree on how to jointly execute planned activities.

ANNEX C.1: KENYA DAIRY VALUE CHAIN BACKGROUND INFORMATION

GENERAL INTRODUCTION

Agriculture and forestry contribute slightly more than 20 percent of gross domestic product (GDP), down from 27 percent in the 1990s and 22.7 percent in 2007. Livestock contributes about 30 percent of agricultural GDP and about 10 percent of total GDP. Dairy products (excluding live animals) contribute 30 percent of livestock GDP and more than 22 percent of livestock's gross marketed products.

The dairy industry's importance to Kenya's economy is its contribution to the livelihoods of the many people engaged throughout the value chain and to the nutritional well-being of many rural communities. Dairy has the potential to contribute more to national development goals, and a review of its development activities can provide understanding of the sector's growth needs, helping to make informed decisions.

MILK PRODUCTION, PRODUCTION AREAS, AND SUPPLY PROJECTIONS

Kenya has the most developed smallholder dairy industry in Sub-Sahara Africa, with a herd of about 3.4 million head of dairy cattle (2009 Census) composed of approximately 50 percent pure dairy breeds and 50 percent crosses or mixed breeds, 14.1 million head of zebu (local breeds) cattle, 3 million head of camels, about 200,000 head of dairy goats, and 27 million meat goats. For this review, the focus is on the cattle dairy herd.

Average milk production per improved dairy cow is estimated to be about 1,800 liters a year, or about 4-7 liters a day. Average milk production per zebu cow is about 250 liters a year, which is about 0.5-1 liters a day. Annual milk production from all the dairy animals combined is reported to be between 3 and 5 billion liters. This is around 10 million liters a day from all species or about 7 million liters a day from the dairy herd alone (about 7 liters a day per smallholder daily producer). The farm gate price of milk is about KShs 25 per liter (about US$0.28). The price of a good dairy cow (pedigree recorded with Dairy Recording System of Kenya) is about KShs 80,000 to 150,000 (US$900-1,700) while the price of dairy cows from ordinary smallholder farmers is around KShs 30,000-60,000 (US$350-700) per head.

Table 10. Estimated Population of Dairy Animals and the Percentage Contribution to Annual Milk Production

	Breed type	Estimated number ('000)	Estimated annual milk production (m kg)	Milk production (% contribution)
Cattle	- Improved dairy type - Zebu	3,400 14,100	2,500 640	60.3 15.4
Camels	Camelus dromedarius	3,000	750	18.1
Goats	- Indigenous (East African) - Improved dairy type	27,600 200	250 7	6.0 0.02

Source: Developed from Census 2009 and Ministry of Livestock Development information

There are more than one million smallholder dairy farmers who produce more than 80 percent of market milk. On average, each smallholder dairy farmer has about 2-3 dairy cows. There are also about 200 large-scale farmers with about 100,000 to 250,000 head of grade cattle among them (this estimate is not robust).

The dairy cattle are concentrated in Central Rift Valley, Central, parts of Eastern, Nyanza, and Western provinces, which account for about 47-53 percent, 23-28 percent, 9-10 percent, 5-7 percent and 2-5 percent

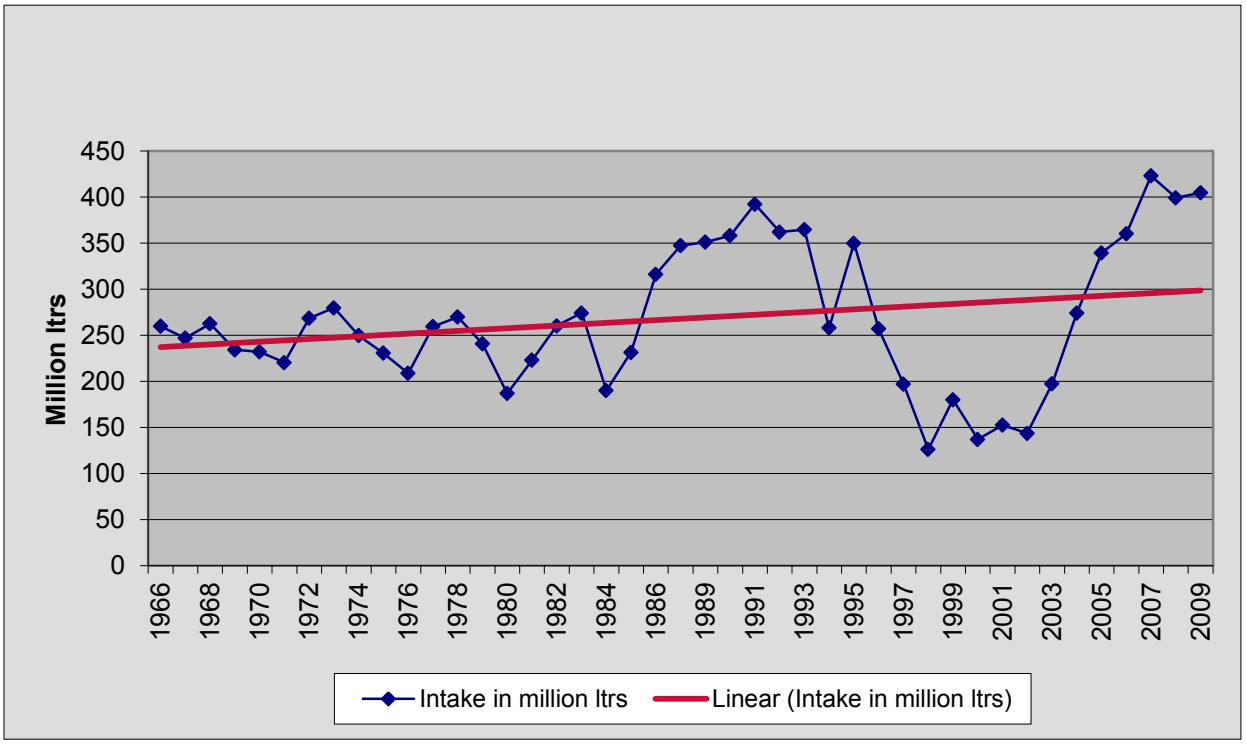
of the dairy cattle population, respectively, and they similarly contribute to total milk production from the dairy herd.

Table 11. Estimated Milk Production and Milk Marketed Formally in Kenya, 2001-2010

Year	Milk Production – reported (in billion liters)	Marketed Formally in m. liters (reported)
2001	2.8	152
2002	3.1	144
2003	3.2	197
2004	3.3	274
2005	3.4	339
2006	3.5	360
2007	3.8	423
2008	4.2	399
2009	4.2	407
2010		516

Source: Modified from the Draft Dairy Master Plan (2010)

Figure 6. Formal Milk Intake in Million of liters - 1966 to 2009



The following growth rates have been used to project the future (2020 and 2030) total milk production for Kenya (Dairy Master Plan, 2010): low growth rate – 1.5 percent; medium growth rate – 2.5; high growth rate – 6 percent for both total milk production and milk supply to the formal market. These growth rates are more conservative than past projections.

Table 12. Milk Supply Projections (for 2020 and 2030) in Millions of Liters for Three Growth Scenarios: Low, Medium, and High

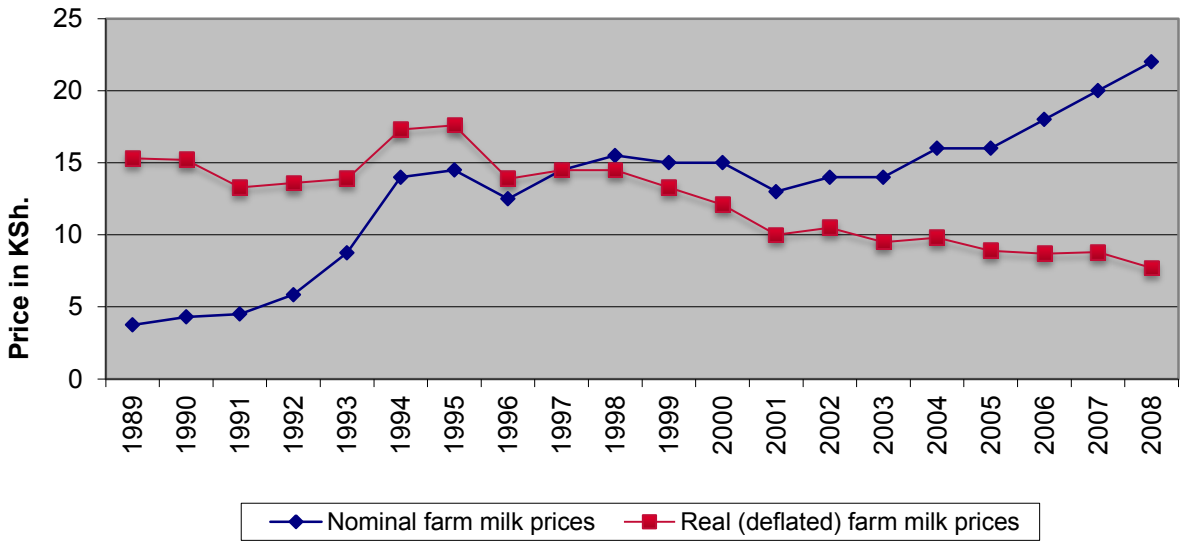
Year	Growth for Different Scenarios					
	LOW		MEDIUM		HIGH	
	1.5%		2.5%		6%	
	Total* production	Formal supply	Total production	Formal supply	Total production	Formal supply
Projections based on 2009 estimates	4,200	405				
2020	4,950	480	5,510	530	7,970	770
2030	5,740	550	7,050	680	14,280	1,380

Source: Based on the Dairy Master Plan (2010)

* For total milk production, the estimates considers all milk from the dairy species (cattle, goats, and camels)

The most likely scenario is where the total milk supply will trend the low projections while the formally marketed milk will fall somewhere between the medium and high projection, although past long-term growth rates have been on the lower side. However, the growth rate since 2002 (Figure 6) for the formal market has been astronomical.

Figure 7. Farm Gate Prices (Nominal and Deflated) 1989-2008



Increased per cow productivity is expected to come from improved management, particularly from feeding (potential intervention by most development programs) and continued favorable farm gate milk prices, although the past real price trend shows continued real price decline (Figure 7).

MILK MARKETING

The milk marketing system in Kenya is challenging; particularly because of the size and efficiency of both the formal and informal market (about 20 percent and 80 percent of the marketed production respectively – Figure 1). The pathway from production to consumption is complex because of the multitude of market participants and a diverse consumption culture in the country. As often stated, almost half (40-45 percent) of

the milk produced is expended at the producer household between the farm family and the calves. Of the marketed production, some is sold unprocessed directly to the neighborhood (about 40 percent). A similar amount is sold directly to consumers through the cooperatives, shops, and kiosks, totaling about 80 percent of the marketed milk that goes through a complex system of unprocessed milk pathways. The processing pathway handles about 20 percent (Figure 1). In both the unprocessed and processed milk pathways, milk can at times pass through many intermediaries before reaching the consumer.

There has been a lot of effort in the past to set up cooling facilities in the milkshed. A mapping of coolers in Kenya in 2004 located 162 milk coolers with a daily capacity of 1.4 million liters, though most of them were not functional. The cooler total had risen to 193 in 2007, although the total capacity was revised downward to 1.3 million liters a day. Since 2007, more coolers have been established including 14 by EADD. One reason why most of the coolers are not working is that they were pushed onto users without proper needs assessment. Another major reason is that cooling adds costs for which the market does not adequately compensate.

Total installed processing capacity is said to be about 2.7 million liters a day, but capacity utilization may be around 30-50 percent. The reported capacity is based on annual licenses by the Kenya Dairy Board (KDB). Much of the referred capacity, particularly with New KCC, may be obsolete, although there has been much talk about modernization of the facilities. The registered plants/processors fluctuate at about 30-35 licensees. New KCC and Brookside have the largest capacities. Brookside has become the largest processor in the country after buying out most competitors. Githunguri leads in cooperative processing. There are also about 200-350 milk bulking centers/cooperatives, but less than 50 percent are operating. There are about 85 mini-dairies with average capacity of 5,000 liters a day and about 55 licensed cottage industries with an average capacity of 500 liters a day.

In the past, Nairobi and Mombasa constituted more than 90 percent of the formal milk market. Together with other major towns (Kisumu, Nakuru, Eldoret), they consume the largest market share for milk, both from formal and informal value chains. As a result, major processing facilities have been established within Nairobi and its environs.

The processing sector has been going through some form of consolidation in the last 10 years or so, with one firm, Brookside, acquiring most of the private competitors and emerging as the largest milk processor in Kenya. The other main competitor is a government parastatal cum farmers/cooperative processor: the New KCC.

Kenya oscillates between net exporter and importer of dairy products, but can be termed as self-sufficient in milk and dairy products with a potential to be a net exporter. It exported less than 15 million liters in liquid milk equivalent (LME) in 2007, which is about 3.5 percent of the total milk processed in the country: less than 1 percent of the dairy cattle production and about 1 percent of the marketed production. At the same time, imports were less than 3 million liters LME: about 20 percent of the exports and less than 1 percent of the processed milk.

DEMAND AND SUPPLY PROJECTIONS

The demand for milk and milk products may not be well understood, and it is commonly alluded to through per capita consumption, which is a measure of milk availability in the country. It is estimated that about 60 percent of milk produced in the country (from the dairy herd) is marketed, (about 1.5 billion liters a year or about 4 million liters a day, of which about 15-20 percent is processed, which is about 420 million liters a year or 1.2 million liters a day). Per capita milk consumption/availability (LME) is about 110 liters. Of the

processed milk, about 95 percent is liquid products such as pasteurized milk, ultra heat treatment (UHT), yoghurt, etc., and 5 percent is solid products such as cheese.

Demand for milk in Kenya can be specified in many ways, such as in terms of total milk demand at the farm level (the derived demand), demand for liquid milk, demand for manufactured products, demand at the retail level (the primary demand), and many others. Demand for dairy products is difficult to project since information is scant.

Table 13. Population, GDP, Total Milk Available, Per Capita Milk Availability, and Different Growth Rates

YEAR	Human population estimates (000)	Annual population growth rate (%)	Annual GDP growth rate (%)	Per capita GDP (US$)	Estimated milk production (in m. ltrs)	Milk per capita availability
1999	28,673*	2.7	5.8	307	2,672	93.19
2000	30,431	2.7	5.9	317	2,639	86.72
2001	31,312	2.6	6.3	329	2,796	89.30
2002	32,223	2.6	6.7	342	3,132	97.20
2003	33,171	2.6	6.7 (2.9)**	356	3,196	96.35
2004	34,179	2.5	6.7 (5.1)	371	3,300	96.55
2005	35,139	2.5	6.7 (5.7)	387	3,400	96.76
2006	36,139	2.4	6.8 (6.1)	404	3,500	96.85
2007	37,184	2.4	8.2 (7.1)	427	3,800	102.20
2008	38,278	2.3	8.2 (1.7)	452	4,200	109.72
2009	38,610*	2.3	8.3 (2.5)	479	4,200	106.54
2010	40,406	2.2	8.3 (5.0)	509		

Using various past demand calculations and consumption (availability) trends (Table 13), demand is projected as indicated in Table 14.

Table 14. Estimated Total Milk Demand and per capita Availability for 2020 and 2030

Year	Projected human population ('000)	Change in derived demand (%)	Total derived demand (in m. liters)	Per capita annual consumption/ availability (in liters.)
Projections based on 2009 estimates	38,610		4,200	106.54
2020	51,723	3.7	6,040	117
	(2.5% growth)	5.4	7,106	137
		6.9	8,185	158
2030	63,050	3.2	8,276	131
		4.9	11,465	182
		6.4	15,221	241
Estimation using trend (2.8% annual total milk availability growth) and same population as above				
2020			5,536	107
2030			7,297	116

Source: Composed from various sources (Statistical Abstract – Kenya Bureau of Statistics, Industrial Transformation to the year 2020 and MoLD)

*Actual census reported population – the rest are projected population estimates using between-census growth rates ( ) **Reported GDP Growth Rate

EMPLOYMENT CREATION AND POLICY

The dairy industry is said to employ more 500,000 people along the value chain and more than 750,000 in the support services over and above the more than one million smallholder dairy farm families (Ministry of Livestock Development).

The policy and institutional environment for the dairy industry in Kenya has improved in the last decade although there is much more to be done, especially in the involvement of stakeholders in policy and regulatory decision processes. Policy is also lacking in the area of dairy business ethics and transaction contracting. The smallholder producers and market actors have not adequately been mainstreamed in the policy and decision processes, although there have been efforts to do so.

In the interim, while the country strives to install mechanisms to develop a dairying system that does not depend almost entirely on the weather (to produce milk and ensure predictable and constant supply), policy options are developed that will encourage use of self-regulations to protect all the players from predatory competition brought about by the irregular milk supply. Some suggested options will include introduction of rules that ensure that dairy industry players form common interest (producers, processors, milk traders, etc.) groupings which will develop binding by-laws to members. One of the areas that should be of interest is ensuring that in a given production area (milkshed), the producers/players are able to influence production and marketing of milk without necessarily being punitive to others and are able to protect themselves from the divisive tactics that are sometimes employed by large market players.

ANNEX C.2: KENYA DAIRY SECTOR COMPETITIVENESS PROGRAM (KDSCP)

SUMMARY OF KDSCP's KEY SUCCESSES

25% of program facilitators are women.
38% Female and 41% male practicing zero-grazing.
4.98% Female and 5% Male using Biogas technology.
74.5% Female and 72.8% Males adopt AI.
A deliberate effort is made to ensure 30% of all program beneficiaries are women.
A total of 11,924 farmers registered in the e-dairy Portal that included 3,666 women (30.7%).
A total of 36,734 farmers linked to credit facilities with about 36% of them were women.
A total of 86,979 dairy farmers trained with about 40% were women.
About 40% of program beneficiaries use feed conservation technologies (11% baseline).
Artificial Insemination use rose to 59.5% (baseline 39.9%).
Collaborated with the MoLD to review the National Dairy Master Plan and align it with Vision 2030.
Facilitated over 20,158 (36% women) farmers to acquire credit. 18,758, received credit in kind.
Imparted over 30,000 farmers (23% female) with technical skills in dairy husbandry.
KDCSP is working with over 600 SPs (80% youth).
KDCSP leveraged an estimated US$ 3.4 million in 2010 in non program resources.
KDSCP activities employment at 5,466 new jobs was created in the program area.
Facilitated "fairer prices" for SBOs (from KShs 23 per liter to 29), and Mathera (from KShs 23 to 27).
KDSCP facilitated the development of The Dairy Regulation text.
KDSCP facilitated the undertaking of consumer preference study through DTF.
KDSCP farmers' incomes increase by 30% cumulatively.
Facilitated over 13,000 (5,209 women) farmers acquired credit amounting to over KShs 88, 000, 000.
KDSCP has reached about 120 farmer group with noticeable presence of youth.
KDSCP held one (1) milk consumption campaign in the country. Over 7,500 people were reached.
KDSCP linked all the over 80 farmer groups with service providers.
KDSCP linked over 120,000 farmers to BDS.
KDSCP organized and facilitated capacity building forums for 300 SPs.
KDSCP cow productivity at 10.4 liters per cow/ day (6.5 liters per cow/ day in the baseline survey).
KDSCP reviewed/updated 18 dairy standards/regulations and finalized development of the Good Manufacturing Practices (GMP) and the Dairy Code of Practice manuals.
KDSCP trained 38 Kenya Dairy Board (KDB) regulatory inspectors on Pasteurized Milk Ordinance and regulatory inspection.
KDSCP worked with Greater Access to Trade Expansion (GATE) to identify gender constraints.
Reached over 40,000 other beneficiaries indirectly through the breeder shows and exhibitions.
Reached total of 213,848 households (94,093, 44% being women) reached.
Transformed over 80 producer organizations/SBOs into sustainable business organizations.

Source: Compiled from various KDSCP reports

EVALUATION FINDINGS – KENYA DAIRY SECTOR COMPETITIVENESS PROJECT (KDSCP)

BACKGROUND

KDSCP is a five-year program to improve Kenya's dairy industry competitiveness, implemented by Land O'Lakes, Inc. (LOL) since May 2008, with financial and technical support from USAID. It aims at *increasing smallholder household income from the sale of quality milk*, targeting more than 300,000 farmers and more than 250 dairy industry SPs per year. It builds on KDDP, a precursor competitiveness project.

KDSCP seeks to strengthen and upgrade key points along the dairy value chain to meet growing domestic and regional demand for safe, hygienic, and affordable milk and value-added dairy products. It integrates gender balance and environmental sustainability and has three broad components; i) upgrading the capacity of the dairy industry to compete in local, regional and international markets; ii) transforming dairy smallholder business organizations into viable enterprises that supply quality milk to the market and facilitate access to critical services and inputs to farmer-members; iii) strengthening support markets, and increasing the availability and utilization of market-link dairy BDSs, inputs, and technologies provided by BSPs to dairy enterprises.

KEY FEATURES AND/PROCESSESS RESPONSIBLE FOR KDSCP SUCCESS

The Effectiveness of KDSCP Processes and Design

KDSCP Targeting, Timing, and Entry Strategies

KDSCP is a pro-poor, five-year competitiveness project targeting smallholder dairy farmers in eight milksheds with the potential to produce between 80,000 and 100,000 liters of milk per day (i.e., Gatanga, Kabete, Kinangop, Nakuru and Kericho). KDSCP used participatory consultative processes to engage the dairy stakeholders during its design, which involved various public and private actors.

Apart from consultative processes, as an entry strategy, KDSCP undertook value chain background studies to inform the technical issues it seeks to address. These comprehensive studies comprised a *Business Development Services (BDS) Diagnostic Study;* and a *Milkshed Mapping and Dairy Value Chain Competitiveness Study.* The studies helped identify problems in a BDS market, and led to a better understanding of market opportunities, weaknesses and constraints to the sustainable BDS environment. Also, market states, needs and sustainable, effective market-based interventions that would contribute to the project impacts were identified.

This evaluation resulted in these processes being incorporated into the design of KDSCP, and thus contributed to the success recorded by the project. The design was appropriate for addressing the causal-effects modal identified by the studies.

In particular, the targeting used was participatory, the consultative processes were all inclusive, and the background diagnostic studies were appropriate. Overall, these processes contributed to the effectiveness of design, specifically to the identification of the indicators and choice of activities.

Design Flexibility and Ability to Internalize Lessons

The evaluation identifies the following factors/processes as indicators of the ability of the design to be flexible, while at the same time maintaining its focus on increasing dairy competitiveness. These were:

- The use of a facilitative approach by KDSCP to design market-based solutions.

- KDSCP design advocated the use of local Kenyan resources mobilized through competitive sub-awards to supply project beneficiaries with the necessary BDS and financial products required to catalyze market growth and foster industry competitiveness.
- Though a dairy program, KDSCP incorporated gender, youth, HIV/AIDS and environment conservation.
- The integration of good governance in the design and implementation process facilitated flexibility.
- Community empowerment through training contributing to dairy competitiveness.
- The milkshed models facilitate learning business efficiency and provided new integrated services where farmers are able to access new technologies such as means to transition from traditional to modern breeds through artificial insemination.
- The peer education approach to learning, with farmers being able to rapidly adopt improved feeding practices and animal health care, also facilitated effectiveness.
- The gender-inclusive approaches encouraged women to participate in dairy activities.
- KDSCP design rightly conceptualized the technical approaches and strategic framework to the needs of targeted beneficiaries. For instance, it was able to capture and utilize existing knowledge regarding small-scale dairy development at the community and household levels, and capture lessons learned from its implementation in milksheds.
- KDSCP also adapted and responded well to government procedures and initiatives resulting in an enabling environment for dairy commercialization, e.g., the fast-tracking of the Kenya dairy policy.

TECHNICAL APPROACH

KDSCP Strategic Framework

KDDP, the precursor USAID-funded competitiveness project, identified key constraints to successful dairy commercialization. As a successive project, KDSCP focused on addressing constraints.

The background studies and consultative processes further reinforced these gaps in dairy value chain. This justified the choice of interventions to address the identified competitiveness limiting technical gaps. The technical issues addressed by KDSCP are:

- Poor dairy genetic/breeding material
- Poor feeding strategies
- Inadequate dairy commercialization support services (extension information services and systems such as clinical services, financial services)
- Low quality of milk, low milk production (inadequate bulking)
- Poor dairy market access and opportunities
- Inappropriate dairy commercialization enabling environment

Qualitative evidence indicates that KDSCP addressed these technical issues through an array of market-based solutions, focusing on development of commercial BDS and promotion of embedded service delivery by SBOs, processors, and input and service providers.

Overall, the BDS methodology was appropriate and effective in addressing the above technical issues along the dairy value chain and contributed to its increased competitiveness.

KDSCP Implementation Effectiveness

KDSCP promotes a market-driven value chain approach, utilizing a BDS methodology. The BDS provides commercial, market-rated fee-based services generating incomes along the value chain levels, and embedded services whereby the costs of the service is either deducted from the farmer's milk check, budgeted for in the operational costs of the embedded service or passed on to the consumer in the final price of the provider's product. The evaluation concurs with KDSCP that the most efficient means of linking smallholders to support services and inputs on a sustained, market-price basis is through dairy-oriented input supply businesses that service producer needs through dairy BDS providers.

Expansion of BDS services also presents a good opportunity for creating employment for rural women and youth in Kenyan communities where women provide much of the labor.

In this regard, the choice of the BDS methodology was appropriate and effective in minimizing market distortions and enhances competitiveness and service quality. Interviewed SPs also expressed their support of and preference for the BDS method.

Box 6. SBO Outputs

- KDSCP has reached about 120 farmer groups with a noticeable presence of youth
- KDSCP has transformed more than 80 producer organizations/SBOs into sustainable business organizations
- KDSCP linked more than 80 farmer groups with SPs
- KDSCP organized and facilitated capacity building forums for 300 SPs

Implementation Strategies and Steps

KDSCP utilizes a group approach in the eight *milksheds* to facilitate the BDS approaches. It organizes dairy farmers into dairy SBOs (cooperatives, dairy groups, federations, etc.) and facilitates the legalization (of those unregistered entities) to enhance market access and the provision of dairy-related services.

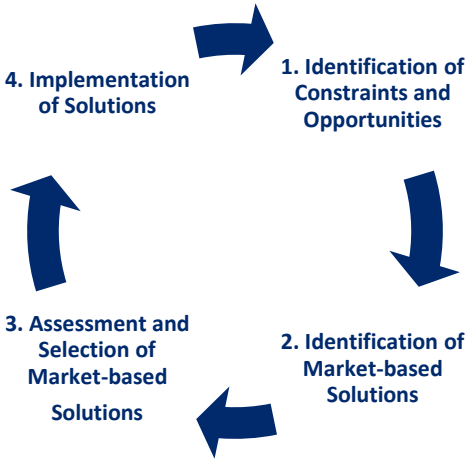
This evaluation summarizes the steps for implementation as follows. To achieve the BDS approach, KDSCP uses a stepwise method highlighted below.

- KDSCP identifies key constraints/opportunities to competitiveness at critical points in the value chain.
- KDSCP identifies market-based solutions to competitiveness constraints that can be overcome utilizing the identified BDS providers.
- KDSCP assesses the most viable and prioritizes the most critical solutions in target area.

By and large, this evaluation concurs that KDSCP's group approach was appropriate in addressing technical constraints, enhancing commercialization, and exploiting potential market opportunities.

In our opinion, this promises to increase market access and competitiveness, and spur growth of the sector. The stepwise approach was also appropriate and effective; it allows the right interventions/solutions for identified dairy constraints.

Figure 8. KDSCP Stepwise Method



Apart from the methodology, this evaluation has identified the following as success factors:

- KDSCP uses a "light touch" approach, with no direct technical assistance and training, other than capacity building to groups and government regulatory agencies. In this way, a significant amount of resources is leveraged to facilitate BDS approaches. This reduces the dependency syndrome and BDS sustainability. It also promotes local solutions and resource mobilization among beneficiaries.
- KDSCP BDS strategies stimulate investment into research and dissemination of new market-based services, inputs, and technologies that directly increase the competitiveness of the dairy value chain. It also ensures environmentally sustainable commercial dairy practices. For instance, the BDS approach has triggered research and development of biogas, energy saving devices, and other environmental conservation activities.
- KDSCP use of local competitively sourced Kenyan resources to supply the necessary BDS and financial products. For instance, local consultants and firms undertook the background BDS studies, local banks were identified for the financial linkages and local facilitators sourced for BDS training.
- KDSCP mainstreams gender and youth in its dairy value chain interventions. Women's participation has been enhanced by the project and more youth are finding dairy worth investing in, such as Mr. Timothy Kinuthia, a KDSCP model dairy farmer in Tetu, Central province.

KDSCP Implementation Levels

KDSCP engages the various dairy stakeholders and actors at two levels:

At the industry level, KDSCP engages industry leaders, innovators, and reformers to set competitiveness benchmarks and implement an industry-wide action plan that harnesses national

Box 7. Process for Prioritization and Selection of Market-based Solutions

1. Decide which services are cost-effective and needed by the clients.

2. Determine if the SBO has or can get the capability to provide the service through its own operations (personnel) or whether they should align with an external provider to perform that function.

3. Determine if the service should be provided as a discrete service that is paid for on a fee basis or as an embedded service that is part of the overall basket of value that the organization provides to its members.

and international best practices, resources, and market-based solutions to overcome constraints to dairy competitiveness.

At the enterprise level, KDSCP facilitates commercial linkages along the value chain to build robust, sustainable partnerships to achieve economies of scale and upgrade milk quality to meet national and international standards in high potential milksheds.

The evaluation found these two levels of engagement with dairy stakeholders (i.e., industry and enterprise), to be appropriate and effective, and they contribute to the achievement of economies of scale critical for viability of processors and SBOs. These methods also create viable support markets for much-needed productivity, quality, and profitability enhancing services, inputs and technologies, and they minimize inefficiencies and costs along the value chain.

For instance, the enterprise level engagement has facilitated the expansion of embedded services and input delivery through SBOs and processors as well as the development of innovative and appropriate technologies, management practices and financial services through commercial BDS, thus strengthening vertical and horizontal business-to-business linkages.

Industry level engagement has also led to the development of the Market Information System (MIS) (in conjunction with KDB and DTF) which contributes to industry efficiency. Other KDSCP industry-level engagement and consultations have contributed to strengthened competitiveness-enhancing policy reforms; industry quality standards; and innovative competitiveness-enhancing technologies and industry best practices. Furthermore, this has contributed to market opportunities and a rise in consumer awareness of the importance and benefits of consuming high-quality milk to drive increased consumption.

KDSCP Implementation Structures Effectiveness

Nationally, KDSCP is implemented under the guidance of the Kenya dairy sector competitiveness Task Force (DTF) with membership drawn from farmer representatives, the private sector, processors, service providers, development organizations, and GoK officials. Regionally, each of the eight milksheds is managed by a competitively sourced milkshed coordinator under the supervision of a team leader. The milkshed team leader is responsible for the overall coordination of milkshed activities including liaisons between Land O'Lakes and farmers. The different sheds coordinate under the milkshed working groups.

A unique feature of the arrangement is the fact that the team leader is engaged on a performance based renewable contract, while the coordinator is a full-time competitively sourced employee of the project.

KDSCP has made progress toward increasing the incomes of dairy households from the sale of quality milk. This can be attributed to the effectiveness of the implementation structures. In our opinion, this arrangement was unique and contributed to success. The team leaders, for instance, are driven by the desire to perform and meet targets and thereby keep their "business" alive. The evaluation team considered this model to be innovative and effective in creating a competitive environment among the teams, thereby allowing for individual innovations necessary to spur profitable dairy commercialization. Furthermore, the partnerships and collaborations created during the implementation process contributed immensely to the success of the project. This was noted especially with the Ministry of Livestock Development, KLBO, KDB and DTI, among others.

KDSCP GOVERNANCE ISSUES

KDSCP facilitates the organization of dairy farmers into groups. SBOs and federations are an effective way of addressing identified constraints in market access, exploiting market opportunities, and driving

competitiveness in the dairy value chain. The primary governance issues identified in the KDSCP groups are mainly organizational (legality, business/power relations, management structures, roles/responsibilities definitions, membership requirements) in nature.

To facilitate the effective development of the BDS approach, KDSCP mobilized and organized farmers into groups, assisted with the legalization of unregistered groups, and trained the officials of some SBOs in effective financial and organizational development. This capacity building improved governance.

KDSCP also facilitated the linkage of SBOs with other SPs such as MFIs (Family Bank, etc.) and processors (NKCC, etc.), through user-friendly instruments, such as simple MoUs and contracts.

Overall, KDSCP capacity-building for the SBOs has resulted in stronger integration of SBOs in the milksheds. There is also evidence of strong interactions among SBOs and other players such as local input suppliers, marketing and processing organizations, and lobby groups. For instance, the formation and strengthening of the DTF has led to increased lobbying, with the resultant development of the draft policy of 2006. The capacity building and strengthening of Nyeri Milkshed has led to the formation of a stronger federation with articulated vision and mission. A number of SBOs have also developed business and strategic plans and have built-in financial procedures and reporting measures.

Membership drives are intense and increasing, indicating better understanding of governance issues. More SBOs are calling for or holding elections as a result of KDSCP training. In areas where elections have been held, there is anecdotal information that better and more effective leadership has been brought on board. Administratively, personnel and financial procedures are improving, with more active and informed secretariats. In terms of internal relations, roles and responsibilities were assigned within the SBOs, further confirmation of the effectiveness of capacity building provided to the groups by KDSCP. Information and communication is also encouraging, with few group conflicts reported.

Overall, KDSCP strengthened the governance structures of SBOs, thereby improving sector interactions both horizontal and vertically. The evaluation found the use of MoUs as innovative ways of formalizing engagements with and among groups. The simplicity of the contracts was also laudable.

KDSCP FACILITATION OF INCLUSION AND ACCESS

Increasing Inclusion in KDSCP Activities

KDSCP design envisioned an all-inclusive approach to the development of the BDS strategy to dairy commercialization. The consultative processes involved in the design of the project ensured inclusion of stakeholders in the conception of the interventions. The involvement of the beneficiaries in the design of the interventions is highlighted by the fact that they were essentially the respondents to the value chain diagnostic and background studies. The participatory processes used in the development of targeting frameworks also fostered a sense of inclusion among the participants. The focus on the development of a farmer-focused dairy policy also enhanced their inclusion. Also, the BDS approach created a platform for an all-inclusive value chain development process by involving private sector players in the delivery of embedded services; supporting the capacity building to the SBOs; and increasing advocacy to strengthen policy institutions. KDSCP has continued to facilitate meetings of the National Dairy Task Force (DTF), Regional Working Groups (RWGs) and Milkshed Working Groups. The composition of the DTF in itself is a reflection of inclusive membership in that important forum. It comprises a farmers' representative, government officials, an NGO representative, and a processor representative among others. This forum provides leadership to KDSCP. KDSCP has also encouraged the inclusion of a greater number of household members in decision making through "farming as a family business."

Inclusion of Other Actors and Stakeholders and Incentives for Participating in KDSCP Activities
KDSCP has developed good working relationship with a number of actors along the dairy value chain including research institutions (ILRI, KARI), processors (NKCC), private BSPs, policy makers (DTF), quality regulator (KDB), breeders (KLBO), genetics suppliers (CAIS) and dairy training institutes (DTI), etc. The evaluation indicated that there are strong relationships based on information sharing, which adds to the synergy necessary to spur dairy competitiveness. The evaluation further establishes a clear strategy within KDSCP to strengthen the vertical and horizontal linkages and enabling environment necessary for dairy commercialization. Inclusion is mainly driven by symbiotic relations, with most of the actors expecting to gain from the array of interactions and from economies of scale.

Generally, the project promoted active involvement of all stakeholders in the value chain which greatly amplified the success areas.

PRIVATE SECTOR INVOLVEMENT IN KDSCP

Increased Private Sector Participation in KDSCP Activities
The KDSCP design recognized the role of the private sector in developing a competitive dairy sector. Collaboration from all stakeholders is also highlighted as an important element toward realizing project objectives. KDSCP envisioned a stronger public-private partnership for the increased producer access to markets. There is evidence that KDSCP facilitated the development of stronger public-private partnerships such as:

- KLBO in training livestock breeders/inspectors;
- KDB in organizational development of DTF policy issues;
- private BSPs in extension services provision; and
- Equity and Family Banks in the development of credit/financial products, etc.

KDSCP also engaged individual business entities, private consultants, input providers (agro-vets), milk processors (Githunguri Dairies), milk transporters, farmers' organizations, national level dairy lobby groups (DTF), etc.

Overall, KDSCP facilitated the involvement of the private sector in its design and implementation, and this involvement assisted in the identification, articulation, and verification of issues and constraints that impede dairy competitiveness. Indeed, the development of a commercialized dairy value chain using a BDS approach is premised on strong private sector involvement to drive competitiveness.

Approaches for Increased Private Sector Participation in Program Activities
The increased private sector involvement in KDSCP activities is due to a number of built-in and domesticated processes and strategies employed by KDSCP. The greatest contributions to private sector involvement include the following.

- Utilization of market-based approaches (i.e., BDS) which demonstrated better client solutions in partnership with other players in the value chain.
- Promotion of competence-based approaches where the private SPs build internal competences that are being sought by the dairy industry; such as KDSCP's selection of CBAHWs for AI training.
- Recognition and harnessing of social capital networks to enhance both vertical and horizontal linkages critical for private sector participation in the value chain activities. For instance, the facilitation of linkages

between CBAHWs and licensed vets in the field, and networking of smaller groups to form federations capable of lobbying national.

- Use of participatory approaches during the project preparation (including involving communities in background studies, and inviting the private sector into workshops to develop the GMP manual).
- The differentiation and definition of roles of the various actors/collaborators.
- Facilitating the adoption of embedded integrated dairy services to provide farmers with access to new opportunities for participation and experimentation.
- The peer education and gender mainstreaming approaches (e.g., with the GATE project).
- The incorporation of lessons learned from similar projects (e.g., from KDDP).
- The creation of a collaborative and symbiotic relationship between projects and government and private sector players.
- The adaptation/responsiveness of the programs to private sector procedures and initiatives, e.g., in the promotion of performance based management in milkshed activities.

Contributions of the Private Sector to KDSCP Impacts and Success

Overall, private sector players contributed to: increased competition among service providers, improvements in service quality, enhanced business volume especially in relation to bulked milk, improvements in financial lending to farmers, and enhanced technological transfer (silage making). Also, the provision of general animal husbandry, extension, and breeding practices has improved within the KDSCP areas. There is more accountability within SBOs with more trust in leadership, especially after training events. The farmers' lobby has also strengthened at the national level. Achievements have included the formation of the federations and their linkage to DTF; increased awareness of price formulation by the processing organizations (MIS portal with KDB); employment creation (up to 5,466); and the creation of an enabling business environment (2006 dairy policy developed).

COMPETITIVENESS IN KDSCP ACTIVITIES

Increasing Access to Financial Services under KDSCP

KDSCP recognizes that financial sector services play an important part in increasing competitiveness in the dairy sector. KDSCP, in conjunction with Equity Bank, Family Bank, and Cooperative Bank, developed tailor-made dairy related products that were promoted to the farmers. KDSCP then developed linkage between the dairy groups and MFIs to negotiate loans with user-friendly interest rates (e.g., FBL Tujenge Mandatory Savings Products). The program also facilitated the exemption of individual specific commercial securities for such credits. KDSCP figures point to increased accessibility to financial services for farmers and other SPs, indicating competitiveness in the sector. KDSCP helped more than 20,158 farmers (36 percent women) to acquire credit. The majority, at least 18,758, received in-kind credit in the form of dairy inputs. A total of KShs 88,000,000 (at the time of evaluation) has been accessed by farmers. Farmers are also indicating reduced transaction costs because of the proximity of financial facilities. In addition, the establishment of local, farmer-owned FSAs, such as Ainabkoi Farmers SACCO, has provided financial leverage for KDSCP beneficiaries by providing guaranteed payment for services to BDS suppliers through the "check-off" system. Overall financial service provisions have increased and, in line with the BDS model to sustain the farmer-owned financial services institutions, service charges are imposed on farmers to provide maintenance of financial sustainability.

Table 15. Summary of Beneficiaries Accessing Loans since Inception of KDSCP

Milkshed	SBO	Amount	Source of Funds	Beneficiaries	
				Male	Female
Kinangop	Tulaga FC Society	5,100,000	NIB Bank	1059	637
	Kitiri	1,500,000	ILO	17	35
	Wanjohi	1,000,000	Coop	212	98
	Miharati	4,000,000	CDTF/SBO	331	131
Trans nzoia	MEEBOOT	2059700	Equity/Kilimo Biashara/Family	86	30
	Tongaren	1,666,990	SACCO	110	87
	Tarakwa	496,000	SACCO	17	6
	Cherangany	1,660,000	Coop/Equity/Maziwa loan(NKCC)	1922	856
	Naitiri	4,550,000	Equity/Feeds bunda cake	175	36
	Kaitogos	40000		10	11
Lessos	Ainabkoi	560,000	SACCO	67	45
	Kipchamoo	1,200,000	Equity	92	132
	Kamno	300,000	Coop	31	20
	Singalo	200,000	Equity, Coop	22	12
	Lelwak	200,000	Equity	15	10
	Bidii	600,000	Equity	32	16
	Moiben	150,000	Equity, KCB	12	5
	Karona	300,000	Equity, Coop	40	22
	Tuiyo	200,00	Family	20	12
	Timboroa	800,000	Equity	67	45
	Sugoi	400,000	KCB, National	15	10
	Megun	300,000	Family	45	0
Nyeri		21,400,000		2630	1653
Nakuru		40,000,000		1950	1300
TOTAL		88,682,690		8977	5209

Source: Land O'Lakes

Innovations in the Development of Value Chain Financing

KDSCP developed credit facilities that are accessible and user-friendly, and hence, can be considered innovative. Specifically, the products were dairy oriented, involving input provisions in some cases and with negotiated terms. In some cases, repayments were modeled to include 'milk check-off' to the financial institution-linked collection plants. Overall, dairy financing increased a great deal from the credit products developed by KDSCP. This provided the beneficiaries with some competitiveness, thereby contributing to overall project achievements. Innovations include a dairy-specific Family Bank mobile Pepesha Pesa Product in Lessos milkshed, provisions for lending for non-dairy services such as micro-leasing and biogas financing, equipment leasing, piloted herd insurance products by Kenya Orient Insurance Co. Ltd. in Lessos, and third-party credit facilities accessible through dairy processors.

Increasing Financial Services/Products to the Farmers

KDSCP undertook a financial competitiveness study in the dairy sector (financial deepening study) that identified the constraints and opportunities to value chain financing. Hence in its design, KDSCP focused on developing dairy-specific products at farmer-friendly rates, thus attracting farmer interests. For instance, the Family Bank Dairy Loan product targets small-scale dairy farmers. It is largely a consumer loan more than agricultural, with a maximum loan amount of KShs 100,000 (increased to KShs 200,000 in January 2010). Repayment occurs in fixed monthly installments up to a maximum repayment period of 12 months. The interest rate is a flat 15 percent with a processing fee of 5 percent of the loan amount. The loan also entails a ledger fee of KShs 200. These features, developed in conjunction with KDSCP, are attractive to dairy farmers, especially since the increase of the ceiling lending amount.

In addition, KDSCP business management training (business planning) attempts to increase their competitive edge in terms of accessing financial products. KDSCP went a step further to involve financial services managers by training them to understand dairy issues, identify their challenges, and develop dairy-friendlier terms. Anecdotal information indicates increased interest in dairy farmers among financial institutions; many are making inquiries and hosting dairy-related financial fairs. Many also display their products during farmers' field days.

Effectiveness of the Access to Financial Services

Generally, competition among financial sector players has increased. With this increased competition for farmers, service quality has also improved. The uptake of financial products is also improving, interest rates continue to be negotiated, processing fees are coming down, more staff are being posted to local financial institutions, and knowledge of dairy enterprise financing among staff and farmers is also improving. KDCSP also leveraged an estimated US$3.4 million in non-program resources in 2010. Overall, these positive attributes point toward increasing commercialization, competitiveness, and profitability of the dairy enterprises from the financial credit provisions. Qualitative information from interviewed beneficiaries confirms increased attention to farmers among financial institutions.

Impacts of Financial Services Provision to Farmers

Overall, a greater number of credit products have been developed during the project period with KDSCP reporting participation of up to 11 institutions offering financial services to farmers. Correspondingly, the cash flow to dairy farmers and access to inputs has also increased. Innovations in financial services have been created in an effort to attract more farmer clients by targeting products to address the needs of dairy-related activities, which in turn support an improved business environment conducive for dairy commercialization. This includes schemes suck as the Mobile phone-linked FBL Papesha Pesa Product in the Lessos milkshed. The evaluation further noted improvements in financial services knowledge, including the different rates provided by farmers. This has raised the bar in terms of quality of products offered to dairy farmers.

PARTNERSHIPS

Enhancing Partnerships and Collaboration in KDSCP Activities

The design of KDSCP identified stronger partnerships as a key ingredient for increasing commercialization and competitiveness of the dairy sector. Specifically, the design document mentions partnership as one among several essential operating parameters. KDSCP exploited the different experiences and lessons of private sector players, dairy-oriented NGOs, individual companies, smallholder producers, processors, and other dairy chain stakeholders. KDSCP enhanced partnerships along the value chain. As a result, more robust collaboration is witnessed among the players, including to some extent the joint planning of dairy activities (at the donor level), joint evaluations (such as this one), and in the sharing of results. KDSCP also collaborated

with the DAI program of USAID in a survey on credit access in the dairy value chain. The program used a sample of farmers in the program milksheds.

Key informants confirm some level of collaboration and partnership. For instance, KDSCP built the capacity of key livestock sector public institutions, including MoLD officers, livestock parastatal heads, research organizations, and university departments, among others. A workshop aimed at refocusing how leaders of public-sector institutions in the dairy sector think about competitive frameworks was organized in 2011 and attended by 21 participants, including a representative of the PS, MoLD. Sector organizations, including the Kenya Livestock Breeders Organization, the Kenya Livestock Producers Association, the Kenya Dairy Producers Organization, and the Kenya Dairy Processors Association were assisted with developing strategic plans and trained on a host of administrative skills. The Kenya Dairy Processors Association, which had collapsed, was revived. KDSCP also cultivated a strong working relationship with KDB, DTI, and KLBO. In collaboration with MoLD, KDSCP developed a SoW and hired a consultant to review the National Dairy Master Plan and align it with Vision 2030. The participatory nature of its implementation, where sector stakeholders, through the Dairy Task Force (DTF), Regional Working Groups (RWGs), and Milkshed Working Groups (MSWGs), identify sector challenges and opportunities, enabled the program to design appropriate solutions for sector challenges and take advantage of existing opportunities. Industry stakeholders have also noted that the goal, purpose, strategies, and outputs of the program reflect national and regional priorities, and are relevant. The Business Development Services (BDS) approach has reached many beneficiaries via partners/facilitators and service providers. Overall, KDSCP enhanced collaboration among dairy industry players, subsequently strengthening both horizontal and vertical linkages necessary for a more competitive and profitable dairy value chain.

GoK Involvement in KDSCP Value Chain Activities

As indicated earlier, the participatory processes involving the design and implementation of the KDSCP attracted an array of actors, both public and private. As the industry overseer, MoLD and veterinary departments were actively involved in KDSCP activities.

For instance, KDSCP's annual report (2009) highlights the contributions of these departments during the design and implementations stages, with the technical personnel involved in consultations to develop the selection criteria for both beneficiaries and regions. The report also mentions the role of the Ministry of Culture and Social Services as crucial in mobilizing and legalizing the SBOs. KDSCP also worked closely with the government and other stakeholders to facilitate the development of livestock policy, breeding policy, and an animal feed Bill. The government also provided the enabling environment for dairy commercialization through policy regulations (KDB, Kenya Bureau of Standards [KEBS]), formulations of guidance and lobby committees/groups (DTF), and the standardization of procedures requisite for BDS services development (KDB, KEBS). Government involvement was further noted in the active participation of the grassroots-level ministry staff in this evaluation, further pointing to a symbiotic relationship supportive of BDS development for commercialized dairy. Overall, the increased participation of the GoK staff led to the attainment of the KDSCP objectives, especially on quality regulations and policy guidance.

The Involvement and Role of the Research and Development Institutions in Program Activities

The KDSCP design envisioned interactions with research institutions in the development of competitive dairy sector. To this end, it facilitated the process of initiating financing of operational and market development research, and training and technical assistance activities that directly support program objectives. For instance, KDSCP developed grant modules and organized training for interested beneficiaries to facilitate equal understanding of the research grant award process, build grant application skills, and assure that awardees are capable of meeting reporting and accounting requirements. As a result, several research

institutions have developed linkages with KDSCP. One standout example is the research collaboration with DTI in the development of appropriate feeding strategies for dairy farmers. Others, particularly KARI, ILRI, and the universities have been involved in developing and rolling out technologies, services, and products that facilitated the development of a competitive dairy value chain in Kenya; for example, the development of the molasses blocks, (KARI) new fodder varieties, vaccines (ILRI).

Increasing Donor Cooperation for Enhanced Dairy Competitiveness

Land O'Lakes participates in the DTF activities where dairy-related issues top the discussion. DTF also has members drawn from other donor missions (IFAD, HI, SNV, and FAO). This avenue has provided KDSCP with the opportunity to interact with other actors in the dairy sector. At another level, KDSCP sponsor, USAID, also participates in the donor round table forum (particularly the Agricultural Sector Coordination Unit [ASCU]) and helps to enhance cooperation and coordination of sector activities. Qualitative information indicates that the cooperation and coordination has been improving as a result of the interactions at the DTF and ASCU forums. This has led to the synchronization of some project activities, and in some areas, it helped avoid the duplication of activities of other donors. Overall, efficiency of the interventions has increased as a result of coordination. The evaluation team confirmed some grassroots coordination and cooperation among the different agencies, especially at the district forums.

Enhancing Private Extension Services Provision to Increase Dairy Commercialization

KDSCP recognizes that smallholder farmers' access to BDS – such as inputs, animal health services, extension and training – is low in Kenya despite the importance of the services in improving profitability and growth of business enterprises. In the past, the services have been provided and paid for by either donors or GoK. However, such programs have not been sustainable as host governments ran into budget deficits and the level of donor funding fell.

Table 16. Artificial Insemination Technology Adoption: A Comparison of Baseline (August 2008) and Current (August 2009) Figures

Respondent Category	Technology Adoption - AI (%)
Baseline	39.9
Whole sample	59.5
Sex of farmer	
Male	60.5
Female	60.5
Age of farmer	
Youth	43.1
Above 30 years of age	60.8
Milkshed	
Nyeri	90.4
Gatanga	74.5
Kabete	97.8
Lessos	22.8
Transnzoia	38.9
Kericho	49.8
Nakuru	90.4

Respondent Category	Technology Adoption - AI (%)
Kinangop	70.1

KDSCP's market development approach — centered on BDS through partnerships with private sector players and/or short-term sub grants/contracts with local facilitator firms to support the development of sustainable input and services markets — has strengthened the extension services by building and linking the supply and demand sides and enabling commercial transactions between the farmer and the extension SPS. Extension is hence provided by a chain of actors, including business management professionals, community-level "stockists" or "agro-vets," and small-scale feed manufacturers, agro-vets, feed and pharmaceuticals manufacturers, and other veterinary and artificial insemination SPs. Some of these BSPs give technical advice to farmers directly, or through the agro-vets that stock and sell their feed products. KDSCP therefore followed the principles of market development, supporting the expansion of critical BDSs, including extension. Artificial insemination use increased to 59.5 percent (baseline 39.9 percent) with more than 50 SP, (mainly AI providers) now supplying additional services (feeds and feeding) to their clientele after attending program-facilitated capacity-building workshops and seminars. KDSCP has also helped develop a market for dairy-oriented BDS by working with private sector genetics firms (e.g., WWS) and farmer-owned milk bulking/cooling businesses (Lessos cooling plant), trained BSPs (CAHWs) and deployed them in milk catchment areas to provide smallholders with extension services and inputs. KDSCP sponsored six lead facilitators in six milksheds to two BDS conferences in the country. The program has also sought training opportunities and/or workshops/conferences on a variety of areas important for achieving program results, including value chain financing for the facilitators. A majority of the BSPs are trained animal health technicians who advise farmers on cow health issues and provide first aid, vaccination and pharmaceuticals. As part of their marketing strategy, BSPs organize smallholder training sessions, often partnering with MoLD district extension officers in innovative "farmer field schools" (FFS) that raise the skill levels and awareness of producers about new technology and management practices. Through this partnership, extension agents are empowered with new knowledge and skills that make them valued resources to client farmers, while awareness is created among smallholder dairy producers about the value of such services.

The evaluation established that there is some improvement in extension services provision from the BDS approach, thereby contributing to the overall impact of the project.

ENABLING ENVIRONMENT

Enabling Environment during Start-up and Implementation Processes

The new 2006 dairy policy and regulatory environment has facilitated the recent vibrancy seen in the dairy sector. KDSCP finalization of the Dairy Master Plan has further provided the requisite conditions to drive industry efficiency and competitiveness. The Draft Dairy Policy (2006) allows greater private sector participation and self-regulation, a key ingredient for the BDS approach. The KDSCP facilitated Dairy Master Plan, the development of a dairy code of hygiene, and a reader friendly code of hygiene/Good Management Practice (GMP) Manual that addresses issues of animal feed quality assurance.

Another important enabling environment for the BDS approach has been consensus building and advocacy for policy reform. Key among these lobby groups has been the KDSCP-facilitated DTF.

Policy research has also removed regional trade and tariff barriers, and developed homegrown solutions to sourcing affordable raw materials for the production of animal feeds.

Also, KDSCP's collaboration with KDB and KEBS has resulted in strengthened regulatory arms to spearhead dairy regulation. Other contributors to the enabling environment include the following.

- The legalization of local SBOs has augmented the enabling environment. In this regard, KDSCP facilitated the registration of SBOs to create this working environment.
- The supportive management committees of the SBOs who are able to and committed to providing policy interpretation, direction and formulation, fundraising, and public relations.
- The presence of adequate local physical infrastructure (e.g., offices for operations).
- The development, through KDSCP, of a well-defined SBO membership base, well recognized as partners and involved in reviewing the organization's operations.
- The availability of full-time qualified personnel within a defined organizational structure.
- Availability of clearly articulated visions, executed through strategic or other operational plans.
- The organizations also provided relatively well developed financial and administrative procedures, and procedures for resource mobilization and allocation.
- The organizations had services for which clients were willing to pay membership fees.
- The organizations had relevant sectoral expertise in value chain development.
- There were appropriate structures to reach the grassroots, such as the devolved ministries.
- The SBOs prioritized their activities and services to meet changing needs of their membership and the dairy industry.
- The credibility of the SBOs willing to network and share resources with other organizations, and with forward planning leadership promoting coalitions, networks, and mechanisms for advocacy.

OTHER CONSIDERATIONS

Integrating Climate Change Mitigation to Dairy Value Chain

As a USAID requirement, KDSCP undertook an environmental effects assessment. The project also undertook a detailed pesticide evaluation of all activities that involved the use or handling of pesticides, and developed a corresponding safe use action plan. These assessments ensured that appropriate safeguards to avoid negative effects were implemented. KDSCP has also demonstrated sustainable dairy production by introducing leguminous fodder crops to improve feeds and protect the soil, silage to reduce overgrazing, safe use of pesticides, metal cans for hygienic transport of milk, gloves for safe handling of agrochemicals, safe disposal of pharmaceuticals and agrochemicals, and energy-saving stoves in family homes to reduce environmental degradation through deforestation. Similar natural resource management (NRM) efforts related to sustainable increases in milk production and marketing were explored.

Enhancing Adaptation to Climatic Variability, NRM, and Sustainable Livestock Practices within KDSCP

KDSCP has extended sound NRM practices and mitigated potential negative environmental impacts at both the farm and processor levels by implementing a series of recommendations arising from the initial environmental screening and a pesticide evaluation and safe use action plan (PESUAP) that were conducted at the start of the program. Notable practices included training on proper use, storage and disposal of pharmaceuticals; the installation of energy saving devices in farmers' homes, silage production and training of SPs on acaricide use; integration of environmental issues in farmers' training use of fodder trees. Other practices relate to sustainable livestock practices, with the adoption of zero-grazing units and hence the shift from grazing to stall feeding; collection of cattle waste to develop biogas, etc. KDSCP's training also targeted milk collection and transportation, encouraging them to use bicycles and donkeys as they are affordable and environmentally friendly; and encouraging KDB to stamp out unscrupulous traders who adulterate milk, thereby endangering consumers. Overall, the evaluation found a positive link between environmental conservation and success achieved by the dairy projects. The increased knowledge of environmental conservation among farmers has helped achieve some of the positive results from the value chain.

Box 8. KDSCP Gender Outputs

- 30 percent of all program beneficiaries are women.
- Gender is included in evaluation criteria.
- 25 percent of facilitators are women.
- Facilitators are trained in gender capacity-building.
- 36 percent (3,666) of farmers registered in the e-dairy portal are women.
- 44 percent of beneficiaries are women.
- 40 percent of trained farmers are women.
- 36 percent of farmers linked to credit facilities are women.
- Milk yield is 8.17 L/Cow/day: 8.25 for females and 8.15 for males.
- 75 percent of females and 73 percent of males adopt AI.
- 5 percent of females and 5 percent of males are using biogas technology.
- 30 percent Female and 41 percent male practicing zero-grazing.
- KDCSP is working with more than 600 SPs (80 percent youth).

Gender Mainstreaming and Strengthening the Roles/Rights of Women and Youth

KDSCP designed approaches that facilitated the participation of men, women, and youth in the implementation of project activities, because they bring different kinds of knowledge and abilities to the management of dairy animals and the marketing of quality products. First, KDSCP worked with the Greater Access to Trade Expansion (GATE) project to identify gender constraints and continuously design interventions to address these constraints and track impact on gender throughout the life of the program. KDSCP believes that addressing gender differences and building mainstreaming strategies into project design, implementation, and evaluation helps lessen the intensity of gender differences, resulting in better performance of development programs and also contributing to greater social equality.

Building on the achievements of the KDDP, KDSCP examined all its activities for their gender sensitivity, and developed a monitoring system to track both the technical and gender related outcomes. KDSCP conducted a baseline study incorporating data disaggregated by gender and age on all relevant activities, including variables such as the division of labor in dairy production, access to and control over cattle and other productive resources and benefits; membership in milk bulking and cooling businesses and management committees; dairy incomes; beneficiaries receiving BDS, technology and other training; and scale of businesses owned. KDSCP then: analyzed data for gender differences that have the potential to undermine KDSCP performance; and developed appropriate gender mainstreaming strategies to address gender disparities. Throughout its implementation, KDSCP adjusted program activities and approaches as appropriate, based on ongoing monitoring to capture and reflect gender issues.

KDSCP has also been keen to support the productive roles of youth. Through the provision of adequate dairy training, the project has provided employment opportunities to youth. They have been extremely open to adopting new knowledge, practices, and skills that support development efforts, including the sound management of dairy animals and other dairy business opportunities. KDSCP is working with more than 600 SPs with 80 percent being youth. Overall, the mechanisms for the inclusion of women and youth have been effective and have led to an increased number of women in project activities.

MONITORING AND EVALUATION

The KDSCP M&E framework integrates both an M&E plan and a specific PMP. KDSCP used market development indicators in the performance management framework to monitor changes from its interventions. These are basic indicators intended to yield an understanding of the level of development of the market and basic assessment of the program's outreach and contribution to the objectives of market development. Monitoring data are gathered from program records or a performance measurement framework survey. There are two levels of data gathering and analysis: the program level, which assesses the outreach of the BDS program itself, and the market level, which assesses the development of the broader market that the program itself may be influencing. These indicators developed by KDSCP were effective in capturing the three objectives of this project. The M&E framework also has provisions for internal and external evaluations by an independent evaluator. The framework also envisions a multidisciplinary team involving KDSCP and the evaluators.

Overall, the evaluation found the M&E systems to be flexible and easy to use, and thus contributed to the rapid capture of the outputs and results.

RESULTS AND IMPACTS: SYNTHESIS OF BEST PRACTICES AND SUCCESSES FROM KDSCP

Overall Impacts

The evaluation also used mainly qualitative means, which were not suited for impact evaluation. However, it identified some impacts attributable to KDSCP. Of note was increased milk productivity (which increased to 10.4 liters/cow/day from 6.4 liters/cow/day), with a corresponding increase in cumulative incomes (30 percent[8]). Training in dairy management increased milk productivity, as farmers learned to adopt new technologies. Interviewed farmers indicated that those who participated in the KDSCP capacity building exercises had higher milk production per cow than those who did not. Also, beneficiary farmers have shown improvements in animal husbandry knowledge.

KDSCP ACHIEVEMENTS AND SUCCESS AREAS

Agriculture and Livestock Value Chain Productivity and Competitiveness

- Through collaboration with key industry stakeholders, 30,000 farmers (23 percent female) were imparted with technical skills in dairy husbandry, mainly focusing on animal husbandry, genetics/breeding, feeds and feeding, animal health, and milk quality. More than 40,000 other beneficiaries were reached indirectly through the breeder shows and exhibitions.

- KDSCP facilitated acquisition of credit for more than 20,158 farmers (36 percent women) to acquire credit. The majority, at least 18,758, received credit in kind in the form of dairy inputs in the reporting period.

[8] 2010 KDSCP Annual Report

- KDSCP trained 38 Kenya Dairy Board (KDB) regulatory inspectors on the Pasteurized Milk Ordinance and regulatory inspection. Two officers went on a U.S. tour to learn firsthand how regulatory inspection is carried out under the USA Pasteurized Milk Ordinance. The quality of milk and dairy products currently presents significant risks to consumer safety on the domestic front and is a hindrance to competitiveness in the regional and international markets. The program facilitated regulatory inspection training which will go a long way in improving product quality and consumer safety in the local market, and also enhance exports.
- KDSCP reviewed/updated 18 dairy standards/regulations and finalized development of the Good Manufacturing Practices (GMP) and the Dairy Code of Practice manuals. The GMP has been approved by the Kenya Bureau of Standards (KEBS) and is now an official standard. The other 18 dairy standards are pending official publication by the Ministry of Livestock Development. The program has initiated the process of training milk traders, processors, farmer groups and milk bar operators on GMP, and aim to make compliance a licensing requirement through collaboration with the Kenya Dairy Board (KDB).
- KDSCP linked more than 120,000 farmers to BDS.
- KDSCP facilitated the development of The Dairy Regulation Text. The document has subsequently been reviewed and approved by the public technical committee. It was submitted to KDB for review and internal discussion. This is a major piece of legislation and will mark a key milestone once approved and adopted.
- KDSCP conducted a milk consumption campaign to stimulate demand for milk and milk products in the country. More than 7,500 people were reached.
- KDSCP has continued working toward building capacity for a local "world class" milk and milk products laboratory, which will serve as a reference laboratory for product certification in Kenya.

Smallholder Producer Participation in Value Chains

- A total of 11,924 farmers registered in the e-dairy Portal, including 3,666 women (30.7 percent).
- Total number of beneficiary households is 213,848 households with female members for 44 percent of all beneficiaries.
- KDSCP has reached about 120 farmer groups with noticeable presence of youth.
- KDSCP has transformed more than 80 SBOs into sustainable business organizations mainly through redesigning their business operations, working with the program to maximize returns and eliminate wastage, transport (for milk collection), routing to optimize resources, and business analysis of group activities (feed store, AI) to ensure that all group ventures post returns, etc.
- KDSCP organized and facilitated strategic planning workshops for all the farmer groups working with the program. Four progressive groups have since finalized the process of developing strategic plans and the implementation maps of the plans. These include Limuru, Hexagon, Kikuyu, and Tulaga. Moreover, all groups received training on strategic planning and are currently at various stages of developing the plans with program assistance.
- KDSCP organized and facilitated training workshops on business planning for all the SBPs working with KDSCP. Two very progressive farmer groups (Limuru and Tulaga) finalized the process with operational business plans and intend to be more business oriented.

- KDSCP linked more than 80 farmer groups with SPs. All the groups working with the program have access to AI providers, animal feed and feeding experts, animal health providers, and milk quality experts. The program is also working with a few biogas experts. Adoption of biogas as an alternative source of fuel, and manure for farming and fodder crops is a key area of focus for natural resource conservation measures.

- KDSCP organized and facilitated capacity building forums for 300 SPs. These experts work with and deliver productivity enhancing technologies to specific farmer groups. More than 50 SP, mainly AI providers, now supply additional services (feed and feeding) to their clientele after attending program-facilitated capacity building workshops and seminars.

Dairy Production and Sales

- KDSCP promotion of feed and feeding practices has helped stabilize cow productivity at 10.4 liters/ cow/day in the program area compared to 6.4 liters per/cow/day in the baseline survey.

- KDSCP realized significant increases in the number of farmers using productivity-enhancing technologies. About 40 percent of program beneficiaries use feed conservation technologies (silage, crop residue preservation and hay) compared to 11 percent observed during the baseline survey. A marked increase in the proportion of farmers using AI (now at 59.5 percent) has also been observed compared to the baseline proportion (39.9 percent).

- KDSCP facilitated negotiations for "fairer prices" for groups working with the program. Farmer groups are now earning considerable incremental income for their members. For example, Boyo (from KShs 23 per liter to KShs 29) and Mathera (from KShs 23 to KShs 27).

- KDCSP organized farmers in the Rift Valley Province into groups and facilitated price negotiations between dairy processors and the group. More than six groups now bulk milk and sell collectively to processors. This has resulted in significant additional annual income to member farmers (KShs 998, 310 – US$13,310) as a result of better prices paid by processors.

- KDSCP provided technical assistance to Boyo farmers' cooperative society to set up a "stores for resale" in 2010. KDSCP facilitated a cost-benefit analysis of the venture. This enabled the group's active 1,074 members to access dairy inputs on credit, with repayment deducted from the monthly milk delivery check. The group management has reported significant interest from farmers, with an average of 60 percent of farmers benefiting monthly on average.

- KDCSP leveraged an estimated US$3.4 million in 2010 in non-program resources. This was achieved through stakeholder contributions to sector initiatives (both in kind and monetary). A significant proportion was realized from farmers' participation in program-organized events.

- A total of 86,979 dairy farmers were trained; about 40 percent were women.

Rural Household Income

- KDSCP estimates indicate that farmers working with the program have increased their incomes from the sale of milk by about 30 percent cumulatively, mainly driven by higher milk prices resulting from program-facilitated price negotiations and increased demand.

Private Sector Investment

- KDSCP built the capacity of key livestock sector public institutions, including MoLD, livestock parastatal heads, research organizations, and university departments, etc. A workshop aimed at refocusing the

thinking of top leadership of public sector institutions in the dairy sector toward a competitive mental framework was organized in 2011 and attended by 21 participants, including a representative of the PS, MoLD. Sector organizations, including the KLBO, Kenya Livestock Producers Association, Kenya Dairy Producers Organization, and the Kenya Dairy Processors Association were trained in developing strategic plans and administrative skills. The Kenya Dairy Processors Association, which had collapsed, was revived.

- KDSCP has continued to facilitate meetings of the National Dairy Task Force (DTF), Regional Working Groups (RWGs), and Milkshed Working Groups.
- KDSCP collaborated with the USAID DAI program for a survey on credit access in the dairy value chain. The program used a sample of farmers in KDSCP milksheds. Findings of the survey informed KDSCP interventions on credit access.
- In collaboration with MoLD, KDSCP developed a SoW and hired a consultant to review the National Dairy Master Plan and align it with Vision 2030.
- KDSCP coordinated activities and promoted synergy of players in the dairy sector to efficiently use the resources available to the sector.
- KDSCP worked closely with stakeholders to see the development of livestock policy, breeding policy, and an animal feed Bill.
- KDSCP facilitated the development of draft Dairy Regulations through DTF.
- KDSCP facilitated the development of a dairy code of hygiene and a reader-friendly code of hygiene/GMP Manual that was launched through the DTF.
- KDSCP facilitated the undertaking of a consumer preference study through DTF.
- KDSCP piloted the Integrated MIS through the DTF.

Employment Generation

- KDSCP activities have led to significant employment opportunities in the program area. Program data indicate that more than 5,466 new jobs were created in the program area.

Involvement by Women and Youth

- KDSCP worked with Greater Access to Trade Expansion (GATE) project to identify gender constraints.
- A deliberate effort was made to ensure that 30 percent of all program beneficiaries are women. This involves including gender aspects in RFPs and in evaluation criteria.
- 25 percent of program facilitators are women.
- Training of trainer sessions on gender capacity-building were completed.
- M&E needs to provide gender-disaggregated data in reports.
- A total of 11,924 farmers registered in the e-dairy Portal, including 3,666 women (30.7 percent).
- Total number of beneficiary households is 213,848, with female members accounting for 44 percent of all beneficiaries.
- A total of 86,979 dairy farmers were trained, about 40 percent women.

- A total of 36,734 farmers linked to credit facilities, about 36 percent of them women.
- Milk yield is 8.17L/cow/day; females yield 8.25 and males yield 8.15.
- 74.5 percent of females and 72.8 of males adopt AI.
- 4.98 percent of females and 5 percent of males are using biogas technology.
- 30.38 percent female and 41 percent of males practicing zero-grazing.
- KDCSP is working with more than 600 SPs (80 percent youth).

Environmental and Economic Sustainability

- KDSCP recognizes and appreciates the fact that the dairy industry is a user of natural resources. The program promoted biogas as a source of fuel to reduce deforestation, in addition to emphasizing use of manure to produce fodder instead of applying fertilizer as a cost saving measure.
- KDSCP has facilitated farmer financing after establishing relationships with suitable financial institutions, and negotiations and partnerships were finalized. This resulted in the development of tailor-made loan products to farmers from the institutions. More than 13,000 farmers (5,209 women) acquired credit amounting to more than KShs 88,000,000.
- KDSCP has facilitated the training of program facilitators and partners in BDS approaches, a relatively new methodology in Kenya. To enable the selected farmers to get the method right, KDSCP sponsored six lead facilitators in six milksheds to attend two BDS conferences. KDSCP also sought training opportunities and/or workshops/conferences for the facilitators in a variety of areas important for achieving program results, including value chain financing.

BEST PRACTICES IDENTIFIED FROM THE KDSCP INTERVENTIONS

Development of Model Farms

Based on lessons from KDDP, the KDSCP management team has made it a policy to have model farms in all the milksheds where farmers can see firsthand the benefits of the technologies the program promotes. The program developed more than 20 model farms, with plans to increase the number to at least one model farm per farmer group.

At the farms, farmers see firsthand the benefits of good breeding and feeding practices. They also learn about the various types of dairy fodder and feed conservation technologies, including the preservation and use of crop residues as animal feed to reduce the cost of production while increasing yield. In the development of the farms, KDSCP focused on selecting two types of farmers that locality/farmer groups can associate their farms with: a progressive farmer (advanced in terms of technology adoption and yield) and a basic farmer (one who is still learning the basics of dairy farming as a business). The farms promote cost cutting and productivity-enhancing production technologies and management, and management practices that enhance milk quality. The evaluation team finds this approach to be a good practice.

Exposure Tours

KDSCP directly assisted more than 1,300 farmers from the milksheds to attend the East African Breeders show in Nairobi. This event provides breeders from all over East Africa with a forum to exhibit their stock, create awareness of breeds, provide markets for willing breeders and educate farmers on breeding and management issues. KDSCP partly sponsored the event with more than 30,000 farmers attending.

Promotion and use of Cost-Cutting Feeding Regimes
KDSCP promoted the adoption and use of cost-cutting feeding regimes, including adoption of crop residue preservation, hay, silage, leguminous fodder technologies (Lucerne, desmodium,) feed conservation (silage, hay, crop residue preservation), and feed formulation (use of molasses and microbes). Cost of milk production recorded only a slight increase of 12 percent (KShs 16 compared to KShs 14.20 recorded during the baseline). The adoption of the high crude protein and palatable *Lucerne* and *Desmodium* fodder species have significantly reduced farmers' reliance on expensive cereal-based commercial concentrates such as dairy meal. Other cost-cutting technologies have also recorded significant increases in awareness levels and use.

Developed One Certification Framework
KDSCP facilitated a review of a Good Manufacturing Practices (GMP) manual, leading to its approval by the Kenya Bureau of Standards (KEBS) dairy technical committee. It was issued as an official KEBS Standard. The manual aims to impose a framework for requiring three types of dairy businesses to implement and follow sanitary and hygiene practices in their daily operations. The three types of targeted business are milk bulking/collection centers, milk bars/shops, and milk processing plants. Completion of the GMP manual marked a key milestone for the program in terms of developing quality (feeds and milk) certification frameworks for the country.

Using Multidisciplinary Teams at Local Level
KDSCP used multidisciplinary teams in its activities in the milksheds. This provided a better integrated approach to community development.

Information, Education, and Communication Success
KDSCP developed e-Dairy and MIS software for the integration of dairy information in an easy to use portal. Also, the development of the GMP manual was a key achievement in terms of information on standardization of sanitary and hygiene operation in the dairy industry.

Reviewed/Updated 20 Dairy Standards and Finalized Development of the Good Manufacturing Practices (GMP) and the Dairy Code of Practice Manuals
KDSCP organized and facilitated a highly successful workshop that reviewed 18 industry standards for a wide variety of milk products, and two key legislative documents. This forum, attended by the KEBS Dairy Technical Committee members, reviewed and approved standards for 18 milk products.

Dairy Code of Hygiene Manual
KDSCP facilitated the review of the Dairy Code of Hygiene through a workshop held in November 2008. KDSCP is also planning to produce a 'user-friendly' version of the formal Code of Hygiene documents. The user-friendly version will also have the potential to carry advertising, which could be leveraged to cover the costs of publishing.

Dairy Regulations (Formerly Dairy Ordinance)
KDSCP facilitated the writing and finalization of The Dairy Regulation Text and its subsequent review and approval by the public technical committee. It was submitted to KDB for review and internal discussion. This is a major piece of legislation and will mark a key milestone once approved and adopted.

KDSCP SUSTAINABILITY AND INNOVATIONS

Innovations
The KDSCP has provided some innovations in the increasing competitiveness of the dairy sector. The milkshed model is proving to be an effective means of boosting both production and market access in

KDSCP project areas. This model has been tried by other organizations in attempts to provide embedded services from both private BDS and milk collection in the KDSCP areas. The evaluation believes that this model, combined with the BDS approach, takes a business approach to dairy enterprises and is therefore sustainable. In terms of information systems management, the MIS and e-dairy related software were innovative in increasing the efficiency of information provision to farmers. Livestock feeding and management developed innovative strategies, especially in regards to farmer-friendly feed formulation strategies such as technology transfer in silage making. These innovative technologies were easily adopted by farmers and contributed to the increased milk production realized by KDSCP farmers.

Sustainability

KDSCP has built in a number of sustainability mechanisms. First, farmers' organizations have mobilized sufficient ownership to procure CPs; second, the increased milk delivery and storage capacity; third, the business principles in contractual agreements with dairy industry players; fourth, the formation of embedded services with related dairy services to farmers have all contributed to KDSCP sustainability. KDSCP's public-private partnerships will cement relations with the KDSCP establishments over time and increase sustainability.

KDSCP has made progress toward ensuring sustainability by forming symbiotic working relationships with other policy and regulatory organs such as KDB and DTF. Stronger working relationships have also been established with KLBO, CAIS, private processor organizations, National Dairy Boards and Livestock Breeders Associations. Qualitative information also indicates that KDSCP has positive relations with other stakeholders in the dairy value chain. This is strengthened by the fact that Land O'Lakes, the implementing organization, is well respected among the dairy development partners. By providing capacity building services to partners involved in program implementation, KDSCP increases the sustainability of its activities. One example includes the provision of a vehicle to KLBO to facilitate the implementation of breeding services initiated by the partnership between the two organizations. The exit strategy developed by KDSCP, in which the organized groups are assisted in legalizing their operations and holding credible elections, is also a good attempt toward sustainability. Overall, the evaluation team identified the following principles and factors as key in the sustainability of the dairy value chain competitiveness:

The Choice of the BDS Approach Enhances Sustainability

The BDS methodology is sustainable as it involves local private sector stakeholders. The business approach also ensures sustainability of the various embedded services within the milkshed. In addition, the capacity building provided to the BSPs will enhance profitability and continuation of their activities.

Participatory Principles and Approaches Enhance Sustainability

KDSCP employed various participatory methods in the design and implementation of dairy value chain activities. These strategies are also built within the dairy processes, fostering a sense of ownership among KDSCP actors and beneficiaries.

Addressing Environmental Degradation will Enhance Sustainability

The incorporation of environmental conservation enhances sustainability while interventions that could harm the environment reduce sustainability. In this regard, the assessment of the potential negative effects was a best practice in terms of ensuring environmental sustainability. Indications from field interactions with beneficiaries during the evaluation point toward increased adoption of environmental friendly practices by farmers. For instance, this is found in the adoption of green energy activities such as energy saving devices and the installation of biogas units in several households. Other efforts have been toward on-farm agroforestry and improved dairy practices, such as zero grazing.

Community Empowerment Contributed to Competitiveness as well as Improved Governance and Dairy Enterprise Sustainability

KDSCP design emphasized newer approaches to purposeful bottom-up accountability mechanisms. It endeavored to strengthen mechanisms of local accountability, including specific community consultative forums, social audits and public disclosure of resource allocation and expenditure information. Use of community oversight in tracking project expenditures also strengthened transparency and sustainability.

KDSCP Promotes Good Governance, thus Dairy Competitiveness and Sustainability

Through mobilization and capacity building activities, KDSCP has ensured that processes of good governance are enshrined in the groups' activities. Groups are facilitated to hold elections so that credible and trusted leaders are elected. Transparent processes reinforce positive and accountable governance. The transparent participation and accountability arising from capacity building exercises ensures that communities are empowered. Also, the incorporation of vulnerable groups such as women and youth confirm the improvements in governance processes and structures. Finally, Land O'Lakes has strong governance structures and processes, and will steer further mainstreaming of accountability.

LESSONS AND BEST PRACTICES FOR REPLICATION

Overall Lessons

- KDSCP interventions were clearly appropriate to the targeted areas and beneficiaries alike. The project empowered community structures and private businesses, and responded well to the community needs of income generation and food security.
- KDSCP design processes have demonstrated that a community-based approach to targeting is crucial and essential to the success of interventions.
- Beneficiary and location targeting must be elaborated and guided by agreed-upon criteria guidelines.
- Mobilization of the intended beneficiaries must also be carried out before the actual targeting. This is to make them aware of procedures relating to the project and any requirements thereof.

Monitoring and Evaluation Lessons

- The M&E system and methods should be user-friendly and focused on capturing only the most critical indicators for the project.
- The need to develop baseline information prior to the development of the project targets is essential for monitoring of the outcomes.
- In order to enhance impacts and effectiveness, there is a need for increased collaboration with other projects working in similar locations, including joint planning and sharing of information and strategies. KDSCP demonstrated effective collaboration in parts of Central province.

Program Design and Implementation Lessons

- Capacity building is a more powerful tool for developing dairy organizations than the provision of material inputs since it promotes self-reliance rather than dependency.
- Partnering with relevant ministry personnel in planning and implementing dairy interventions ensures that the implementing institutions have better administrative and technical capacities for the project implementation process.
- A clear exit strategy with a timeline should be part of the program design.

- Given regular staff movement and transfer, projects should consider having regular training conducted by local level ministry technical staff. This is to cushion against the transfer of project-trained staff. This will ensure continued availability of technical personnel in the project area to guide the communities further into sustainability.
- The participation of dairy stakeholders in design and implementation of the activities is crucial for impact, ownership, and sustainability as it builds capacity within communities and creates cohesion.
- The participatory planning and background studies ensure that critical issues are captured and the project thereafter responds to the real needs of the communities.

CONCLUSIONS

General

Overall, the KDSCP dairy commercialization activities have improved the lives of thousands of beneficiaries. These effects have positively confirmed that dairy commercialization can be a useful poverty reduction tool in the smallholder context. KDSCP has also resulted in positive working relations with a number of actors in the value chain. The design of KDSCP was in line with the USAID thematic objective number 7 in responding to poverty needs of the rural poor dairy farmers in Kenya. The project was based on extensive dairy consultations and studies and, in our opinion, attempted to respond to their recommendations and also to the needs of the beneficiary communities.

Implementation and Performance

Overall, KDSCP implementation was exemplary, with most activities completed within the planned timeframes. Most of the targeted outputs have been surpassed. This was due mostly to the right conception during the design stage and the placement of the correct implementation structures and processes in the latter phases. The BDS methodology, in particular, in a defined milkshed, was responsible for most of the success. The enabling environment also contributed to the success.

Impacts

KDSCP mainly focused on capacity building and creating linkages. In this regard, some of the impacts are not easily discernible and attributable to the project. Also, a number of SBOs are still in their infancy and therefore, pinpointing their impacts is challenging, considering that other organizations have also been in the area. Some of the interventions from the trained SBOs and BSPs also take time to mature. For instance, the improvement in breeding and genetic material will take some time to come to fruition. Despite this, in general terms, the medium-term impacts of KDSCP were noted for improvements in food security, livelihoods and local economies (increased incomes, employment, etc.). The commercialization impacts were noted in improved prices of milk and livestock sold in the local markets to improve livelihood and health status, while capacity building interventions resulted in increased knowledge of dairy and general business management. The other short-term impacts included: a) creation of employment provided by the business environment promoted by KDSCP; increased volumes of milk marketed, e.g. federations in Nyeri Milkshed were touted as having bulked the largest volume of milk at the time of this evaluation; b) the improvement of livestock productivity and health from the animal health interventions; c) the improvement in health from the consumption of good quality milk by the communities and sales from milk improved household income and provided them with alternative livelihoods.

Sustainability

The KDSCP dairy value chain interventions were largely sustainable. This was due to the training and linkage of the BSPs to dairy farmers and associations. The level of community participation in the projects was

satisfactory and contributed to KDSCP ownership, evidenced by community involvement in its activities. Also, the extent to which the communities take full control of the interventions was promising and improving. The continued involvement of government departments at the grassroots will also ensure that communities are supported if need be.

RECOMMENDATIONS

General Recommendations

- The finding of this evaluation should be incorporated in future project designs, such as FtF.
- Development programs such as FtF should incorporate other partners (including government) and clearly define the roles, responsibilities and outputs for each; set priorities jointly; define facilitation requirements; develop with resource mobilization strategies and plans for each partner; and conduct joint planning and eventually, joint execution of the funded plan.
- The KDSCP and other future programs should consider providing some incentive for the SBOs, officials and trained community SPs to provide the motivation for sustainability.
- KDSCP should intensify its current activities, thereby building on the successes achieved thus far, to ensure that impacts are more pronounced.
- KDSCP should seek sources of additional funds to upscale its successful activities. This could be in other feasible adjacent areas that have not been reached so far. However, this should consider the capacity of the implementing agency and its ability to consolidate the gains made by KDSCP.

Project Design, Preparation, Implementation, and Monitoring

- KDSCP and other future value chain dairy projects should find medium- to long-term visions to provide additional post-project support to beneficiaries.
- Collaboration and close working relationships of the sector players and line ministries is paramount to securing successful value chain interventions.
- Future programs should identify clear monitoring systems/strategies for the trained BDS SPs.
- Future projects such as Feed the Future could adapt the design of the milkshed model but should explore ways of limiting the constraints to the BDS milkshed approach in underdeveloped national dairy industries that suffer from limited customer demand for processed dairy products; geographic isolation and poor infrastructure; poor genetic resources; and predominantly traditional livestock husbandry practices with a predominance of traditional methods.
- KDSCP and other future programs should explore ways of increasing the profitability of poor dairy farmers. The costs of dairy-related inputs and services are still relatively high; hence cutting the margin for the dairy farmers would be ideal.
- KDSCP and future programs should find ways of partnering with government, NGO and private sector actors already active in the dairy sector. Other dairy support services should also be included in the design of future dairy projects, such as the development of water infrastructure near chilling plants.
- There is a need to promote stronger involvement of the private sector in the development of BDS approaches, especially in management of CPs and BDS. Subcontracting operations are an option.

- KDSCP and other future programs should explore ways of instituting professionalism in the management of milksheds. This has been attempted by subcontracting the management of milksheds, but more emphasis should be placed on the business orientation. A model establishing contracting relationships with private institutional partners in the dairy industry could be explored, as it has the potential to reduce the management responsibility and financial risks, and improves the sustainability of milksheds.
- Future dairy programs need to focus on ways of reducing costs of dairy inputs, particularly AI. This could take the form of subsidies for both poor farmers and AI service providers. Currently, poor farmers cannot bear the financial risk of investing in AI and new AI SPs are constrained by significant business start-up costs and low demand.
- Future programs should develop and adopt stepwise approaches and methods for their progression along the phases. This ensures that future projects establish effective exit strategies.
- There is a need to support capacity building activities with the development and dissemination of sufficient numbers of user-friendly training modules. These materials should be translated into the local languages for the beneficiaries.

Targeting

- KDSCP should develop an effective targeting strategy at the individual beneficiary level with the active involvement of the poorest in the targeted areas.
- Future projects and KDSCP should explicitly address the potential for increasing the incomes of the poorest and most vulnerable dairy farmers, including addressing issues related to income, vulnerability, and livelihood security at the farm level.
- Women-specific activities should be developed to increase their economic participation and power in various dairy-related activities.

Capacity Building Recommendations

- Future capacity building exercises for the SBOs need to consider supporting the legalization of these organizations. This will enhance their recognition by the community and other donors.
- KDSCP and other future programs need to focus and target training of SPs such as AI technicians and prepare and mentor them for continued service provision. The training should have business oriented skills development.

Monitoring and Evaluation

- M&E systems should be streamlined to reduce the number of milestones and only involve indicators that are easily collected and analyzed.
- KDSCP and other future projects should have structures for real time data collection, analysis and a monitoring system. This should be tailored to suit the particular SBO.
- The M&E systems should be flexible enough to capture lessons learned and document innovative practices. It should also be strengthened to ensure that partners adopt good practices as they occur.
- The M&E systems of future projects need to accurately capture the social and economic effects and outcomes of the projects, especially among vulnerable groups.

Project Management

- KDSCP and other future projects should clearly define roles, responsibilities and relationships among the partners and stakeholders.
- KDSCP and other future projects need to support the establishment of performance-based contracts for awards of subcontracts with private sector players.
- KDSCP and other projects should identify opportunities for continued professional staff development.

ANNEX C.3: EAST AFRICAN DAIRY DEVELOPMENT PROJECT (EADD)

BACKGROUND

The EADD project-Kenya is a $4.2 million (KShs 317million), 48.5 month-long project funded by the Bill and Melinda Gates Foundation and implemented by a consortium of 5 organizations led by Heifer International in Kenya. The other organizations are International Livestock Research Institute (ILRI), TechnoServe (TNS), African Breeders' Service Total Cattle Management(ABS-TCM), and International Center for Research in Agroforestry(ICRAF). The project's focus is to move smallholder dairy farmers out of poverty by delivering farmer-focused value-chain activities that are implemented simultaneously to stimulate dairy farm production, dairy sector services, business development, and dairy market pull.

The project seeks to achieve its vision by focusing on three objectives.

1. Project Objective 1: Generate information for informed decision-making within the dairy value chain and develop innovative solutions for use of resources that increase income.
2. Project Objective 2: Expand dairy markets and increase market access for smallholder farmers.
3. Project Objective 3: Sustainably increase dairy productivity and efficiency.

KEY FEATURES AND/PROCESSESS RESPONSIBLE FOR EADD SUCCESS

EADD Design and Processes Effectiveness

Targeting, Timing and Entry Strategies

The initial phase of the EADD project began in 2008. The project operates in the Rift Valley and Central Provinces. It is pro-poor, seeking to double dairy income among 179,000 farming families by 2017 through knowledge-based interventions that enhance both dairy production and market access.

EADD design was informed by detailed background studies and lessons learned from similar projects. The background studies included *The Dairy Value Chain in Kenya*, consisting of a market survey of services intended to identify problems in the BDS market and allow better understanding of market opportunities, weaknesses and constraints to the sustainable supply of and demand for BDS.

The evaluation team noted that the background studies and the incorporation of lessons from previous projects were responsible for the design interventions' appropriateness.

An analysis of the design indicates a focus on building structures to enable broader diversification of dairy business services to develop sustainable dairy hubs, closing commercial financing arrangements between chilling plants (CP) and banks, improvement of corporate management of assisted dairy business, conversion of legal status from private limited to public companies for all dairy businesses, and entrenching sustainable extension structures within the hub systems. This, in our opinion, forms a viable and appropriate exit strategy for a dairy commercialization program.

EADD Design Flexibility and Ability to Internalize Lessons

Design flexibility is exemplified by the changes in implementation structures required to incorporate cluster arrangements, such as the four clusters in Kenya managed by multidisciplinary cluster teams. It is also demonstrated by the expansion of EADD sites in Uganda and Rwanda. Baseline studies in these countries demonstrated that farmer and cattle density within originally selected CP sites was unlikely to enable achievement of key project milestones for registered farmers and milk production. Accordingly, EADD added 26 new CP and TM sites and realigned mobilization strategies in both countries to include a greater

number of collection points, increased focus on BDS services to TMs in Uganda, and strengthened communications strategies in support of farmer registration.

Effectiveness of EADD Site and Beneficiary Selection Processes

EADD, through ILRI, its leader in knowledge-based learning, undertook an objective selection of sites geared toward enabling the project to achieve its objectives. It characterized potential sites according to a range of criteria including opportunities for production increases within individual milksheds (population of farmers and livestock), physical and social infrastructure, and access to dairy markets. EADD then used a scoring system whereby each potential site was ranked according to selection criteria. Sites with the highest scores (greatest potential) were then selected for participation in more detailed 'feasibility studies' carried out by teams composed of the partners.

Overall, this process of site and beneficiary selection, which also involved other stakeholders, was effective in identifying the right beneficiaries and areas for the project.

Technical Approach

EADD Strategic Framework

Project documents indicate that EADD identified key technical gaps for the development of a vibrant dairy industry. The main technical issues were poor market access, low dairy productivity, low competitiveness, poor quality of dairy products, poor genetic potential resources of dairy cattle, inadequate dairy-related support services, poor feeding systems, poor general husbandry, and a poor enabling environment for dairy commercialization.

EADD then sought to address these gaps through the development of a hub model utilizing a BDS approach. In our opinion, the strategies and approaches adopted to address the constraints were appropriate and adequately reflected cause-effect modal analysis.

EADD Implementation Effectiveness

EADD organizes dairy producers to form DFBAs and develops a dairy hub that eventually provides most of the services that are required by small-scale dairy farmers. The project identifies and trains local SPs and volunteer trainers who then go out and train farmers (as TOTs), and seeks to integrate private sector providers into the hubs. EADD encourages DFBAs to set up a milk chilling plant (except for traditional markets) which will eventually become the central component of the hub services. EADD facilitates establishment of new CPs (or rehabilitates existing CPs) to effectively bulk milk by pre-financing approximately 40 percent of the cost, then links DFBAs with a financial institution from which the DFBA can secure a long-term loan and repay the loan from EADD. Other common services provided by a hub included agro-vet, AI services, feed services, and a savings and credit cooperative (SACCO).

A fully functioning dairy hub becomes a dynamic cluster of services and activities that generates greater income for dairy farmers. The CP creates a sustainable demand for milk in the area, provides consistent income, improves milk quality and provides credit against the milk supplied to the plant so that farmers can buy other services. Farmers can access inputs on credit from the agro-vet, use AI, or take a small loan. The difference from the traditional market hub is that the EADD hub has a CP as the nucleus of all other services.

Implementation Strategies and Processes

EADD uses a group approach to implement its activities in the dairy hubs. By combining research, technological improvements in livestock feeding, breeding practices, and business training, EADD delivers

direct economic benefits to rural farming households in Kenya. EADD transforms the DFBAs from private to public companies, with 21 DFBAs in the form of private companies, cooperatives, or public companies and 110,480 registered farmers.

To increase milk productivity, it promotes AI, CBAHWs, and improved feeding. It also links dairy farmers with processors to create higher demand and leads to better terms of trade for producers.

It also links DFBAs to large processors (NKCC, Brookside, Molo Milk,) to ensure a stable and more sustainable market. Overall, the group approach and the linkages facilitated by EADD were appropriate in mobilizing the farmers toward increased market access.

EADD Implementation and Structures and their Effectiveness

EADD was a two-phased project. The first four years was used to test different methodologies and to elicit reactions and capture lessons to inform the design of phase two. The second phase was essentially to align EADD's long-term vision by up-scaling successful interventions in phase one, to benefit an additional 350,000 smallholder dairy families by 2017.

This evaluation found this phasing appropriate as it allowed testing of scalable innovations from phase one. The different activities were implemented simultaneously, with each implementing partner spearheading its component. In all the different sites under phase one, EADD adopted a *BDS methodology* based on identified market-based solutions. Overall, the simultaneous implementation process contributed to the positive outputs in some aspects. By using private BSPs, EADD was able to drive the BDS orientation necessary for dairy value chain development.

Through the training by EADD, interviewed farmers indicated that they had achieved a greater understanding of 'dairy as a business' and as a way of improving their livelihood security through the production of high quality milk. The BDS model also resulted in increased milk production, improved milk quality, and better farmer access to dairy markets.

Governance Issues in EADD

EADD facilitated the organization of farmers into DFBAs, which were also assisted in registration. This way, EADD was able to deal with the underlying organizational issues including legality status, business and power friction, and management weakness. The training by EADD provided the DFBAs with the necessary impetus to drive the BDSs into profitability. The DFBAs were able to define official roles and responsibilities; manage common group conflicts; and institute their membership as required by law. The focus of EADD assistance to DFBAs is to subsequently form them into public entities, running their hub activities profitably as a business. EADD has facilitated the formation and transformation of 21 DFBAs in the form of private companies, cooperatives, or public companies. There are 110,480 farmers registered with more than 80,000 actively selling milk through the CPs.

Generally, DFBAs management structures were able to integrate typical value chain activities at the hub level. There is also evidence of strong interaction in the dairy hubs involving various players (input suppliers, dairy processors, etc.). Most EADD DFBAs have articulate visions and some have developed business plans, while some had strategic plans and had built in financial procedures and reporting measures. Information and communication channels are also encouraging. Thanks to training in group relations and dynamics, the associations have exhibited minimal group conflict. This evaluation also identified community/membership trust in DFBAs officials as a major factor in the hub's good governance. Lastly, findings indicate that influence (community 'peer pressure') from other existing cooperatives and government officials also contributed to the development of stronger governance structures.

Inclusion and Access

Increasing Participation in EADD Dairy Value Chain Activities

A review of the EADD management structures indicates a focus on increasing collaboration among private and public stakeholders. The design emphasizes building stronger inclusive stakeholders and beneficiaries to participate in the development of a competitive dairy value chain. The design of EADD is itself a working partnership of five collaborators. The project facilitates consultative processes in which all stakeholders are consulted at various phases of the project. The current success of the project is a testimony to the effectiveness of this consultative process, which contributed to achieving the synergy envisioned in the program design.

Inclusion of Other Actors and Stakeholders and Incentives for Participating in EADD Activities

The evaluation established that across all the project areas, EADD identified several actors and stakeholders who were critical in BDS development. They were involved in the design and implementation. The inclusion of these actors added to the buildup of synergy necessary to spur dairy competitiveness, strengthen vertical and horizontal linkages, and provide the enabling environment necessary for BDS. Examples of actors involved in EADD activities include processors (NKCC, Brookside); private consultants (TANGO International); MFIs (Fina Bank, CFC Stanbic, etc.); breeding services providers (ABS-TCM), etc. These actors are driven by the desire to improve commercialization of the sector, provide cross learning and achieve economies of scale through leveraging individual funds. Qualitative results show that the actors and stakeholders contributed greatly to the overall project objectives, including strengthening linkages necessary for dairy value chain development..

Private Sector Involvement in Dairy Commercialization

Increasing Private Sector Participation in EADD Activities

Stakeholder consultations alluded to the existence of a variety of partnership arrangements between EADD and the private sector. The evaluation identifies these partnerships as crucial tools in the development of dialogue mechanisms for formulating value chain market-based solutions. EADD design is premised on the development of robust private sector SPs as the framework for developing viable BDS. EADD works with private sector players and actors, including individual business entities, private consultants (TANGO international), agro-vets, milk processors (Molo Milk), milk transporters (Buzeki dairies), farmers' organizations, regulators (KDB), etc. EADD involved these groups in design and implementation of interventions through consultative meetings and during the background value chain studies. Other private sector engagements include BSPs, individual animal health technicians, and AI technicians. By and large, EADD fostered a strong working relationship with the private sector, further contributing to the competitiveness of the value chain.

Approaches for Increased Private Sector Participation in Program Activities

The evaluation team attributes the increased private sector involvement in EADD activities to the elaborate and pragmatic BDS methodology and other differential strategies and approaches.

The EADD 'differential' approaches seek to provide private sector products or services that are 'unique' and valued by its clients. EADD differential strategies include:

- facilitating improvements in dairy products, building on innovative capabilities as it seeks to achieve competitiveness;
- facilitating the adoption of the hub model with the embedded integrated dairy services, providing farmers with access to new opportunities for experimentation, hence their participation;

- promoting market-based approaches that in effect demonstrate better client solutions in partnership with other players in the value chain;
- adapting to and being responsive to the private sector procedures and initiatives;
- creating a working, symbiotic relationship based on respect between projects and government and private sector players;
- incorporating lessons learned from similar projects;
- use of the peer education and gender mainstreaming approaches; and
- use of participatory approaches during the project preparation also enhances private sector participation in EADD activities.

Table 17. Farmer Trainers Recruited and Trained

Numbers of farmer trainers recruited by December 2009	Numbers of farmer trainers recruited by December 2010	Numbers of farmer trainers trained by December 2010	Men	Women
219	514	737	405 (55%)	332 (45%)

Contributions of the Private Sector to EADD Impacts and Success

Overall, private sector players contributed to the following EADD successes:

- increased business volume at milk collection and chilling centers;
- increased number of loans accessed through program-linked financial institutions;
- development and adoption of appropriate technologies in feed formulation and conservation;
- increased animal husbandry, general extension and breeding service provision;
- strengthened dairy business organizations;
- increased lobbying by the dairy sector of different players;
- increased awareness in price formulation by the processing organizations;
- increased income and employment creation; and
- creation of an enabling business environment.

Competitiveness in EADD Activities

Increased Access to Financial Services

Indications point toward the EADD project increasing access to financial services for farmers and SPs in the hubs. The initial project proposal stated that EADD's plan to establish 19 new farmer-owned financial service associations (FSA) was intended to support viable dairy businesses among DFBA members and SPs. In addition to reducing the transaction costs incurred by farmers as a result of having to travel to distant towns for financial services, the establishment of local, farmer-owned FSAs provided financial leverage for EADD beneficiaries by providing guaranteed payment for services to BDS suppliers through the 'check-off' system. This system enables farmers to access services by withholding payment from monthly milk delivery credits. The financial products facilitated by the project have resulted in increased accessibility to dairy inputs and

services, and thus more profitability. The FSAs and SACCOs providing Front Office Savings (FOSA) services for its members enabled the farmers to earn about US$36 million since the inception of EADD.

Innovations in the Development of Value Chain Financing

The financial facilities products developed by the EADD were, in our opinion, quite innovative. EADD supported and facilitated access to financial products developed with the arrangement of private microfinance institutions (MFI). The design incorporated a financial model tailored for the dairy farmers, whereby member farmers contribute 10 percent of the capital required for CP procurement through share purchase. EADD, in conjunction with contracted MFIs, financed 30 percent of CPs at zero interest, and the remaining 60 percent of funds are financed through commercial bank loans. The financing strategy for CP procurement also included the establishment of a US$5 million investment fund that is used to 'pre-finance' the procurement of CPs as farmer equity is being mobilized. Interviews with beneficiary organizations revealed some initial challenges, but overall CP financing processes improved, thereby contributing to overall project achievements.

Overall, EADD's broad strategy has not only focused on improving business profitability and the fundamentals of milk CPs, but also in building structures to enable broader diversification of dairy business services to develop sustainable dairy hubs, strengthen commercial financing arrangements between chilling plants and banks, improve corporate management of assisted dairy businesses (or CPs), and entrench sustainable extension structures within the hub systems. In addition to K-Rep Development Agency and Fina Bank, Co-operative Bank of Kenya also providesd commercial financing to CPs.

Examples of positive results include Fina Bank signing a contract with Kabiyet Dairies to take over the KShs 9,000,000 (US$115,384) loan in 2011; Cooperative Bank presenting offer letters to Metkei Multipurpose and Lelan Dairies for commercial loans valued at KShs 8million (US$102,000) and KShs 9.4 million (US$120,000), respectively; Kenya Commercial Bank, CFC Stanbic and Family banks beginning negotiations with new and existing milk chilling plants and KDA extended KShs 20,000, 000 (US$259,740) as interest free loans to 9 DFAs. Overall, DFBAs have raised more than US$443,468 though financial facilities. The evaluation found that other innovative ways for increasing financial support included targeted financing of input supplies, equipment leasing, insurance products, and third-party credit facilities accessible through dairy processors.

Increasing Financial Services/Products to the Farmers

EADD design identifies a number of actions to increase financial support services for the DFBAs. First, the design envisioned competitiveness and undertook a Financial Value Chain Assessment (whose results were shared with financial institutions) and mentored financial service providers to develop products suitable for producers and dairy enterprises. The hub model, in which DFBAs act as the nucleus for integrated dairy services, provides centralized embedded services, including financial services. This enhanced the financial accessibility to EADD beneficiaries. The training and facilitation in business planning also enhanced their accessibility to credit facilities.

Effectiveness of Access to Financial Services

Results from interviews and documentary analysis indicate that despite the low uptake of credit facilities/products, the dairy credit facilities focused mainly on the short-term needs and provided the dairy farmers with tailor-made products with relatively affordable interest rates. The farmers are thus able to secure the credits to facilitate input acquisitions. It is important to note that the low uptake of credit is primarily due to the limited repayment periods; high interest rate; high processing fee; lack of marketing strategy for the product; lack of credit staff in branches; inadequate product knowledge by staff and customers; long distances

to access the credit facility; the fact that the product design does not cater to fluctuations; and the general lack of an established relationship with stakeholders such as the processors.

Impacts of Financial Services Provision to Farmers

Results indicate that access to financial service products improved. For instance, EADD facilitated the acquisition of more than 20,000 credit products from the financial institutions (mainly in-kind in the form of dairy inputs). Interviews with dairy groups indicated increased access to loans for acquisition of dairy inputs, increased competition among financial product providers, and improved knowledge of financial products among individual farmers. Financial services have helped farmer investment in CP and hub-related services rise to more than KShs 340 million.

Partnerships

Enhanced Collaboration in the EADD Dairy Value Chain Competitiveness

Key informant interviews indicate that EADD activities contributed to increased partnerships, cooperation and collaboration within the dairy sector. For instance EADD design and implementation structures enhanced the collaboration and interest from government institutions, research institutions (ILRI, KARI), private firms (TechnoServe, ABS-TCM), and private processors (New KCC, Brookside, Molo milk, etc.). Interactions with individual consultants and SPs are also improving. Collaboration was especially noted between the project and MoLD, Cooperatives, Culture and Social services, KDB, Dairy Training Institute, Kenya Livestock Breeders Organization, breeding service providers, e.g., CAIS, WWS, ABS, finance institutions (Fina Bank, Family Bank, etc.), local consultants, processors (Brookside and Molo Dairies), and transporters (Buzeki).The increased collaboration contributed to the achievement of the outputs, especially on the development of stronger vertical and horizontal linkages within the value chain.

Table 18. Milk Quality Parameters Achieved (2010)

Quality Parameters	Achieved
Farmers trained on quality	28,702
Milk graders trained by (DTI)	186
CP staff trained	103
TOT / credit by Kenya dairy board	94
Samples analyzed by Analabs	82
% rejection	0.16
Aluminum cans purchased in the year	6,285
Transporters trained	328

GoK Involvement in Value Chain Activities

Overall, the GoK, through its relevant agencies, played a facilitative role during implementation, mainly through consultations. The role of the GoK staff was mainly to provide technical support and guidance based on sector policies and regulations, and the provision of an enabling business environment necessary for the development of the BDS approach. The interaction of the projects' management teams and GoK personnel contributed to the symbiotic relationships with the GoK departments, both during technical and capacity building activities. Interviews with field-level GoK and program staff revealed a synergistic relationship that supports implementation.

Table 19. 2010 Milestones and Achievements

Milestone Planned	Project Target	Achieved 2008	Achieved 2009	Achieved 2010	Total Achieved	% of Target achieved
Feeds inventory completed	1	1			1	100%
Stakeholder inventory completed	1	1			1	100%
Farmer-trainers recruited to teach farmers improved feed practices	257	107	219	737	840	327
Farmer-trainers trained in improved feed practices, including 18 fodder-selling farmers	196	36	219	737	992	506
On-farm demonstrations established	235	93	219	748	1060	451
Training of extension-providers in high quality feed production and use	13	1	6	48	55	423
Extension-providers trained in high quality feed production and use	167	33	81	680	794	475
Stakeholder meetings held to promote high quality feeds.	12	1	7	45	53	442
Farmers using high quality feeds	100000	2000	42318	39621	83939	84
Farmers selling fodder	10000		520	1320	1840	18

Table 20. Summaries of Some EADD Achievements as of September 2011

Milk Chilling Plants Business Summary	2008	2009	2010	Sept 2011	Total
Chilling plant sales	3,687,905	6,382,000	11,537,217	20,088,618	41,695,740
Monies paid to farmers(US$)	3,252,339	5,616,753	10,027,429	17,591,412	36,487,933
Total milk sold by farmers Kg	11,862,172	18,588,344	40,312,943	36,066,725	106,820,184
Jobs - BDS Providers	0	485	254	244	983

The Involvement and Role of the Research and Development Institutions in Program Activities

Discussions with the EADD implementation team indicate that research institutions, especially KARI and ILRI were particularly involved in the development and roll-out of technologies, services, and products that facilitated the development of a competitive dairy value chain in Kenya; for example, the development of the molasses blocks, new varieties of lucerne, maize, fibrous fodder, vaccines, etc. This involvement was mainly during the implementation stages.

Increasing Donor Cooperation for Enhanced Dairy Competitiveness

The success of the interventions is also attributed to the expanded consultative processes of the donors involved in the dairy value chain and other agricultural activities. The evaluation identified the donor consultative forum and ASCU as the most active, viable, and effective forums for the consultations and/coordination. Interviews with key informants, particularly the ministries involved in the livestock value chain, confirm a number of coordination meetings attended by Mission and government officials. Field-level

interactions with the projects' implementation organs confirm consultative meetings of various dairy projects in Kenya, indicating some level of consultation, mainly at targeting and facilitation of exchange visits within and outside the individual project areas. This was mainly at the implementation stage.

Enhancing Private Extension Services Provision to Increase Dairy Commercialization

The evaluation found a strong presence of private sector SPs in dairy extension services. A vibrant private sector is the springboard for the BDS approach. EADD has provided employment for up to 983 BDS SPs. The EADD-trained SPs are thereafter linked to the milk hub. The hub-linked private SPs receive their payment through a milk 'check off' system, in which the cost of services are deducted from the milk delivered to the CPs. This system has proved effective and acceptable to the farmers. It has therefore led to improvement in dairy service delivery and the subsequent increase in dairy productivity as indicated by various farmers interviewed during the evaluation. The pragmatic business approach adopted by EADD was also effective in triggering the self-sustaining mechanisms from the SPs. Overall, the SPs played immensely positive roles in the overall success of the EADD project.

Enabling Environment

Enabling Environment during Start-up and Implementation Processes

Findings point to a number of facilitative/enabling factors that contributed to the overall success of the project. Stakeholders identified the following critical factors that contributed to the enabling environment for EADD dairy activities:

- the development of the draft dairy policy (2006), which allows greater private sector participation and self-regulation;
- animal feed quality assurance framework development;
- facilitation of consensus building and advocacy for various aspects of dairy policy; and
- strengthening regulatory agencies such as Kenya Dairy Board, research institutions and associations to improve their ability to advocate for and implement policy reforms.

The development framework and approaches adopted by EADD also required support of all stakeholders in the value chain. Enabling factors for success included: a supportive form of policy framework that fit the scenarios in terms of standards, ordinances, regulatory inspection and testing of products and services along the value chain; the development of adequate marketing structures to stimulate other embedded BDS services to grow; the need to develop adequate transport infrastructures to create the efficiency in milk transportation and hence competitiveness; and the availability of 983 trained BDS SPs in dairy farming services provision.

Other Considerations

Integrating Climate Change Mitigation into the Dairy Value Chain

Climate change mitigation informed the design of dairy interventions and shaped the results of project interventions. Analysis of the design framework points to specific areas where some aspects of climate change mitigation are incorporated, such as promotion of forestation activities, biogas unit installation, fodder establishment, and management and preservation (e.g., silage making, farm residue management, etc.). Overall, EADD mainstreamed environmental conservation in most activities, such as training of the SPs. Interviewed extension staff confirmed having receiving training on environmental conservation. As a best practice, environmental conservation was also integrated in the sensitization of the SPs and agro-vets; feeding

methods training; housing and other dairy structure development; milk transportation and handling; vector control-biological/traditional tick control; and at the bulking/cooling centers.

Enhancing Adaptation to Climatic Variability, NRM, and Sustainable Livestock Practices Within EADD

The evaluation noted a number of appropriate strategies for mainstreaming climate change mitigation in EADD activities, notably: training on proper use, storage and disposal of pesticides/acaricides; acquisition of the PCPB certification for the drug stores; training of SPs on acaricide use by DVOs office, PCPB, and NEMA officers, and suppliers extension officers; encouraging self-regulation through SPs association; recognition of the associations by environmental bodies; environmental campaigns through the DFBAs; integration of environmental issues into farmer field school curriculum; minimization of use of pesticides as much as possible; use of fodder trees; consideration of effects on the environment at pasture establishment; and use of gabions and safe storage of animal feeds from drugs and pesticides.

Observable sustainable livestock practices during field visits include construction of zero grazing units; the shifting from grazing to stall feeding to avoid interfering with soil structure by cattle; allowing for collection of cattle manure for biogas and fertilizing the farms, thus saving on firewood and commercial fertilizers; the construction of cattle crushes and soak pits; proper location of crushes and draining of effluents in soak pits, requiring professional input to avoid contamination of other waters and unintended targets; encouraging the use of pour-ons; discouraging use of plastic containers that are difficult to clean, thus the use of more detergents that contaminate the environment; encouraging milk transporters that use bicycles and donkeys as they are more affordable and environmentally friendly; and encouraging the KDB to stamp out unscrupulous traders who use harmful chemicals to preserve milk, which is both harmful to consumers and the environment. Overall, the evaluation found a positive link between environmental conservation and EADD success.

MONITORING AND EVALUATION

The EADD project engaged various stakeholders through sharing in staff and stakeholder meetings as well as debriefs to primary beneficiaries through the association boards. The outputs of the M&E activities are reported to the executive committee periodically. The operationalization of the participatory M&E system and the refining and reviewing of M&E templates by EADD reduced the voluminous data, thereby contributing to positive impacts. Two software applications (DIS & EMS) are updated and used for documenting real time impacts. There are also efforts to provide sex-disaggregated data in the monitoring indicators. Community supervision played a big part in capturing project indicators by the cluster teams.

Project Results and Impacts: Synthesis of Best Practices and Successes from EADD

Overall Impacts

Given that implementation only began in 2008, it would be premature to make definitive statements about the impact of EADD interventions. Also, this review relied more on qualitative instruments which are not well designed to measure impacts, but rather are used to measure important outputs, outcomes, and processes that determine achievements. Nonetheless, this evaluation gives considerable insight into the factors that influenced the success of the project.

Two of the most significant factors influencing EADD impacts were milk productivity and farmer net revenue from dairy farming. According to regression analysis,[9] most project interventions at the farmer level

[9] EADD MTE Report

have more positive impacts on milk productivity (up to 0.54 liters/cow) than farmers who do not sell to DFBAs, with an average daily intake of 213,500 liters of milk in 2011. Training in dairy management increased milk productivity. With training, households are able to improve husbandry techniques and achieve increases in milk productivity. Qualitative data suggest that farmers who have participated in training have higher per-cow milk production than those who did not. This further confirms that households that received training are better able to manage the production of their dairy cow(s). Key informant interviews with beneficiaries in Kabiyiet Dairy revealed a strong interest in and high perceived value of EADD training activities. Findings in the same EADD mid-term report show that households participating in the EADD project who supported and adopted recommendations by the project increased their economic returns. The impact of training on net revenues has a statistically significant positive impact on net revenues. Farmers received net earnings of KShs 36,487,933, while sales from the CPs were KShs 41,695,740. The evaluation findings, triangulated by those from the MTE report, also confirm that the economic returns of milk production among EADD beneficiaries and non-beneficiaries living within and outside CP catchment areas shows that the value of milk sold and the revenue gained from milk production are all highest among EADD beneficiaries. Data[10] show that mean net revenue among EADD beneficiaries is substantially higher than that of non-beneficiaries.

EADD ACHIEVEMENTS AND SUCCESS AREAS

AGRICULTURE AND LIVESTOCK VALUE CHAIN PRODUCTIVITY AND COMPETITIVENESS

Facilitating Dairy Markets Expansion to Promote Value Chain Productivity

EADD expanded dairy markets and improved market access through partnerships with private dairy processors (e.g., Molo Dairy). These partnerships have, for the first time, provided farmers with reliable buyers who pay on time for the entire quantity of milk delivered. Other efforts at dairy market expansion have largely focused on supporting chilling plants to negotiate contracts with private processors; encouraging private processors to develop increased processing capacity; creating consumer education/promotion campaigns; and seeking opportunities to improve the position of small-scale producers. Key informant interviews suggest that milk production increases resulting from EADD activities have already attracted the interest of private processors. EADD has facilitated the formation of 21 DFBAs in the form of private companies, cooperatives, or public companies, with 110,480 farmers' registered and more than 80,000 actively selling milk through the CPs. Farmers' investment in the chilling plants has grown to about KShs 340 million.

Private dairy interests, including NKCC, Nestle, and Tetrapak (milk packaging) have entered negotiations with EADD regarding longer-term, fixed-price supply contracts and are planning to invest in increased processing capacity. Nestle has also recently appointed a technical advisor (Mr. Tahir) charged with supporting increased milk production and enhanced quality among EADD hubs. Qualitative information also suggests that EADD's development of consumer education and dairy promotion campaigns, combined with increased production, has had a positive influence on the decision of NKCC to invest in greater processing capacity in Kenya.

Increasing Dairy Competitiveness through Improved Accessibility to Financial Services by Farmers

At centers where financial service associations have been established, farmers appreciated improved access to affordable credit, and state that it has reduced their transaction costs by eliminating the need to travel to

[10] EADD MTE Report

urban centers for banking services. Farmers indicate that the direct deposit of their milk earnings by the DFBA to a bank means they are no longer cheated on payments by buyers.

SMALLHOLDER PRODUCER PARTICIPATION IN VALUE CHAINS

EADD Organizes Small Farmers to Effectively Bulk and Market Dairy Products

The hub model has tremendous potential as an engine for economic development and livelihood improvement among poor farming communities in the project areas. Quantitative and qualitative information from the evaluation confirm the effectiveness of EADD's hub model, which demonstrates substantial progress in the number of farmers registered, the number of CPs established or improved, and the amount of milk produced by beneficiary farmers. EADD farmers have earned about US$36 million since its inception through the sale of more than 106 million liters of milk through the CP. EADD has also facilitated the organization of 21 DFBAs with more than 110,480 farmers registered and more than 80,000 actively delivering milk to CPs.

Through the technical support provided by EADD, DFBAs have improved their capacity to manage dairy-related businesses, and participating farmers have achieved a greater understanding of opportunities to improve their livelihood security through the production of high-quality milk. Overall, organizing farmers has helped the project make significant progress toward its goal of achieving a positive impact on household income earned from dairy, diversification of household livelihood strategies, and improved commercialization of small-scale dairy production. Also noted during the evaluation was support for EADD's strategies for hub development and farmer capacity-building by dairy industry stakeholders.

Box 9. Linkages to Seed Companies for Contractual Fodder and Pasture Seed Production

High cost and shortage of improved and certified pasture seed had limited expansion of acreage under improved fodder. To address this issue, EADD established partnership with Kenya Seed Company to contact farmers to produce Rhodes grass, Columbus grass and Oats seed for the company. The initial production is piloted in Cherangany, Sirikwa, Kosirai, Taragoon and Lelan. So far, 30 farmers have signed contracts to produce a total of 350 acres of Oats seed in Lelan and Taragoon, and 55 farmers have signed contacts to produce a total of 495 acres of Rhodes grass in Sirikwa, Kosirai and Cherangany.

Facilitating Capacity Building to Enhance Smallholder Participation in Value Chain Activities

EADD enhanced the capacity of individual farmers, DFBAs and their management to effectively collect and market increased volumes of milk. EADD design provides for extensive training to participants in the areas of milk production, milk quality, business management, gender inclusiveness, improved livestock health, artificial insemination, and production/utilization of improved feeds.

Evaluation findings indicate that capacity building was the single-most commonly cited benefit of participation in EADD among interviewed beneficiaries. EADD sponsored field visits among model farmers, farmer field days, and practical demonstrations of feed processing; AI and other improved practices have been very effective in increasing milk production among participating farmers.

In addition to business training by TNS to DFBAs and executive committees, capacity building efforts at the hub level included technical support for TOTs and CAHPs. The training of trainers, and CAHPs employed by the EADD project impart knowledge and skills for promoting improved milk production practices among the wider community. The evaluation found elements of positive impacts on the milk productivity, e.g., in Kabiyiet dairies, with 'spill-over' effects of improving dairy practices to the wider community. Qualitative information further attests to the technical competence of the TOTs and CAHPs trained and employed by EADD.

DAIRY PRODUCTION AND SALES

Increasing On-Farm Milk Production through Adoption of Productivity Enhancement Technologies

To achieve its overall goal, EADD has placed a high priority on boosting the production of dairy cows owned by beneficiary farmers. EADD focused on supporting improved livestock breeds through AI, greater access to livestock veterinary care, and increasing the use of improved livestock feeding practices. Quantitative and qualitative data indicate that a substantial percentage of beneficiary farmers have adapted improved feeding practices and have either purchased, or expressed interesting in purchasing AI services. Qualitative information further points out that a majority of beneficiaries believe their milk production has increased over the previous years. The uptake of improved animal husbandry practices has been supported by farmer training and distribution of educational materials on AI and animal health, as well as sponsored exchanges with model farmers cultivating improved fodder crops.

The project also provided access to improved fodder seeds in hub agro-vet stores and has given demonstrations on the use of crop residue and other locally available, low cost feeds. Also, farmers' uptake of improved feeding practices has been significant, with more expressing interest in alternative feeding practices. Visited model farmers successfully cultivating improved fodder varieties have the potential for income generation through the use of crop residue pulverizing machines.

Overall, by mid-2011 ABS-Kenya reported the performance of over 50,000 inseminations through the facilitation of EADD with an average of KShs 800, with more AI technicians being able to compete sustainably with the other non EADD service providers. EADD farmers have also earned about US$36 million since its inception through sale of over 106 million liters of milk.

Increased Provision of Cost-Effective Goods and Services to Participating Dairy Farmers

EADD builds on existing dairy-related technical and business capacity by facilitating the provision of BDS at individual hubs. Qualitative information shows that the "check-off" system provided greater access to key BDS. In total, 983 BDS providers have been employed through EADD activities since inception. The EADD hub model provides a system of complementary technical and financial services that are the critical link to a successful dairy business, and which are unavailable to farmers in Kenya. The hub services have also had substantial impacts on farmer access to important goods and services by helping them overcome obstacles posed by inadequate transportation and market infrastructure. EADD also organized Farmer Open Days to link farmers and private businesses that supply dairy-related goods and services. This increased farmer access to goods and expanded the market and distribution networks of the businesses. Finally, EADD supported stronger linkages to services by developing a directory of dairy-related business service providers.

EADD has also attempted to enhance the sustainability of improved breeding practices by instituting a "pass-on-the-gift" mechanism for AI. Under this arrangement, the proceeds from farmers using AI services (through the check-off system) are used to replenish semen stocks owned and maintained by individual hubs.

Improvements in Price Stabilization and Milk Quality

Milk quality and price stability are two of the overriding issues affecting market access for poor dairy farmers. EADD took concrete steps to address both issues. EADD officials engaged NKCC regarding milk supply contracts that account for differences in production costs in various regions and in different seasons. Also, EADD is developing a "cost of production" index, calibrated to incorporate varying costs among different sites, for use as a tool in negotiating contracts with milk processors. In addition, EADD has improved the quality of milk produced by beneficiaries through a number of actions. The project has provided training to both CP management and individual farmers on the importance of milk quality in accessing dairy markets, as well as methods for improving milk quality at the farm level. Each CP supported by EADD has lactometers

to test the density of milk provided, and some of the more advanced CPs also have 'mini-laboratories' to carry out more comprehensive quality testing of milk supplied to processors. EADD has further contributed to improvements in milk quality by encouraging the use of aluminum milk cans by farmers to transport their milk to CPs. In this regard, EADD facilitates acquisition of aluminum canisters through the check-off system at hub agro-vet stores.

Sustained Production and Quality of Milk through Improved Animal Health Care and Nutrition

The EADD project, through ICRAF, focused largely on improving farmer access to 'high quality' feed in the form of new fodder species (leguminous shrubs) and high-protein feed supplements. EADD also supports the production of improved fodder by using the CP hub as a central dissemination point for education materials and fodder planting materials (seed, fertilizer, pesticide, etc.). Key informant interviews point to increased uptake of quality fodder seeds at hub agro-vet stores. Large-scale farmers are also enlisted as BDS providers to sell feed through hubs as an important step in establishing sustainable dairy-related business opportunities. Services complementary to the delivery of quality fodder have also increased, such as the capacity building in feeding carried out by TOTs.

Based on learning from the early stages, EADD adopted a more 'holistic' approach to feeding, placing greater emphasis on use of local materials (crop residue and on-farm processing of high-quality livestock feeds [silage]). EADD also established linkages with other BMGF initiatives supporting improved livestock health and nutrition, including the Sweet Potato Action for Security and Health in Africa (SASHA) project, Farmer Voice Radio, and GALVMED, an initiative aimed at eradicating common livestock diseases.

RURAL HOUSEHOLD INCOME

EADD Expands Dairy Markets to Enhance Farmers' Incomes

To increase the income that poor farmers earn from dairy, EADD aims to expand access to dairy markets. High priority is being placed on enabling DFBAs to expand into the relatively well-established formal dairy market. Qualitative information indicates that EADD beneficiary households earn considerably more income, own more assets, and have greater household dietary diversity than their non-beneficiary counterparts residing in catchment areas. Total earnings are in excess of US$36 million and rising. Daily intake of milk has increased significantly in operational EADD-Kenya chilling plants. Increases in milk bulking are due not only to increasing numbers of DFBA members, but also to relatively high milk production among participating farmers. About 106 million liters of milk was bulked by farmers since inception. Data[11] also show that, on average, beneficiary farmers were producing substantially more milk than their non-beneficiary counterparts residing within and outside the catchment area. Hence correspondingly, other factors remaining constant, they earn more.

EADD-Kenya has attempted to improve market access for individual farmers and the financial viability of individual CPs by supporting the entry of other processors into the market and by advocating for legally binding, long-term

Box 10. Dairy Marketing Group's Revolving Seed Multiplication

Another strategy we are promoting to address seed shortage and high cost is to use Dairy Marketing Group (DMGs) to multiply Vetch, Calliandra, and Lupin seed in Lelan , Olkalou, Kieni, Longisa, Metkei, and Chepkorio. Three DMGs were selected in each site to multiply Vetch and Lupin seed. The seed is then harvested and shared among the DMG members, but the DMG has to bring back 1 kg of seed to be given to the next DMG. This strategy has enabled a wider coverage of demonstrations and acreage under improved fodder as there is seed to be passed on to the next DMG.

[11] EADD MTE Final Report

contracts with dairy processors. The EADD mid-term evaluation report cites NKCC, pointing out that the advantage of EADD is that it can ensure adequate bulking and a reliable supply of milk of sufficiently high quality. The same report cites NKCC representatives, indicating they are in the process of establishing formal contracts with 5 of the 17 EADD-supported hubs in Kenya, but have been discouraged from engaging more due to EADD's concerns regarding market domination.

Overall, the Kenya EADD office reports that 10 contracts have been signed between individual CPs and private dairy processors.

PRIVATE INVESTMENT

EADD attracted private dairy interests from NKCC, Nestle, and Tetrapak. Successes were noted in mainly securing supply contracts from NKCC and Brookside. Nestle, on the other hand, has shown interest in supporting increases in quality milk produced by the DFBAs and currently has appointed an advisor attracted to several DFBAs under EADD. Other successes in private-sector involvement have been witnessed in the involvement of the private MFIs in developing dairy-oriented financial products. This has seen a number of EADD hubs attract interest from among others, Equity Bank, Family Bank, and Fina Bank. Farmers' access to credit has been greatly enhanced by this partnership arrangement.

EMPLOYMENT GENERATION

The EADD BDS approach has created about 983 BDS providers directly from engagement with the private sector. DFBAs established extension departments headed by extension managers who coordinate and supervise extension service, AI, and clinical services. The animal health assistant, AI service provider, and community extension service providers work under the manager. This extension system has led to the creation of the above BDS providers.

INVOLVEMENT BY WOMEN AND YOUTH

More Women and Youth Participating in Milk Production and DFBA Management under EADD

Analysis of the design of EADD interventions points to its commitment to promoting women's involvement in milk production as a means of improving household income, food security, and family well-being. The evaluation confirms a high priority placed on ensuring that women are adequately represented in leadership positions in the project as well as individual hubs. A number of visited hubs had women in DFBA membership. EADD has also elevated the participation and influence of women through executive committee membership and the recruitment of female staff and trainers. This was also confirmed by the presence of female officials in, for instance, Kabiyiet Dairies. The project has further facilitated the provision of important skills training to women participants.

The Organizational Development Officer is also the gender focal point person. A review of the EADD Milestone Tracking Matrix also indicates that significant progress has been made in extending training opportunities to both women and youth within EADD catchment areas. In fact, in all the CPs visited by the evaluation team, women were involved on the management and in other critical tasks (milk collection, quality testing, financial accounting, agrovet stores, etc.).

ENVIRONMENTAL AND ECONOMIC SUSTAINABILITY

Viability of Hubs as Independent Dairy Businesses

The design of the EADD project is innovative in that it promotes a business-oriented approach to pro-poor development. By securing markets for small-scale dairy farmers and service providers, the project seeks to create sustainable livelihood opportunities for vulnerable households as well as reliable economic 'engines' for

rural communities in the project areas. Accordingly, the financial viability of hubs and the dairy businesses associated with them will be a key indicator of the project's effectiveness.

The evaluation has noted that EADD has taken a number of steps to ensure the viability and hence sustainability of project-supported hubs such as the arrangement of financing for CPs. To overcome the reluctance of private lenders to finance new enterprises, EADD developed an innovative CP financing strategy. The strategy is based on a formula whereby member farmers contribute 10 percent of the capital required for CP procurement through share purchase. EADD, in conjunction with contracted micro-finance institutions, finances 30 percent of CPs at zero interest, and the remaining 60 percent of funds are financed through commercial bank loans. The financing strategy for CP procurement also included establishment of a US$5 million investment fund that is being used to 'pre-finance' the procurement of CPs as farmer equity is being mobilized. The EADD milestone matrix for the first quarter of 2010 reports that 10 EADD-supported CPs (of a total first phase target of 33) has secured financing. As of February 2010, the investment fund had disbursed US$2,415,508 to EADD-supported hubs for the procurement of CPs. At that time, US$234,666 (9.7 percent) of the capital borrowed by the investment fund had reportedly been repaid by farmer-operated CPs.

Organize and Strengthen Dairy Farmers to Effectively Manage Dairy Businesses

Quantitative data from the Milestone Tracking Matrix and qualitative information obtained through FGDs and KII confirms that EADD-Kenya has put considerable effort into building the capacity of dairy management groups and DFBAs. Individual farmers who reported participating in exchange visits as well as visits to model farm sites state that these exchanges have directly contributed to their capacity to profitably engage in dairy enterprises.

Another important factor influencing the financial viability of EADD-supported CPs and future relationships is milk quality. By promoting improved milk quality, EADD looks to reduce farm-level losses (due to spoilage) and attract processors that rely on adequate supplies of quality milk to produce higher end value-added dairy products such as ghee, butter, and cheese. EADD has taken concrete steps to improve the quality of milk produced by registered EADD farmers. In addition to providing training on hygienic milk production and handling, EADD has equipped all sites with lactometers to record the quality of milk delivered by individual farmers. The quality of milk purchased by CPs in Kenya has also been improved through EADD-Kenya's policy of requiring transport and storage in aluminum dairy canisters as opposed to plastic jerry cans.

BEST PRACTICES IDENTIFIED FROM THE EADD INTERVENTIONS

Using Multidisciplinary Teams at the Local Level

Interactions with field-level staff and other stakeholder confirm the use of the multi-disciplinary teams at the EADD cluster level, with gradual adoption of a more integrated approach to providing support to beneficiaries.

Information, Education, and Communication Success

EADD deserves credit for developing and/or contracting development of a number of high quality Information, Education, and Communication (IEC) materials related to the private dairy industry and EADD activities. These include partner profiles, information pamphlets on project activities and hub locations, and a variety of technical topics including AI, milk quality, etc. In addition to producing its own Quarterly Project Newsletter, EADD contributes articles on project activities to partner publications in Kenya, including Dairy Mail magazine and Community Eye Newspaper. These materials have been widely distributed and promote the EADD project among private, government, and development partners.

The Development and Integration of Gender Strategy in EADD Project

This evaluation established that EADD took concrete steps to address issues of gender equity and women's participation in dairy-related activities when the project developed a "Strategy for Integrating Gender in EADD." Developed by EADD gender focal-point persons and a gender specialist on appointment from ILRI, the strategy strongly advocates for recruitment of gender point-persons for each of the EADD partner organizations, budget allocations that reflect the project's focus on gender issues, and alternative strategies for supporting women's associations as independent dairy management groups. Implementation of the gender strategy is coordinated by a regional gender coordinator. EADD has encouraged youth to engage in dairy-related activities such as transportation, fodder collection, livestock pen construction, and AI service provision.

The Establishment of a Regional Advisory Committee

EADD acknowledged certain inefficiencies and teething problems in the initial project management structure and took concrete steps to address them. For instance, the consortium established a Regional Advisory Committee (RAC), whose primary role is to act as a 'clearinghouse' for the Steering Committee on all critical issues related to regional coordination and implementation of the EADD project. The efficiency and effectiveness of the management structures have since improved with the adoption of the RAC and cluster approach.

Integration of Lessons Learned in the Implementation Process

This evaluation confirms that by drawing on lessons learned from the first year of project implementation, EADD has made strides in improving the efficiency of project implementation.

Coordination and Communication among Internal Stakeholders

EADD built synergies by expanding smallholder access to private dairy markets, providing avenues for inter-country exchange, and learning and advocating for greater livelihood support for poor dairy farmers. Overall, communication among the partners and EADD Regional and Country Offices is consistent and improving, as the implementing agencies confirmed regular cross-visits.

Enhance Harmony and Consistency by Partners

Consistency is noted in the way partners have been able to promote a business approach to on-farm milk production and hub management. By providing business training, creating opportunities for affordable investments in milk production, increasing access to financial services, and forging relationships between hubs and private dairy interests, EADD has made significant progress toward sustainable improvements in livelihood security among participating farmers. The focus on more consistent communication with beneficiaries regarding project activities has also helped strengthen relationships between individual hubs and DFBAs. Similarly, the involvement of a wide range of stakeholders in the planning and implementation of EADD activities has won the project widespread support among national and local governments.

Dairy Cows Identified and Performance Recorded

After several failed attempts to get tagged animals registered, the EADD team opted to initiate farmer-led recording schemes, which can later be linked to a livestock recording center. SANGonet, Egerton University, and a number of breeding consultants were invited to help set up the structures through the Kenya Dairy Farmer Federation: 178 animals have been registered and their performance recorded under this new breeding scheme.

Successful Piloting of an East Coast Fever (ECF) Vaccine in Some of the EADD Sites
The piloting of an ECF vaccine in some of the EADD sites has sparked a lot of interest in the dairy industry. ECF has been a disease of major economic importance in the sector. Farmers have been spending a lot of their income from dairy in controlling and treating ECF. EADD, in partnership with the EADD task force, and working with the respective DVOs offices, piloted the use of the vaccine in the following sites: Olenguruone, Kipkelion, Taragoon, and Sirikwa.

Improved Coordination of Project Activities
From the evaluation and interactions with EADD staff, planning has improved at the hub level. For instance, EADD adopted the "cluster approach" to project coordination within individual dairy hubs. EADD had established teams representing each of the implementing partners and assigned them to specific clusters of sites. This has resulted in economies of scale for milk collection, sharing of material resources (vehicles, technical staff, etc.) more efficiently, and minimization of production peaks and troughs by ensuring consistent milk production within a particular hub. The cluster approach was also identified to have helped promote partnerships between EADD-supported hubs and private dairy interests, including processors.

Development of Dairy Hub Operation Performance Indexing
EADD has initiated dairy hubs Operation Performance Indexing (OPI) by KIM to enable the dairy hubs to focus on their seven key business drivers toward excellence, which include Organizational Leadership and Management; Human Resource Focus; Customer Orientation and Marketing; Financial Management; Innovation and Technology; Corporate Social Responsibility and Environmental Focus; and Productivity and Quality. This has benchmarked them on best practices, which places them on an international standard of performance with clear pointers of strengths and weaknesses on various determinants. The OPI model will thus give EADD dairy hubs a framework that enables them to improve in executing strategies and activities designed to meet the needs of its farmer members. It will also enable the management teams to improve on innovations and leadership approaches as they sharpen their competitive edge in the market.

SUSTAINABILITY AND INNOVATIONS

Innovations
The first phase of the EADD project (2008-2012) was a pilot phase whereby the BMGF and consortium partners worked together to identify successful and scalable approaches to supporting smallholder dairy farming as a profitable and reliable livelihood strategy.

The evaluation identifies a number of innovative approaches to boosting milk production and expanding access to dairy markets among poor farmers. First and foremost, the hub model has proven to be an effective means of boosting both production and market access in EADD project areas. It is innovative in attempting to combine both private, dairy-related service provision and milk bulking for many of the rural EADD project sites. The hub model is also innovative as a business approach to managing farmer-owned infrastructure and independent service enterprises. This contrasts with the traditional development interventions, which are more dependent on donor funds for sustainability.

Examples of technological innovations include the Dairy Management Software System (DMS) and the 'SmartCard' technology used by some advanced and productive CP hubs. The DMS intended to enable CP staff to monitor milk production and quality at the DFBA and farmer levels, while the Smart Card technology is for tracking production and expenditure (through check-off) data among member farmers.

Innovation was also noted in improved livestock feeding. For example, the joint feed inventory analysis conducted by ICRAF and ILRI led to substantial improvement of a feed strategy that initially emphasized cultivation of newly introduced, high-yielding varieties of feed.

Also, by employing the use of GIS technology to map soil and climate conditions, the EADD feed strategy was adapted to promote greater use of feed processing technology and reliance on locally available crops. One promising step has been ILRI and ICRAF's joint promotion of pulverizing machines for the use of improved fodder and crop residue. More than 800 pulverizing machines are used in EADD areas.

EADD has also demonstrated innovative approaches to dairy-related development through partnership with other BMGF-supported projects. For instance, EADD has collaborated with the Center for International Potato Research (CIP) in support of the Sweet Potato Action for Security and Health in Africa (SASHA) project. In addition to protecting women and children against malnutrition resulting from critical vitamin deficiencies, the project directly engages with farmers themselves to monitor feed availability and test sweet potato-based feed strategies. It also provides technical support to farmers in adapting simple, low-cost, silage-making techniques using sweet potato roots and vines, and other feed resources for use in dairy farming. Finally, the EADD-Kenya team is working with the Regional Team to pilot the addition of maize trading to the CP hub business model. This initiative will include the provision of dual-use maize and animal feed banks (stores) at the farm level through the foundation-sponsored Cassava, Dairy and Maize Value Chains Innovations project. Overall, the evaluation team found these activities to be innovative approaches to ensuring efficiency.

Sustainability

This evaluation establishes several factors that strongly contribute to the sustainability of EADD-supported interventions. First, the perceived viability of CP hubs established by EADD with individual sites mobilizing sufficient equity ownership to procure CPs, increase milk storage capacity, enter into contractual agreements with private processors and establish dairy-related services (agro-vet, AI, training providers) has, to some extent, contributed to the sustainability of the hubs businesses.

Second, the pursuance of public-private partnerships has resulted in increasing business volume to the individual hubs, with up to 53 supply contracts being signed between individual CPs and dairy processors.

Third, EADD forged strong working relationships with relevant government actors. Prominent among them are the Ministry of Agriculture, Department of Public Health, National Dairy Boards, and Livestock Breeders Associations.

Other principles and factors that the team found key to sustainability include:

The Choice of the BDS Approach Enhances Sustainability

The design of the projects based on the BDS approach, with strong involvement from local private sector stakeholders, enhanced achievement of program goals and objectives, and hence sustainability. The business orientation of the various capacity-building activities will enhance sustainability.

Participatory Principles and Approaches to Enhance Sustainability

The participatory approach used throughout the design of the dairy value chain projects and factored in the implementation processes fostered a sense of ownership among beneficiaries. The training also instituted the process of participation and empowerment among stakeholders during implementation. The involvement of the government departments and other collaborators ensured that technical issues affecting the project were well analyzed and understood by all before implementation.

Cost recovery Mechanisms to Ensure Sustainability
The cost recovery and matching grant system ensured sustainability. In addition, the financial returns to the beneficiaries as well as the nutritional and food security activities will sustain interest in the dairy activities.

Addressing Environmental Degradation will Enhance Sustainability
The design of the project to incorporate environmental conservation enhances sustainability. Activities and land-use patterns that negatively affect environmental quality reduces sustainability.

Community Empowerment Contributed to Competitiveness in the Sector and Improved Governance and Dairy Enterprise Sustainability
The training and strengthening of the BDS SPs ensures bottom-up accountability mechanisms and hence strengthens sustainability. The DFBAs provide forums for community consultations and social audits, enhancing the uses of community oversight in tracking project expenditures.

Measures to Promote Good Governance Enhanced Dairy Competitiveness and Sustainability
Good governance is the most important assurance that development resources are applied for the intended purposes. Transparency, participation, and accountability arising from an empowered community were thus the major buffers against corruption. The evaluation team is convinced that EADD promoted these values and processes and thus have sustainable outcomes.

Environmental Sustainability of the Dairy Project
The EADD design anticipated environmental threats, and thus had a provision for EIA for dairy infrastructures. Recommendations from the EIA informed the implementation to mitigate negative adverse environmental impacts. Overall, environmental sustainability was also ensured by:

- Training of service providers and dairy farmers on integrated natural resources management to enhance their capacity to manage environmental conservation initiatives;

Economic and Financial Viability Beyond the Project Period
- The beneficiaries, particularly community-owned milk collection and bulking centers, have existing mechanisms for financial management and fund raising for project operation and maintenance. EADD is helping DFBAs to form companies. These companies have provisions for shares subscriptions and operate bank account/s where the funds are deposited, and are hence sustainable.
- Beneficiaries are encouraged to buy shares for purposes of sustainability.
- The other IGAs, particularly from the embedded services at the CPs, will provide additional incomes.
- Employment generated from the milk collection centers and other related activities by stakeholders instill economic sustainability.

LESSONS AND BEST PRACTICES FOR REPLICATION

Key Design Strengths
The evaluation identified the following major design strengths:

- The use of a facilitative approach by EADD facilitates market-based solutions.
- EADD design incorporates gender, youth, HIV/AIDS, and environmental conservation into the dairy value chain.
- The participatory nature of the project's development process was commendable.

- The integration of good governance in the design and implementation process.
- The concept of matching grants accompanying a competitive system in funds applications.
- The concept of community empowerment through training contributes to dairy competitiveness.
- The milk hubs and chilling plants as models for learning business efficiency and providing new integrated services and where farmers are able to access new technologies, including the means to make the transition from traditional to modern breeds through artificial insemination.
- The peer education approach to learning, with farmers being able to rapidly adopt improved feeding practices and animal health care.
- The gender-inclusive approaches encouraged women to participate in dairy-plant management and to take part in technical training.
- The right conceptualization of the technical approaches to meet the needs of beneficiaries.
- The ability to capture and utilize existing knowledge regarding small-scale dairy development at the community and household levels and capture lessons learned from its implementation in each country. It developed an excellent reputation with government agencies, resulting in workable and commendable symbiotic relationships.

Overall Lessons

- The dairy value chain project, as applied in the targeted areas in Kenya, was well received by all respondents to this evaluation and was clearly appropriate to the prevailing situation in these areas. Dairy development in this context empowers beneficiaries, communities, and local businesses alike; is reasonably cost-intensive; and is responsive to immediate income needs.
- Background assessments in dairy must include appropriate economic, livelihood, market, and risk analyses to sufficiently inform the design of interventions, the type of households to be targeted, etc. The quality of assessments will reflect on the success of the interventions.
- Project partners have demonstrated that a community-based approach to targeting is both essential and workable in the context of dairy intervention in Kenya.
- The process for targeting must be clearly laid out in guidelines at the start of the project. It must not become a process in its own right and it must not lead to unnecessary delays. It can never be perfect, but it must neither alienate nor divide the communities it is intended to serve.
- Community sensitization is essential prior to undertaking targeting. Furthermore, it is critical that intended beneficiaries are made fully aware of procedures relating to dairy projects and their obligations to the exercise.
- Partner organizations should develop clear and common guidelines outlining the principles and practices regarding dairy commercialization, and build the requisite capacity in each organization to plan, design, and implement dairy value chain activities.

Monitoring and Evaluation Lessons

- The approach to monitoring the project has to be streamlined and made more systematic within and among partner organizations to avoid unnecessary administrative overload to field staff.

- A more systematic approach to results monitoring needs to be adopted by projects to ensure that a baseline reference is developed and similar indicators contribute to reviews and evaluations of the projects, and that a broader picture of the interventions can be developed to assess overall impact and institutional learning.
- For dairy projects that focus on the development and upgrading of dairy herds, time frames should have a minimum of 10 years (or 6 years with extension).

Program Design and Implementation Lessons

- Capacity building is a more powerful tool for the development of dairy organizations than the provision of material inputs since it promotes self-reliance rather than dependency.
- Involving relevant ministry personnel in planning and implementing dairy interventions at the community level provides implementing institutions with administrative and technical capacities crucial for the implementation process.
- There is a need for flexibility to move among program activities to cope with the changing needs of communities as the weather changes for better or worse. This flexibility should be built into emergency intervention proposals so that implementing agencies can switch to appropriate interventions with minimum hassle when the need arises.
- Community involvement achieves better results when community members are assigned specific tasks (e.g., in management of the chilling plants, as in the case of the Kabiyet dairies).
- A clear exit strategy with timelines should be part of the program design. This was well structured, for instance, in the phasing-out strategies of the EADD project.
- There is a need for continuous capacity building of district-based project implementation units due to frequent staff movements, especially in the technical line ministries at the district level.
- Stakeholder participation is key to impact, ownership, and sustainability, as this increases ownership of dairy investments, builds capacity within communities, and creates cohesion. For instance, the involvement of the local community in the conception of the Kabiyiet Dairy contributed to its current outputs.
- Design projects with explicit exit strategies within the project time frame, including contingency plans for emergency interventions.
- Develop joint approaches between collaborators and stakeholders based on complementary technical expertise and mandates.
- Undertaking a needs assessment is a good practice and should be strengthened.

CONCLUSIONS

General

Overall, dairy commercialization in the implementation areas has had a substantial effect on the lives of thousands of people. It was based on extensive dairy technical background assessments and was in line with those recommendations. The designs of individual projects were able to address all objectives: the donor agency goals, the needs of the community, and the government policies. It is expected that synergies between the interventions introduced by each project will grow, increasing the benefits of the projects.

Implementation and Performance

The EADD implemented most of the planned activities. . The good performance of the program can largely be attributed to the strengths of the original design, the chosen approaches and methodologies, such as BDS, and the participatory nature of the activities.

Impacts

The evaluation team was not able to assess long-term impacts of the projects since most of the project interventions are at nascent stages (e.g., breeding activities). The long-term impacts of these interventions will be observable later. However, the team was able to observe some short-term impacts that included:

1. The creation of employment. New employment opportunities were stimulated by cash injection into the community. New employment had an impact on the local economy; it increased the volume of produced milk and increased the number of people involved into the project activities.
2. The improvement of livestock productivity and health resulting from the project interventions.
3. The improvement in population health resulting from the increased consumption of good quality milk inside the communities.

The medium term impact of the evaluated dairy programs includes increased food security and improved local economies (increased incomes, employments, etc.). The impact of the dairy commercialization interventions is associated with improved prices of milk and livestock sold at the local markets and with the improved livelihood and health status of the population. The impact of the capacity building interventions is in increased knowledge of dairy and general business management.

The programs attempted to target the most vulnerable communities, and there is evidence of success in achieving this goal. The milk sales strengthened the poor smallholder households' income potential, and provided the households with alternative sources of livelihood.

Sustainability

The EADD interventions are, to a large extent, sustainable due to the level of community participation in the projects. However, the community control and confidence in running the program initiated by the project is still limited. Continued capacity building is necessary to ensure that the communities will take over the full extent of the activities. The involvement of government departments at all levels should also help to ensure support to the communities. Involvement of the government should provide continuity of the activities and ensure sustainability of the project results.

RECOMMENDATIONS

General Recommendations

- The planning of future projects (e.g., Feed the Future), should incorporate other partners to help in clearly defining the roles, responsibilities, and outputs for each; set priorities jointly; define facilitation requirements for the project; come up with resource mobilization strategies and plans for each partner; and conduct joint planning and eventually, joint execution of the funded plan.
- In some of the DFBAs, the officials and trained community SPs provide voluntary service. For sustainability, the dairy programs should come up with a motivation model and strategy.
- There is a need for intensification of the current EADD activities by building on the successes achieved thus far. This would ensure that impacts are more pronounced.

- Subject to availability of resources, up-scaling of sustainable value chain activities to other feasible adjacent areas that have not been reached so far. However, this should be done while taking into account the individual project's evaluation findings, the capacity of the implementing partners, and their ability to consolidate the gains made.

Project design, Preparation, Implementation, and Monitoring

- Future dairy projects need to articulate a medium- to long-term vision due to the limited post-project support to beneficiaries.
- The implementing organizations need to work closely with line ministries and departments in developing entry and exit strategies, including lobbying for relevant dairy policy changes to secure the initiatives they are supporting on the ground.
- Establish a strategy to support a sustainable SPs system with clear aims, objectives, and outputs.
- Adapt the design of the hub model in other areas to better account for factors currently constraining hub development. These factors include relatively underdeveloped national dairy industries; limited customer demand for processed dairy products; geographic isolation and limited transportation infrastructure; predominance of local breeds and traditional livestock practices among pastoral communities; the role of traditional markets in rural dairy trade; and government policies related to dairy development.
- Seek means of making participation more profitable for poor farmers. Increases in milk production supported by the hub model have increased the long-term viability of individual hubs, but due to the costs of dairy-related inputs and services, these increases have not had a similarly positive impact on the economic returns of individual farmers.
- Partner with government, NGOs, and private sector actors already active in water development, and include a water development component, especially near hubs.
- Promote greater involvement of the private sector in the management of CPs and BDS. This may entail subcontracting several of the operational duties currently performed by EADD staff to private partners.
- Seek ways to accelerate the professionalization of hubs. This will likely include intensification of management and business training provided to individual hubs, continued refinement of business plans to correspond to the needs of individual hubs, and establishment of performance-based evaluation criteria for hub management. It may also eventually lead to the establishment of contracting relationships with private institutional partners in the dairy industry. This arrangement has the potential to reduce the management responsibility and financial risks assumed by the project and improve the sustainability of individual hubs.
- Increase technical and financial support for informal dairy processing at the hub level to improve the position of individual farmers in the dairy value chain and address the impact of limited processor capacity during production peaks.
- Reduce the costs of AI (e.g., through subsidies) for both poor farmers and AI service providers. Currently, poor farmers cannot bear the financial risk of investing in AI, and new AI service providers are constrained by start-up costs and low demand.
- Increase capacity-building initiatives at the farm level. Give special attention to educating farmers about the costs, appropriateness, and effectiveness of livestock health and breeding practices promoted by EADD.

- Increase the efficiency of human, physical, and financial resources by tailoring technical and administrative support to the needs of specific sites.
- Develop pathways for progression from one stage to the next to enable EADD to establish effective exit strategies for individual hubs.
- Increase the emphasis on seed production and dissemination by model farmers and feed trainers, and the resources available for this activity.
- Support capacity building activities by developing and disseminating sufficient numbers of user-friendly training materials and make them available to all beneficiary and non-beneficiary farmers through hubs. Translate all training materials into relevant languages in sufficient numbers for service providers and project participants.
- Tailor strategies for improving farm-level production and marketing of dairy produce to specific conditions, constraints, and opportunities by country and site. This approach will likely lead to re-examination of the current approach being taken by EADD in traditional market hubs. In all EADD catchment areas, production activities should be prioritized according to economic returns to participating farmers.

Targeting

- Develop an effective targeting strategy at the individual beneficiary level. Current geographic targeting strategies have established EADD hubs in high-potential areas for milk production, but have not adequately ensured the participation of the poorest dairy farmers residing in project catchment areas. This may include adaptation of certain fee structures (e.g., purchase of shares and milk cans, use of

Box 11. Life is Only Getting Better for Philip Soy

Meet Philip Soy, a small-scale farmer in Konoini district of Konoini Division in the southern part of the Rift Valley Province in Kenya. He is a registered member of Kokiche Dairies and belongs to the Soiten Dairy Management Group (DMG), which has a membership of 24 farmers (9 females and 15 males). Philip owns a 10-acre farm on which he practices dairy farming and grows crops: tea as a cash crop, and maize, beans and vegetables mainly for subsistence. He owns three cows which, before the EADD program, produced an average of two liters of milk per cow per day.

The inception of East Africa Dairy Development Project (EADD) enabled Philip to establish a small piece of land where he grows Rhodes grass, Lucerne, oats, desmodium, Napier grass, sweet potato vines, fodder trees, and cow candy. He also conserves feed in the form of hay and silage and utilizes crop residue, especially maize stovers, to stock up for the dry season. "Before, I was getting 2 liters of milk per cow daily. It wasn't even enough for home consumption. After joining Kokiche Dairies and benefiting from EADD interventions, I now get an average of 15 liters of milk per cow daily. I utilize 5 liters and take 10 liters to the milk chilling plant where I am paid KShs 28 per liter. Apart from increasing my milk production, I am also able to get a good price for my milk," says Philip. He adds, "I also have noted a considerable improvement in the health of my cows and use the increased manure for my kitchen garden."

From his increased earnings, Philip has been able to pay school fees for his children promptly and he contributes every fortnight to savings in his DMGs (merry go round initiative).

As a farmer trainer, he trains his group members and has also managed to recruit and train four other groups on feeds and feed conservation.

Upon asked about his hopes for the future, Philip says, "I would like to work hard and turn my farm into a good model farm for other local farmers to visit and learn from me, especially by improving the quality of my dairy cows through use of Artificial Insemination (AI), improved feeds and from my savings I would like to put up a biogas plant."

AI service, FSA credit terms, and frequency of payment for milk supplied) for individual farmers according to income status.

- In future site selection, explicitly address the potential for increasing the incomes of the poorest and most vulnerable dairy farmers, including issues related to income, vulnerability, and livelihood security at the farm level.
- Develop activities aimed at increasing the economic participation and power of women in various dairy-related activities, using the expertise of EADD gender specialists. This may include greater participation in fodder production and processing, veterinary care, breeding services, informal dairy processing, and addressing transportation issues for female service providers.

Capacity Building Recommendations

- Capacity-building activities that target existing dairy organizations, chilling plants, and institutions need to help them register legally as service providers so that they can be recognized and lead community interventions in future donor programs as well as access dairy loans.
- Focus training on service providers such AI technicians to prepare them for continued service provision. The training should provide technical skills as well as business-oriented skills, including resource mobilization so they garner revenue and manage as necessary.

Monitoring and Evaluation

- Improve the coherence of EADD's M&E strategy through the adoption of a Theory of Change.
- Streamline the M&E system by reviewing, reorganizing, and reducing the number of milestones for Phase II, and by identifying indicators easily collected and analyzed for EADD learning.
- Develop a strategy to institute a data collection, analysis, and monitoring system that is owned by and geared toward the information needs of the DFBAs.
- Continue to improve project M&E systems by further prioritizing performance milestones and creating mechanisms to capture lessons learned and document innovative practices. Strengthen knowledge management to ensure that the project adopts promising practices and revises the M&E system to better capture important lessons and examples of innovation.
- Revise the M&E system to accurately capture the social and economic effects and outcomes of EADD participation on women, and identify promising practices to improve the livelihood security of women through dairy.

Project Management

- Clearly define roles, responsibilities, and relationships among partners.
- Improve the allocation of internal financial resources according to a thorough needs assessment at the hub level, based on improvements made under the 2010 Operational Plan and Budget. Support this process by establishing performance-based contracts for consortium members and/or private institutional partners. This includes developing detailed staffing plans at the country level that match project implementation needs.
- Identify opportunities for continued professional staff development to ensure that staff maintain and upgrade the technical skills relevant to their responsibilities over the life of the project.

Box 12. Success Story: Enhancing Livelihoods Through Dairy Farming: How One Woman Is Changing Her Community

Rift Valley Province has always been the breadbasket of Kenya. This applies to the dairy industry perhaps more than it does to other staple foods. Not so long ago, when Kenya Cooperative Creameries (KCC) was the dominant processor in the country, the region contributed up to 65 percent of all milk produced in the country. With the collapse of the giant processor in the mid-1990s, farmers found themselves without a guaranteed market outlet. Rift Valley Province went from being the most developed in the country – with the best herd genetics and herd productivity – into a state of decline. Farmers began to neglect their animals. Instead of using artificial insemination (AI) to improve herd genetics and productivity, a large proportion of farmers began to use bulls, while fodder establishment and feed conservation have not been given due attention. It is common to see dairy cows grazing on the roadside. This was the situation Mrs. Esther Koskei — a farmer currently with Mosoriot Dairy Farmers Cooperative Society — in which she found herself before the Kenya Dairy Sector Competitiveness program began operations in Lessos milkshed.

Mrs. Koskei currently has four lactating cows, three calves, and two heifers. She has, however, a big portion of land on which she mainly grows maize. In her own words, she lacked information about feed conservation and fodder establishment, and was selling milk individually to the New KCC after pulling out of a bulking group because of corruption by group officials. She was being paid 21 shillings per kilogram of milk. "This was not even adequate to pay for AI services sometimes," she says. "I did not give dairy a lot of attention because of the problems we had before the program." This changed when she attended a field day facilitated by the program in early 2009, where an analysis of earnings and other benefits from dairy and maize were compared.

Through the program-facilitated training on productivity-enhancing dairy husbandry practices covering feed conservation, feeding, disease management, cow evaluation and breeding, and management of in-calf cows, Mrs. Koskei has learned a lot, but most importantly, she has adopted improved husbandry practices. "The program has done a lot for me. I now sell my milk through our group (Mosoriot Dairy Farmers Cooperative Society) and get paid 24 shillings per kilogram after deductions. This we have managed to achieve with the help of the Program, facilitated negotiation of the price with New KCC," she says. In addition, Mrs. Koskei has planted two acres of maize for silage making, planted 1½ acres of Boma Rhodes, and planted ½ acre of sweet potatoes. We caught up with her while making silage from 1 acre of Napier grass she planted after attending a demonstration on silage-making organized by the Program.

To ensure that farmers like Mrs. Koskei have access to productivity-enhancing animal husbandry technologies, including artificial insemination, the program has linked two service providers to the group. The service providers have received training on business management and embedded service provision. They have reported considerable growth in business volume. The program also trains the group leaders on good management practices to ensure they do not repeat the mistakes of former leaders.

"I do not complain about lack of money to pay for AI services anymore," Mrs. Koskei says. "The service provider attached to our group can serve my cow and get paid by our group at the end of the month. Most important is the resultant raise in income. I am now able to feed my family. My kids go to school with full stomachs, and they are healthy. With the technologies the program is promoting, I am sure I will attain 15 liters per cow per day before the end of this year." She now receives an average of 7 liters per cow from her four cows. She is exploring the possibility of installing a biogas digester on her farm.

Being the group vice chairperson (in a community where leadership was a preserve of men, this is attributable to gender-sensitization by the program), she has volunteered to have her dairy farm designated as a demonstration farm so that other farmers can learn from her. "I believe I will be giving something back to society, just as some people have done for me."

ANNEX C.4: SMALLHOLDER DAIRY COMMERCIALIZATION PROGRAM (SDCP)

EXECUTIVE SUMMARY

The smallholder dairy commercialization program is funded by the GoK/IFAD and the beneficiaries. It is a seven-year project implemented in nine districts in Kenya. Its objective is to increase the incomes of poor rural households that depend substantially on the production and trade of dairy products for their livelihoods. It is a pro-poor program aimed at raising the economic status of resource-poor dairy farmers, small-scale milk traders, and milk bar operators in the target districts through improvement of their dairy herds, feeding, linkages to markets, and value addition.

The program targets 120,000 people (resource-poor dairy farmers, part-time dairy farmers, small-scale milk bars and shop operators, and mobile milk traders) in approximately 24,000 households through 600 groups.

The program was evaluated along with other dairy programs under the USAID-led multi-stakeholder evaluation of agriculture and livestock value chain activities in Kenya. The evaluation findings show that the program has built the capacities of dairy groups (farmers, small-scale traders, and milk bar operators) to commercialize their activities. In doing so, the program has focused on dairy herd improvement through training in feeding, fodder establishment, management, and conservation. This has resulted in a reduction in the cost of milk production by up to 23 percent while increasing milk yields from about 4 liters per cow per day to 10.6 liters per cow per day.

The program has also promoted collective marketing, and farmers were found to be bulking their milk and selling as a group. This has led to a price premium of KShs 5 per liter above the price received by farmers selling as individuals. In terms of milk marketing, 224 dairy groups (DGs) consisting of 3,755 DG members have collective marketing arrangements, representing 55 and 37 percent of the targets, respectively.

The program has also established important linkages with the Kenya Dairy Board, which has been licensing the milk traders and milk bar operators. Links with the Dairy Training Institute have been instrumental in providing classroom and field-based training of the program's target beneficiaries and some of the implementing staff.

The program has also built beneficiary capacity in enterprise management, including development of business plans, which has resulted in improved access to formal financial services, with beneficiaries receiving more than KShs 34 million in loans. Recently, the program has been in discussions with an insurance service provider to explore the possibilities of underwriting livestock insurance cover.

The project's other achievement is the training and establishment of biogas demonstration units in collaboration with KENFAP, with funding from GIZ. So far, 22 gas demonstration units have been built. Individual farmers have also built their own with a subsidy of KShs 25,000 per unit (35 percent of the unit construction cost). The basic cost per unit is estimated at KShs 70,000.

BACKGROUND

The Smallholder Dairy Commercialization Program (SDCP) is a seven-year project financed by the GoK and the International Fund for Agricultural Development (IFAD). The project was approved on December 13, 2005; the Loan Financing Agreement was signed on January 25, 2006; and became effective on July 12, 2006. The program completion and loan closure dates were originally set for September 30, 2012 and March 31, 2013, respectively. Since then, program implementation has been extended by three years, and consequently,

the program completion and loan closure dates have been reset for September 30, 2015, and March 31, 2016, respectively.

The program goal is to increase the income of poor rural households that depend substantially on production and trade of dairy products for their livelihoods, while the purposes are to: (a) improve the financial returns of market-oriented production and trade activities by small operators through improved information on market opportunities, increased productivity, cost reduction, value adding, and more reliable trade relations; and (b) enable more rural households to create employment through, and benefit from, expanded opportunities for market-oriented dairy activities, as a result of strengthened farmer organizations.

The program targets 120,000 people (resource-poor dairy farmers, part-time dairy farmers, small-scale milk bars and shop operators, and mobile milk traders), in approximately 24,000 households through 600 groups. It is implemented in nine districts of Nakuru, Trans Nzoia, Uasin Gishu, Bomet, and Nandi North Districts in Rift Valley Province; Bungoma and Lugari Districts in Western Province; and Nyamira and Kisii Central Districts in Nyanza Province.

The program design clearly identified inadequate technical knowledge of dairy production and milk marketing constraints faced by poor smallholder dairy producers as key limits to poverty alleviation, particularly in the high and medium-potential areas. The program tried to address issues of organization and enterprise skills development, improvement of technical knowledge (of dairy enterprises) of smallholder dairy producers, development of the milk marketing chain, and support to policy and legal institutions in the dairy industry.

Figure 9. Map of Program Area

PROGRAM DESIGN

The program was designed through comprehensive stakeholder consultations, which included visits to all program target districts. Due process in terms of studies to inform the design and targeting were conducted by ILRI through a contract from IFAD. The design builds on previous interventions and knowledge generated in the sector by other programs such as the smallholder dairy program funded by DfID, Private Sector Development Assistance (PSDA) funded by GIZ and DED, National Agriculture and Livestock

Extension Program (NALEP) funded by the Swedish International Development Agency (SIDA), and the Kenya Dairy Development Program (KDDP) funded by USAID. Other considerations included GoK national and agriculture sector policy environment and the IFAD Country Strategic Opportunities Program (COSOP).

The program goal is to increase incomes of poor rural households that depend substantially on production and trade of dairy and dairy products. The program has five components:

- organization and enterprise skills component;
- technical support to smallholder dairy producers component;
- development of the milk marketing chain component;
- support to policy and institutions component; and
- program management and coordination component.

The program is designed to be implemented through a Market Oriented Dairy Enterprise (MODE) approach, which has three steps.[12] The approach is characterized by a stepwise movement of dairy groups (DGs) toward becoming successful enterprises that are primarily concerned with milk or dairy products. The Group Approach is therefore integral to this program design.

Designed as a pro-poor program to be implemented in areas where dairy activities are semi-commercial, the program adopts an inclusive approach to build capacities of the poor to improve quality of their dairy herd and to participate in dairy marketing activities. Value addition is achieved through promotion of small-scale milk processing enterprises linked to dairy groups working in the project areas. Policy and legal framework reviews are embedded in the project design to support the participation of the smallholders in the dairy value chains. Links with other institutions in the dairy sector are established to improve the delivery of project outputs (*see section on partnerships*).

Implementation structures are designed to enable participation of the target groups, policy and legal institutions, and public-sector frontline staff in the implementation of the program. Monitoring activities are built-in to ensure quick feedback on and resolutions of implementation challenges.

Implementation Approaches

The program is implemented at the divisional level through focal areas defined as Dairy Commercialization Areas (DCA) using a group approach. A DCA consists of 500-800[13] dairy farmers and can cover a whole division or two or more locations depending on the concentration of dairy farmers in a division. Each district has three DCAs, i.e. 1,500-2,400 dairy farmers per district or 13,500-21,600 for the whole program coverage.

The program target area and groups were identified prior to the design through a study commissioned by IFAD and undertaken by International Livestock Research Institute (ILRI) in collaboration with GoK in March 2005, entitled "Targeting Pro-poor Investment in the Kenyan Dairy Sub-sector." In selecting the target groups, the design based its criteria on data collected through household surveys conducted in Central

[12] Step I: Groups are set up and operational. Step II: Improved collective action with recorded returns. Step III: A market-oriented approach is adopted and successful enterprises put in place.

[13] This is the number of households that SDCP estimates a community-level service provider (e.g., AI service provider) can service within a period of one year.

and Western Kenya by ILRI/KARI/MOLD during the implementation of Smallholder Dairy Project (SDP) between 1996 and 2000.

As part of the program implementation start-up, a Participatory Rural Appraisal was conducted in each DCA to identify community needs and challenges; this was followed by the development of community action plans (CAPs) to address the identified challenges. Dairy-related challenges were to be addressed by the project while other challenges were addressed through the normal GoK district-level interventions.

Under Component I, the program deals with capacity building of the target groups in organization and enterprise skills development. The objective is to provide program beneficiaries with appropriate organizational, managerial, and entrepreneurial skills for them to benefit fully from market-driven commercialization of milk production, processing, and trading. Training is carried out through residential training, field days, demonstrations, and study tours.

Some of the technical design issues to be addressed with the target groups were poor genetic material, feeding practices, and milk handling. Component two of the program tries to address these concerns. The capacity-related issues addressed under this component include providing beneficiaries with the appropriate technical skills and supporting them to participate in and benefit fully from market-driven commercialization of milk production, processing, and trading. Training offered under this component includes animal husbandry practices through residential and non-residential training, demonstrations, and study tours that focus on forage establishment and management, animal health, clean milk production, handling and processing, and improvement of dairy breeds mainly through artificial insemination.

The third component of the program is concerned with developing the milk marketing chain. This component addresses issues of market access as identified in the design. The key objectives of the component are to improve market linkages for small-scale milk producers, traders, and processors to local milk markets, and to increase their access to the processing sector.

The program design recognizes the need for a strong policy and legal framework to support the development of the smallholder dairy sector and the need for strong support institutions. The fourth component deals with support to policy and institutions working in the dairy sector. The objective is to create policy and legal environments that encourage the economic development needs of smallholder dairy producers, small-scale milk processors, and small milk traders; and support key institutions ensure sustainable capacity development and delivery of specialized training for smallholder dairy producers in MODE development.

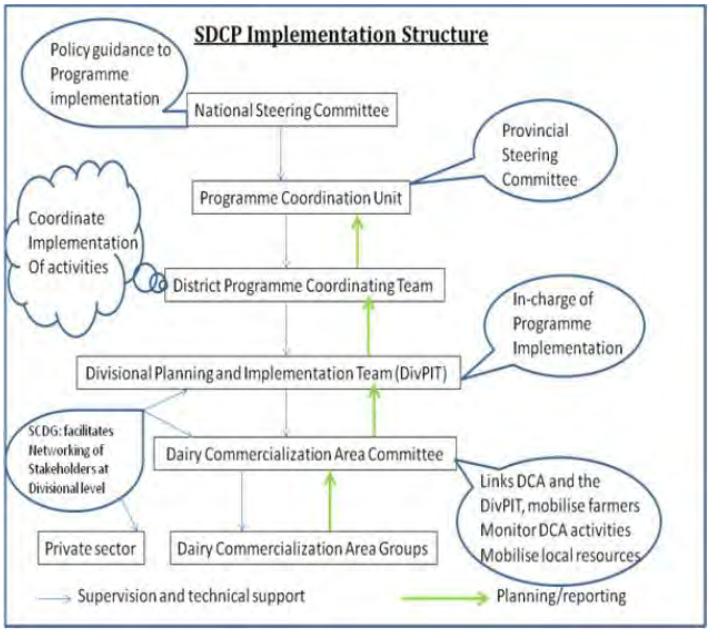
To ensure efficient coordination and implementation of the program, the design included a program management and coordination structure. The objective is to coordinate the field execution of activities and handle program administration and management. The management/implementation structures are presented in Figure 10 below.

Implementation Structures

At the central level, the National Steering Committee (NSC) provides policy guidance to overall program implementation. A Program Coordination Unit (PCU) was established to coordinate the field execution of activities and to handle program administration and financial management. The district coordination is done by the District Program Coordinating Team (DPCT). At the divisional level, program activities are implemented through a Divisional Program Implementation Team (DivPIT). At the DCA level, monitoring is done by the Dairy Commercialization Area Committee (DCAC). DCAC forms the link between the DCA and the Divisional Planning and Implementing Team (DivPIT).

Specialized assignments and tasks are carried out under contractual arrangements with service providers recruited on a competitive basis, with the PCU responsible for supervision.

Figure 10: Smallholder Program Implementation Structure



The PCU serves as the secretariat to the NSC to ensure that NSC decisions are implemented. The PCU coordinated and assisted with the Participatory Rural Appraisals (PRAs), preparation of Community Action Plans (CAPs), consolidation of district-based Annual Work Plans and Budgets (AWPBs), and provided backstopping support to the district and divisional implementation teams. It is also responsible for program monitoring and evaluation; reporting; stakeholder involvement through meetings and workshops (annual reviews, component meetings, staff/beneficiary participation); preparation of financial reports; capacity building for both PCU and district staff; and it facilitated the bulk procurement of goods and services for the entire Program area.

The program envisioned a close working relationship and use of lessons learned in the implementation of NALEP. In particular, a sub-committee of the district/divisional stakeholder forum known as the Smallholder Dairy Commercialization Consultative Group (SDCG), composed of different dairy interest groups in the district (processors, traders, NGOs, GoK, and DCA), was convened by the district program coordinating team (DPCT)[14] to discuss specific dairy commercialization issues at the district level (*appraisal report*).

The design of SDCP and its implementation structure is based on a solid value-chain approach in that project activities cut across breed improvement, production management, milk production and handling, marketing and value addition. Moreover, the management structures at the divisional level also included players from across the value chains. At the district level, there was more public representation than value chain representation. Strengthening this level would improve the program's realization of its objectives. At the national level, the committee should also ensure representation of the private sector, especially the processors who are key to market access.

TECHNICAL APPROACH CHANGES

To capture gender-disaggregated data as required under IFAD's Results and Impact Monitoring Systems (RIMS), the program, in consultation with IFAD, agreed to harmonize the typology of existing groups in the field with that reflected in the appraisal report. Henceforth, the program reports will reflect the following types of groups: women, youth, self-help, common interest, farmer field school, community based

[14] The DPCT is formed at the district level to supervise and coordinate implementation of the program at the district level. It consists of DLPO, DAO, DCO, DVO, DSDO, DDO, KDB regional officer, KARI, and an NGO representative.

organizations, and cooperative societies. The appraisal document included resource-poor dairy farmers, part-time dairy farmers, small-scale intensive dairy farmers, crop-oriented farmers with dairy cows, small-scale milk bars and shop operators, and mobile milk traders (*IFAD Supervision Mission May 2011 AM*).

The second amendment to the technical approach relates to access to financial services for program beneficiaries. The project design envisioned that new finance products would be developed in consultation with financial institutions; however, through a consultancy report commissioned by the project, it was agreed that modification of existing products was more relevant than development of new products. The consultancy assignment identified the following products which may be modified for dairy value chain actors: loans for purchasing dairy cows, savings accounts, working capital loans, asset loans, and insurance policies.

The proposed technical changes provide an opportunity for reporting on gender-disaggregated data and also easy access to financial services.

INCLUSION AND ACCESS

The project design included criteria for the selection of resource-poor farmers to be targeted by the project. The districts were selected based on a poverty index, in which the target districts were those with a poverty index of more than 42 percent. Within the districts, the focus was on areas that were dairy producing but with resource-poor farmers. Within these areas, the project identified target areas using the following criteria:

- milk production and production potential;
- market access; and
- poverty index.

In implementation, the program envisioned supporting group-based activities such as construction of milk collection centers for which the beneficiary groups were to raise 35 percent of the total cost, with the balance provided by the project. The group was required to raise the initial capital before the project provided its contribution.

The program design estimated the number of groups and households that would benefit directly from the project's interventions. The implementation approach was designed to achieve the project targets. The use of a group approach based on DCA, community mobilization, and capacity-building activities improved community participation in the program.

For the extremely poor and vulnerable groups, the project included a component in which a dairy goat was given to individuals through groups. The beneficiary individuals within the groups were required to pass on the offspring to other members until each member benefited from a dairy goat. The groups were also provided with bucks for upgrading the local goats through cross-breeding. For a member to qualify for a goat, s/he had to have constructed a housing unit and planted fodder for the goat. Seeds for the fodder were provided by the project.

Capacity building of the groups was integral to this project to empower group members to negotiate for market opportunities for their milk.

The program provides an excellent approach to ensure participation of the poor in program activities. The identification process is complex, but conducted well; it ensured good targeting of the poor. Another positive element of the project was the inclusion of a dairy goat component to support extremely poor households with limited parcels of land.

PRIVATE SECTOR

The private sector participated in the project design through consultation with the appraisal team and workshops held to discuss the project design and focus. At the marketing end of the project, there have been concerted efforts to link the producer groups to private firms involved in milk processing. Some of the firms have signed contracts with producer groups supported by the project for delivery of milk at agreed-upon prices and volumes.

Private sector participation was also envisioned in the program design in terms of service provision. Key areas in which the private sector has participated include capacity building, provision of AI and clinical services, and consultancy services to supplement program implementation skills and capacities.

The program has also linked groups with financial service providers and, more recently, with an insurance firm that has livestock insurance products. So far, groups have accessed up to KShs 34 million in loans from financial institutions.

While the linkages between the dairy producers and the large-scale processors is laudable, there is no evidence that dairy producers have been working with large processors to understand their future demands and projections. Evidence from the field indicated that the large processors have the upper hand in determining the structure, content, and conditions in the contracts they sign with dairy producers. The conditions include ceilings (upper and lower) of milk to be delivered, price to be offered, and penalties that may be applied in case of breach of contract. We noted that the structure of the contract was the same for all the groups we visited who were delivering milk to New KCC, and that New KCC had, without consultation, downgraded the volumes to be delivered by all the groups, and lowered the price and length of the contracts from six months to one month.

The importance of large processors in the dairy sector cannot be understated. It is therefore important that future dairy programs address the oligopolistic power of the large processors.

COMPETITIVENESS

Collective action has been emphasized as a means of improving returns to farmers through economies of scale in accessing inputs, access to markets, and bargaining power. This has seen the number of dairy groups engaged in collective marketing rise from 122 to 330, thereby creating 2,978 new jobs.

The linkages with financial service providers continued, with total funds accessed rising from KShs 30,972,000 in the year 2009/2010 to KShs 34,377,790 in the reporting period (2010-2011 annual report), when 2,437 group members benefited from the loans.

In terms of registration of dairy animals, the training events were useful in that linkages were created with Kenya Livestock Breeders Organization (KLBO), which manages the Kenya Stud Book (KSB). During the period, a total of 920 animals (870 cows/heifers and 50 dairy goats) were registered with KSB, while there was a pending list of 2,950 animals awaiting inspection before registration.

PARTNERSHIP

The key partners in the implementation of the project were: Kenya Dairy Board (KDB), Dairy Training Institute (DTI), Kenya National Federation of Agriculture Producers (KENFAP), Ministry of Cooperative Development and Marketing (MoCD&M), Ministry of Gender, Culture and Social Services (MoGC&SS), Ministry of Agriculture (MoA), and Private Service Providers.

KENFAP has been of great support in biogas activities, where through funding from GIZ, support has been provided to construct biogas demonstration units at the DCA level. Within the program districts, 22 biogas demonstration units have been constructed. KENFAP has also been instrumental in providing a subsidy of KShs 25,000 to individual farmers wishing to construct biogas units.

The project provided financial support to improve capacity and infrastructure at DTI. DTI has been instrumental in providing training to farmers, farmer groups, and project frontline staff implementing the project activities. The institute has offered both on-station (class-based with demonstration) as well as field-based training (nonresidential training) to project staff, farmers, milk bar operators, and traders.

MoGC&SS is responsible for registration and capacity building of farmer groups in the area of group dynamics, etc. Some of the groups were registered earlier under the NALEP program as dairy interest groups.

At KDB the program is funding the establishment of a Dairy Information Center, which will provide a one-stop shop on dairy sector information. In addition, the program is funding the establishment of a low-cost market information system at KDB to provide on-line and mobile-based market information.

There has also been collaboration with KLBO, which resulted in registration of dairy cattle, leading to improved value of the animals.

ENABLING ENVIRONMENT

GoK policy: Vision 2030 and ASDS clearly demonstrate a move toward commercialization, application of value chain approaches, and value addition that are in line with project objectives. The program funding arrangement included a grant to support policy[15] and legal reviews within the livestock sector, which are critical for enhancing smallholder participation in the dairy sector.

The program also had funds to support key dairy institutions to enable them to improve their support of dairy sector development, especially the smallholder dairy. This includes support to development of a strategic plan for Central Artificial Insemination Station (CAIS), strengthening of Kenya Dairy Board (KDB), and Dairy Training Institute (DTI).

OTHER CONSIDERATIONS

The program had no specific activities to deal with climate change issues but looked at potential environmental impacts and mitigation measures. Some activities were implemented to support environmental conservation such as biogas units and energy-saving jikos implemented in collaboration with KENFAP and GIZ (PSDA). So far, 22 biogas demonstration units have been constructed on a cost-sharing basis. Many more have been installed by individual farmers. For example, in Nakuru DCA2, seven farmers have installed biogas units at their own cost after the initial demo biogas unit was installed. KENFAB provides a subsidy of KShs 25,000/per biogas.[16] This is an important step in environmental conservation as it means less use of firewood for cooking. The biogas can also be used for lighting purposes as well as for chuff cutting.

The program promotes use of dung as manure to improve soil fertility and minimize use of chemical fertilizers, and it promotes alternative fodder resources. The use of these technologies have conserved forests

[15] These included review of Dairy Industry Policy and Bill, review of the Animal Feedstuffs Policy and Bill and review of the National Livestock Policy.

[16] The funds are provided through GIZ support.

and improved soil fertility. The project, in collaboration with GIZ, promoted the use of energy-saving jikos in Western Kenya (ref: MTR).

The program was to support the beneficiaries with coolers after they had constructed milk collection units, for which the project was to provide 65 percent of the cost and the community 35 percent. At the time of the review, no cooler had been installed as no farmers had met the conditions for installation.

The inclusion of the biogas units into the program is commendable as it has proved to be very popular with dairy farmers. It also shows a good working relationship between two donor-funded programs and a farmer's organization.

The program has also taken initiatives to link farmers with a livestock insurance underwriter. This is being discussed with an insurance firm that has interest in the cooperative sector.

MONITORING AND EVALUATION

The program implements different levels of monitoring procedures. The funding agency IFAD conducts regular supervision missions to provide technical guidance and also creates opportunities to resolve and agree on resolutions for implementation challenges. Quarterly supervisions missions are also conducted by the Program National Steering Committee. The Provincial Coordination Committee provides policy-level support and resolves implementation challenges. Field-level implementation supervision conducted through regular visits to project districts by the PCU staff allows them to interact with implementing partners.

In addition, the program has designed a community-level monitoring tool,[17] which is a data-capture tool implemented by the beneficiaries to monitor progress toward the achievement of objectives. It contains dairy group characteristics, production and marketing records, rural finance linkages, cost of labor, skilled jobs, and community contributions.

Independent reviews such as the Medium Term Review (MTR) have also been built into the program design.

RESULTS

Program services are reaching about 17,463 households cumulatively (537 dairy groups) through capacity building, which is 75 percent of the target of 24,000 households. The number of beneficiaries reached 95,200 against a target of 120,000. Milk productivity in target districts has improved from an average of 4 liters per cow per day to 10.6 liters through introduction of good feeding practices and improvement of the dairy herd. The cost of milk production has gone down by an estimated 23 percent. The increase in milk productivity at lower cost is associated with better feeding approaches, increased production and conservation of fodder by the target farmers, and increased knowledge of on-farm feed formulation by target farmers.

In terms of milk marketing, 224 dairy groups consisting of 3,755 DG members have collective marketing arrangements, representing 55 percent and 37 percent of the targets, respectively. Collective milk marketing by the farmers has resulted in higher prices paid by the processors. At the time of the review, farmers were receiving KShs 5 above the normal market price by selling collectively. Those delivering through groups that own a cooler were getting a chilling bonus of KShs 1/liter.[18]

[17] The community based monitoring and reporting booklet (community dairy) developed by the program and in use by beneficiaries.

[18] Although the program had not put in place a cooler, groups supported by the program were delivering milk to coolers installed with support from East African Dairy Development Program.

Some 2,437 group members had accessed credit from financial institutions in the amount of KShs 34 million. The cost of credit has, however, been a major challenge to the groups.

The MODE approach is innovative but rather ambitious. It is unrealistic to expect a resource-poor dairy group to move from MODE I to MODE III in three years. Even newly registered companies would take much longer to achieve profitability. As a result, only 13 DGs had reached MODE III, representing three percent of the target (MTR).

SUSTAINABILITY

The use of dairy commercialization groups and registration into producer marketing groups linked to commercial processors through contract arrangements ensures sustainability of the groups and the dairy enterprises.

Farmers have also realized that they are able to get higher prices and recognition by large processors if they bulk and sell milk together rather than as individuals. Group linkages have also enhanced capacity building as individual farmers get the opportunity to learn from more experienced farmers in their groups and also through exchange visits/tours.

A high level of sustainability has been achieved thanks to strong community involvement, increased ownership of the interventions, increased capacity building of the groups, and support for income generating goal activities that stabilize groups.

The program has produced a number of information materials such as booklets and bulletins on various technical issues related to dairy herd management and enterprise management, and best practices from the field dubbed "Stories from the Field."

The program has also trained a core team of community-based AI service providers and linked them to dairy farmer groups to provide service for a commission. Other community-level technical persons trained include biogas unit constructors. The sustainability of these service providers will depend on whether they can generate enough business to sustain themselves. Currently an AI service provider is paid a commission of KShs 100 per AI provided. One of the AI service providers we interviewed provides 20 AI per month on average, i.e. KShs 2,000 per month. Thus, to survive, AI services must be complemented with other sources of income.

LESSONS

The MODE approach has been a useful tool in building the capacity of resource-poor dairy farming groups to move through the three steps toward commercialization of their dairy enterprise. The approach helps in targeting capacity building activities based on the level of commercialization of individual groups.

The MODE approach provides an important lesson about when to wean groups and what services to provide to which group based on their level of progression within the MODE.

Development of a dairy enterprise starting from a low breed herd to a more productive breed requires more time than envisioned in most three-year projects, because it will take a cow about six to eight years to be upgraded through AI service to achieve a higher yielding breed. The alternative is to provide already improved stocks to the poor, who may face challenges of the improved breeds because of the feeding and disease management demands. Furthermore, the poor cannot afford the high costs associated with the acquisition of improved breeds.

Group marketing has yielded improved prices by up to 30 percent through economies of scale and group bargaining. It has also led to more predictable prices as farmers now sell on contract with specified prices and volumes.

Contracting specialized activities to service providers has bridged the gap between available expertise and personnel, and project implementation technical requirements.

SYNTHESIS

Good Elements of Design Success

The analytical work conducted through specific commissioned studies and consideration of previous and ongoing programs was key to ensuring a well-structured and focused program. The analytical work was critical in targeting (geographically) and beneficiaries in order to achieve program objectives. The consideration of the national policy environment and built-in policy and legal dialogue and review support provided an excellent environment for successful program implementation.

Important elements of success include the identified SDCP implementation structure, from the National level (i.e. the Steering Committee) to the Divisional level (i.e. Divisional Planning and Implementation Team), and the embedded capacity enhancement support to the dairy institutions in the program area. The implementation structure ensured that all project components received the necessary technical and institutional support for the program to be successful. Linkages with other relevant institutions and programs ensured efficiency in project implementation.

In the case of poor rural households with limited technical know-how, poor stock, and limited market access, the MODE approach is an excellent way to move groups toward investment in successful dairy enterprises. The approach appreciates the need to move groups through different stages through a combination of capacity building, technical support, and linkages with other vital service delivery providers and limited financial support to achieve commercialization status.

The M&E framework adopted by the program provides for diverse monitoring support from different institutions, which enriches program implementation. The inclusion of high-level policy organs within the GoK as part of the supervision and advisory group ensures that technical, administrative, and policy-related issues affecting the program implementation are resolved efficiently.

The participation of the value chain players in different layers of the program implementation structures provides an opportune environment for engagement on various issues affecting the value chain.

Market linkages through contractual arrangements negotiated by the producers with support from the program implementation committees provide a perfect example of a working value chain.

Implementation Approaches

The group approach and collective actions by the target beneficiaries improved market access, which was critical for the achievement of program objectives. Delivery of capacity building was also more efficient through groups.

Exchange tours provided critical real-time learning experiences to farmers and other players along the value chain such as milk processors who were able to see first-hand successes achieved by farmers/processors in similar conditions.

What Worked?

Collective marketing, service acquisition, and group dynamics have worked very well. There has been remarkable investment in improving herd quality and improved feeding, which has led to improved production of milk, low-cost production, and high milk prices due to collective marketing.

Capacity building has been critical to ensuring participation of the target groups in increasing livestock productivity, collective marketing, and access to formal financial services. The study tours were rated as the most informative, as the farmers were able to see first-hand what collective action can yield. The most appreciated tours were those to dairy hubs like the Nyala where farmers have established a dairy hub.

The cost of AI has also been reduced as the farmers have hired their own staff whom they pay on a commission basis. Improved fodder conservation and feed formulation has led to lower feeding costs, good quality feeds, and availability of feeds even during the dry season. This has stabilized milk production.

Elements of Success

Agriculture and livestock value chain productivity and competitiveness: There has been remarkable improvement in milk production from an average of 4 liters to 10.6 liters per cow per day. This is a result of investment in improved feeding practices and better cattle management. Cost of milk production has also been reduced by 23 percent. There has been remarkable access to formal financial services by groups who previously had no access to credit.

Smallholder producer participation in the value chains: The program has promoted the participation of smallholder dairy groups in the value chain by supporting improved production, marketing, value addition and market linkages. The capacity building and application of the MODE approach has been instrumental in achieving inclusive participation of diverse groups of farmers.

Agricultural production and sales: Productivity and group sales have improved in the program target areas.

Rural households' incomes: The improved prices arising from group sales coupled with reduced cost of production have contributed to improved incomes among the participating groups and farmers.

Private investment: A number of milk bars have been established as a result of program activities. The program has also linked groups with financial institutions and recently, discussions have been held with an insurance service provider with livestock insurance products.

Environmental and economic sustainability

The biogas activity and use of dung in soil fertility enhancement has contributed to environmental conservation. Households that have constructed biogas units are using them for cooking, leading to critical savings in firewood. Some are also planning to use the biogas to power the chuff cutter for animals' feeds.

References

- SDCP Term Review Report (2011)
- SDCP Annual Report (2010-2011)
- SDCP IFAD Appraisal Report (2005)
- SDCP Stories from the field

ANNEX C.5: PRIVATE SECTOR DEVELOPMENT IN AGRICULTURE (PSDA) – DAIRY GOAT VALUE CHAIN

EXECUTIVE SUMMARY

The Private Sector Development Assistance program is funded by the GIZ/GoK and beneficiaries, and has been implemented since 2003. The program, currently in its fourth phase, is designed to address problems of underutilized agricultural potential and weak business linkages using a value chain approach. It is implemented in the medium and high-potential areas of Kenya. Geographical coverage includes the high and medium-potential areas in Central, Rift Valley, Nyanza and West Kenya.

The overall goal is to generate sustained economic and **pro-poor** growth, and improve rural and urban livelihoods; the objective is to **increase rural income and create employment**, and thus mitigate poverty.

The dairy goat component, which is the subject of this evaluation, is implemented through dairy goat groups. The key focus has been the upgrading of low milk-yielding and low-value small East African goats. Breeding has therefore been a major focus of the program, which is why it has been implemented over such a long period. Other important activities include capacity building of target beneficiaries in dairy goat management, feeding, health, tagging, tattooing, AI services, buck exchange and marketing.

The program has led to the strengthening of the Dairy Goat Association of Kenya (DGAK) into a vibrant and profitable farmer-owned enterprise. Today DGAK has a membership of 1,300 groups consisting of 16,500 individuals.

Registration of dairy goats in collaboration with the Kenya Livestock Breeders Association is the other success story of the program in that it has ensured stability of the breeds and also contributed to premium prices paid for the dairy goats. KLBO and DGAK, with support from the program, have also initiated a milk recording card to further seal loopholes associated with fraudsters who are selling poor breeds as exotics.

Milk marketing has been the biggest challenge to the program despite efforts to link farmers with cheese and yoghurt processors.

Inbreeding is the other challenge facing the dairy goat interventions; this was the main reason for sanctioning importation of semen and training of dairy goat AI service providers. This effort is meant to forestall chances of inbreeding.

The dairy goat value chain has also contributed to rural employment where select dairy goat farmers have been trained as service providers to the other dairy goat farmers. They charge a fee for their services.

BACKGROUND

Private Sector Development Assistance (PSDA) is a GIZ-funded program initiated in 2003; it is a 12-year project, currently in its fourth phase. It is a GIZ-GoK joint effort and therefore designed as a cooperation project. The program is designed to address problems of underutilized agricultural potential and weak business linkages using a value chain approach. It is implemented in the medium and high potential areas of Kenya. The geographical coverage includes the high and medium potential areas in Central, Rift Valley, Nyanza and West Kenya.

The overall goal is to generate sustained economic and pro-poor growth and improve rural and urban livelihood. The objective is to increase rural income and create employment, and thus mitigate poverty.

The project has three components:

- improved framework conditions for private sector development in agriculture;
- value chain promotion; and
- resource-friendly technologies.

The dairy goat is part of 10 commodity value chains, of which two are non-agricultural, that PSDA is addressing.[19] The activities include the creation of favorable political, legal, administrative and economic framework conditions; capacity building; value chain analysis and strategy development; enhancing business linkages; and strengthening stakeholder organizations including farmers' associations and providers of Business Development Services.

The principal Kenyan partner in project implementation is the Ministry of Agriculture (MoA), but PSDA also works closely with the Ministry of Livestock Development (MoLD), the Ministry of Cooperative Development and Marketing (MoCDM), and their respective national and decentralized structures. The program also engages actively with the private sector in strengthening its role in agricultural development; this includes enhancing their technical capacity and elements of organizational development.

DESIGN

The program was designed as a cooperation program between GoK and GIZ. During the design phase, consultations were held with relevant ministries and stakeholders in the target districts. The program design also benefited from a baseline survey conducted between December 2003 and February 2004 in the eight selected districts in the target area. The survey targeted farm households, input dealers, service providers, and processors.

The purpose of the survey was threefold:

- to produce benchmark data for the program's monitoring system;
- to guide the program team on selecting agricultural value chains; and
- to recommend geographical regions for PSDA interventions.

The design team used a combination of regional and commodity value chain approaches to minimize transactions costs and stay focused on specific value chains.

In selecting the commodity value chains, the design team identified and used 13 criteria, including gender, market access, value addition, HIV/AIDS, and governance, among others.

The program target group is market-oriented farmers and medium and small enterprises involved in agribusiness and their respective organizations. The program aims at improving the access to markets for small and medium agribusiness players along selected value-adding chains.

IMPLEMENTATION APPROACHES

Within the dairy goat value chain, PSDA's entry point is through dairy goat associations, particularly the Dairy Goat Association of Kenya (DGAK). Other associations supported by the project include the Meru dairy goat breeders association of Kenya and the Kitui/Mwingi dairy goat association initiated by Farm Africa.

[19] Mango, passion fruit, Irish potatoes, sweet potatoes, smallholder dairy goats, local poultry, beef, Omena fish, biogas and energy-saving stoves.

DGAK, based in Nyeri, is the largest dairy goat association in Kenya and is an umbrella for most of the dairy goat groups from Central, Eastern, Nyanza and Western Kenya.

DGAK is a product of the GoK project "Integrated Small Livestock Project" funded by GoK and GIZ. It was initiated in 1992, but officially registered in 1994. The project that preceded PSDA also supported the dairy goat activities through up-scaling DGAK to reach more groups. PSDA does not form groups but works with existing groups to strengthen them to participate in market oriented activities.

The areas which PSDA has provided funding through groups include: capacity building of groups (training), imported semen, training of goat AI providers, milk supply cans, and transport.

As a policy the PSDA promotes farmer to farmer extension through exchange tours; this means identifying and training a farmer within the group who then becomes the trainer and service provider for the other farmers within and outside the group.

All interventions by the project emanate from stakeholder workshops facilitated by the project. They are therefore beneficiary owned, which is important for sustainability. The program also avoids provision of subsidies to ensure that farmers only invest in areas they consider a priority.

Governance

The goat value chain is implemented through DGAK, which has a well-structured governance structure, with a Constitution published in 2005. The association is a national umbrella of dairy goat producers groups. DGAK is an example of a well-managed and functioning farmers' association promoting value chain approaches. Its annual accounts are audited and it conducts regular elections as per its Constitution. In the last two years the organization has posited account surpluses. DGAK has established critical links with other relevant institutions such as Kenya Livestock Breeders Organization (KLBO), which are critical for its business.

At the project level, the design provided for a project steering committee at the national level, consisting of GIZ, the project management, a farmers' representative and key sector ministries. This committee was to provide policy guidance and supervision of program implementation.

Principal Technical Issues

Before the introduction of the dairy goat project, goat farmers in Kenya were rearing the local East African goat which had low yields, but was disease-resistant and hardy. The goat farmers were also not organized for any collective activities related to goat enterprises.

The project was to promote upgrading of local goats to increase the value of live goats and their milk productivity. Live local goats were fetching between KShs 4,000 and 6,000, while the improved does (female goats) would fetch between KShs 10,000 and 15,000 and bucks between KShs 7,000 and 12,000 for registered goats. In terms of milk production, local goats were producing an average of one liter per day while the improved goats would produce an average of 2.5 liters per day.

The technical issues addressed by the project include introduction of improved dairy goats for upgrading of local breeds, provision of AI services, and provision of registration of improved breeds with the Kenya Stud Book (KSB) through collaboration with the Kenya Livestock Breeders Organization (KLBO). Capacity building of farmers included feeding, disease control, treatment and de-worming, milking, housing, and marketing. In 2009 DGAK approached PSDA, leading to the training of 21 farmers and 9 service providers on goat AI. Through EAPP they assisted in training another 37 service providers through DVS (people who

were practicing cattle AI) on goat AI. The project has also supported training of animal inspectors who are critical for the animal registration process.

In addition, the project provides equipment to KLBO and DGAK. The project has also supported groups with tattooing inputs. PSDA also supported DGAK to import 1,000 doses of semen from France. The semen will help in rebuilding the aging breeds and avoid inbreeding. They have trained 36 farmers as multipliers, each with at least five does of appendix and pedigree. DGAK will purchase the kid bucks at KShs 15,000. PSDA has also supported DGAK in construction of the three milk collection sheds and in the purchase of 22 (50kg) milk collection cans.

Inclusion and Access

The project is designed as pro-poor and aimed at improving rural livelihoods through increased incomes and employment. The dairy goat component is aimed at helping land-poor families to access milk and income as the goats require less land to rear compared to dairy cattle. Women and youth are important targets of the dairy goat value chain.

PSDA uses service providers to build capacities of the value chain players as well as subsidize some of their activities through small grants.

Private Sector

The PSDA program has invested in capacity building of DGAK and its affiliate member groups and branches as part of its private sector farmer group development. PSDA has also supported activities aimed at registration of dairy goats in the Kenya Stud Book and also in developing milk recording cards.[20] Between 2000 and 2011, KLBO registered 15,802 dairy goats.

KLBO charges KShs 150 per registration, which translates to KShs 2.37 million. DGAK charges its members KShs 200 per doe and KShs 250 per buck for registration, which means they earn a commission of between KShs 50 and 100 per registration. The inspectors who work on the ground are paid KShs 40 per inspection, which is the basis for registration. Dairy goat farmers know they cannot sell their goats without a record and this makes them demand the recording service.

[20] The need for registration of milk cards is meant to ensure that prospective dairy goat buyers have two pictures of the milk yields, as this has become a concern due to infiltration of the dairy goat industry by fraudsters selling inferior goats as pedigree only for the buyers to realize that milk production is below what they had been made to believe.

Figure 11. Registered Dairy Goats (2000-2011) Source: KLBO

The private sector has played a major role in the implementation of the dairy goat component of the PSDA. DGAK, which is the main partner in the implementation of the PSDA dairy goat value chain, is a private member farmer association. PSDA uses the DGAK to provide capacity building activities in dairy goat production.

The program has also supported the training of private service providers working with DGAK to provide services such as training and animal health to dairy goat farmers. The private service providers charge KShs 350 per group for training. Tattooing and record cards cost KShs 40 per goat.

Competitiveness

While PSDA and DGAK promote dairy goat activity as a milk-oriented intervention for income generation, the bulk of the income comes from the sale of live animals to NGOs and individual farmers for upgrading of local stock. A few entrepreneurs have ventured into milk production for sale to medical institutions, but the quantities are very small.

DGAK leases bucks at KShs 4,000 for 15 months to groups for breeding, so the groups do not own the buck. It also assists in buck rotation. After the fourth rotation, the buck is too old to serve and is sold to the group at KShs 2,000.

They have supported dairy goat associations in marketing through the supply of milking cans and by subsidizing transport costs. They helped link producers with a processor in Nyeri who wanted about 2,000 liters per day to process cheese and yoghurt, but the farmers could only supply about 300 liters per day. The processor has stopped processing goat milk due to lack of market for the cheese and yoghurt.

Partnership

The main partners for the PSDA project are:

- KLBO;
- KENFAP;
- Associations: DGAK;
- MoLD; and

- CAIS.

Given the importance of breeding in this project, CAIS plays an important role in the following areas:

- AI services support in the country;
- supply of semen and provision of storage facilities for semen; and
- supply of liquid nitrogen.

KENFAP, KLBO, DGAK/MDBA, MOLD Play Important Roles in Extension and Training

KLBO is an important partner in the dairy goat development work through registration of bucks and does and most recently has come up with milk recording cards for goats. Registration is vital for ensuring that bucks and the does are of the highest quality. This is an important when selling/purchasing goats. Recording of milk production and lactation periods is also an important factor in determining the quality of the goats since they are reared for purposes of milk production. The KLBO was instrumental in registering the dairy goats in the Kenya Stud Book, which is their subsidiary.

PSDA has provided funding to KLBO to prepare protocols for recording milk production, which is important in determining the lactation yield of different goat breeds and classifications. This information is an important selling point for dairy goats.

The Ministry of Livestock Development has been a critical partner. For example, it has seconded its staff to provide technical assistance to dairy groups, including the technical manager of DGAK.

Production Increases

Internal impact studies estimate the additional goat milk produced in 2010 at 11,300 tons.

Income

The total additional income generated in phase III by approximately 42,500 improved enterprises with impact attributable to PSDA in the eight so-called "agricultural" value chains amounts to an estimated 3,017 million KShs (23.2 million Euro). To this total, *smallholder dairy goats contribute (in million Kshs) 910 in additional income in the third phase of the project implementation (2008-2010) generated through 10,500 households reached by the PSDA program.*

Box 13. IMPACT

A typical dairy goat service provider makes a considerable amount of income acting as an assistant for the Dairy Goat Association of Kenya (DGAK). He delivers services to individual goat farmers and goat farmer groups. These services are either paid by farmers directly or by DGAK. They include training on the association, vaccination, de-worming, dehorning, tattooing, castration, and marketing. He also receives commissions from DGAK for goats sold to the association and new members recruited. He dedicates an equivalent of three person days per month to these activities.

Source: *Günter Kleemann and Eberhard Krain*

Employment Generation

The dairy goat enterprise as implemented under PSDA through DGAK generates employment at different levels. First, the program promotes use of community-based service providers trained and equipped by the program to provide certain services at a fee. For registration purposes, the goats have to be inspected and this is done by the service providers. For registration purposes, an inspector is paid KShs 40 per inspection. Other services are as defined in Box 13.

The estimates for *employment generated* in the improved agricultural, livestock and fishery value chain enterprises in the same period resulted in a total of 27,382 labor years (22,404 within households and 4,978 of hired labor). Each of the 42,254 households with impact attributable to PSDA increased its employment by 195 labor days on average.

There are, however, doubts as to what extent the PSDA interventions will have a lasting employment effect on landless people and persons without employment, since the majority of the supported value chains cannot provide full-time permanent employment.

At the macro level, impact depends on three primary factors:

1. The level to which market-based sector policies are established;
2. The promotion of political debate on private sector development issues;
3. The level of competent value chain promotion.

Environment

The promotion of resource-friendly technologies has had an impact at the target group level with regard to health, productivity, and income increases through savings on fuel wood and charcoal consumption. At the production level, the dairy goat value chain is promoted in a way that generates manure for use in the household farm to improve crop productivity.

Enabling Environment

PSDA had a policy support component as a design default and was instrumental in establishing and supporting ASCU, which coordinates all the development activities within the agriculture sector and operates a basket of donor funds to support specific activities.

It has also supported initiatives to build the capacity of the private sector and to institute necessary policy reforms for an enabling environment for private sector development.

The various agriculture sector polices (SRA and its successor, ASDS) are all supportive of private sector development. The GoK as a partner in the implementation of PSDA also ensured the necessary policy and logistical support for project implementation. This includes seconding GoK staff to the program.

Monitoring and Evaluation

The program has also conducted several impact studies as well as independent evaluations. In addition, the program staff makes regular visits to the field to monitor activities and especially to ensure that breeding protocols are being observed by the groups. DGAK, through its inspectors, also plays a major role in monitoring of dairy goat activities implemented by affiliate groups.

Sustainability

It is still a challenge to know the extent to which program interventions will be sustainable, especially with regard to training and capacity development in the value chain component. At the institutional level, value chain concepts are not yet anchored in local structures. Horizontal business linkages have been promoted strongly in the value chains, but the development of sustainable vertical linkages has not yet matured in order to sustain the economic impact on beneficiaries and service providers (economic sustainability).

Lack of organized market outlets for dairy goat milk poses the biggest challenge to sustainability of the dairy goat initiative. Several attempts by DGAK to formalize dairy goat marketing have not been successful.

Potential inbreeding is the other challenge that is likely to compromise sustainability of the dairy goat enterprise.

SUMMARY OF ACHIEVEMENTS

- Dairy goat farmers now organized into associations.
- Dairy goats are being registered with Kenya Stud Book.
- Goat milk production improved from less than one liter per day to an average of 2.5 liters per day through upgrading of local breeds.
- More than 20 private AI providers are now in place.
- 21 farmers and 9 AI providers were trained on how to practice AI on goats.
- 75 HIV/AIDS peer-educators were trained and targeting 13,000 group members.

Lessons Learned

- Linking the project with KLBO facilitated registration of bucks, and development of tools for milk recording and tagging have increased the value of the goats.
- Development of strong farmers' associations with a good national network and governance structures has improved farmer confidence in dairy goat activities.
- Training of community-based service providers paid on a commission basis has ensured sustainability of the interventions and service provision.

Elements of Success

Agriculture and livestock value chain productivity and competitiveness: There has been remarkable improvement in milk production from an average of 1 liter to 2.5 liters per goat. The value of goats have also more than tripled, especially in cases of collaboration with KLBO to register dairy goats under the Kenya Stud Book and also when the introduction of milk recording has been undertaken.

Smallholder producer participation in the value chains: The target of the dairy goat value chain has been the smallholder dairy goat producers who have limited land and resource constraints. More than 16,500 smallholder dairy goat farmers who are members of DGAK have benefited from dairy goat activities.

Agricultural production and sales: Although the dairy goat has been promoted for milk production and linked to markets for dairy goat milk, more success has been achieved in the sales of live animals than in milk sales. The dairy goat milk market is still underdeveloped.

Rural households' incomes: Program review indicates that sales of dairy goat products have reached KShs 910 million between 2008 and 2010 (a combination of sales and dairy goat-related labor sales). This information is based on internal assessments by the program, which the review team could not authenticate. The goats fetch more than twice the price of local goats and from that perspective, one can argue that they have led to increased household incomes.

Private investment: A number of dairy goat producers have invested in breeding activities as a business. The program has also supported training of community-level service providers who are earning daily income from the provision of services such as group capacity building, clinical services and recently, AI services. In Embu, a dairy goat farmer has been contracted by several institutions to supply milk.

Environmental and Economic Sustainability

The sustainability of the dairy goat program faces an uncertain future unless the milk marketing component is addressed. Reliance on goat sales as the sole source of income generation may not sustain the investment. The registration of the dairy goats and milk recording needs emphasis to forestall problems of misrepresentation, where poorly performing goats are being sold as dairy goats.

SYNTHESIS

The PSDA dairy goat value chain is an up-scaling of activities started through GIZ projects dating back to the 1990s. The focus has been on improving the local goats through upgrading and also breeding of pedigree material. The target has been smallholder farmers.

Like many other community-focused projects, its implementation has been through groups and aimed at building their capacities to upgrade their local goats or outright purchase and rearing of dairy goats.

The selling point has been the high milk productivity of the improved or purebred goats and the fact that they are less demanding in terms of fodder compared to dairy cattle. Retaining the purity of the dairy goat in terms of milk production is therefore critical.

In reality, dairy goat farming has thrived more on the sale of live goats than the milk. Concerns have been raised about the authenticity of some of the goats being sold as dairy goats only to end up performing below expectations in terms of milk production. This has led to demand for registration services with KLBO and also recording services of milk production. The program has also provided funds for importation of semen to avoid potential inbreeding, which could jeopardize the entire intervention.

The dairy goat value chain will remain relevant among rural communities, especially in the medium and high potential areas which are facing increasing subdivision of their agricultural land as population expands with limited fodder for sustaining dairy cows in spite of the need to produce high quality milk at home with a surplus for sale.

RECOMMENDATIONS

Milk Marketing**:** To ensure that the milk chain is developed, there is a need to invest in market research and also mechanisms for bulking as is done with dairy cow milk. Linkages with potential markets will be critical. A potential approach is to increase the goat population in certain nucleus areas so as to create a critical mass capable of producing sufficient quantities for linkage with markets. Meanwhile, the individual initiatives of linking production with institutional consumers should be continued and scaled up.

Breeding: The recently introduced dairy goat AI service should be scaled up to forestall chances of inbreeding. Inspection activities, registration, and milk recording should also be scaled up to create confidence in dairy goat activities.

ANNEX C.6: NATIONAL AGRICULTURE AND LIVESTOCK EXTENSION PROGRAM (NALEP)

INTRODUCTION

The role of NALEP, like any other extension service provider, is to share knowledge, technologies, and agricultural information and also to link the farmer to other actors in the economy. It is one of the critical change agents required in the transformation of subsistence farming to modern and commercial agriculture. This is necessary to promote household food security, improve incomes, and reduce poverty.

NALEP Phase II, a successor to NALEP I (2000 – 2006), is supported by the Swedish International Development Cooperation Agency (SIDA). It started in January 2007 (2007 – 2011) and it implements the National Agricultural Sector Extension Policy – Implementation Framework (NASEP-IF). Its vision is "A pluralistic, efficient and effective professional national agricultural extension system which is demand-driven and responding to farmers', pastoralists' and fisher-folks' needs that leads to prosperity in a sustainable and equitable manner" and its mission is "To provide and facilitate pluralistic and efficient extension services for increased production, food security, higher incomes and improved environment." The achievement of NALEP Phase II objectives is based largely on effective partnerships with other government ministries, the private sector, civil society and other collaborators engaged in agriculture and rural development. NALEP was founded on a demand-driven, equitable, pluralistic and participatory provision of extension services in a transparent and accountable manner. It incorporated the process of harmonization of the extension projects with the view of achieving a common and uniform approach and at the same time paved the way for the implementation of the NASEP policy. It also recognized the importance of Arid and Semi-Arid Land (ASAL) environment in livestock production and therefore extended its operations to these areas.

METHODOLOGY

As indicated in the SoW, the team has used a qualitative approach to examine activities and answer the questions in the SoW to identify and describe the most important elements that have contributed to the observed NALEP success. The team reviewed literature made available by USAID, program implementing officers and other sources, and interviewed donor representatives, implementing organization staff, government counterparts, stakeholders, and beneficiaries. This was complemented by field visits to activity implementation sites.

DESIGN

The design of the NALEP II MTE was scored as medium given its lack of consistency in the logical framework and its poor linkages of indicators to in the M&E plan. However, its focal area (a unit of operation selected on the basis of peoples' livelihoods and administrative factors) extension approach has helped to initiate agricultural producers' participation in various agricultural and livestock value chains. It was specifically pointed out during the field interviews that other programs use NALEP-established CIGs. The design is better explained in the implementation approach described below.

PROGRAM IMPLEMENTATION

NALEP is implemented by both the Ministry of Agriculture (MoA) and the Ministry of Livestock Development (MoLD) with support from the Swedish International Development Agency (SIDA) through technical assistance (see NALEP II organization structure).

The NALEP approach (Focal Area Approach) involves selection of a location or focal area (FA) within which to concentrate extension activities for a prescribed period of time. Upon completion of the prescribed

period, another location, not yet served, is selected and serviced for a similar duration. This is continued until all administrative locations in a target area have been serviced intensively.

Actual activities entail mobilization of communities of about 2,000 to 6,000 households within a selected area. The community is encouraged to plan and implement projects of their choice, and to create a forum for interaction with various stakeholders including development agencies (DA). Delivery methods include: (i) participatory appraisals in targeting poor and vulnerable community members; (ii) identification of opportunities relevant and appropriate to the needs of target beneficiaries; and (iii) the formation and capacity development of local grassroots institutions including Stakeholder Fora (SHF), Focal Area Development Committees (FADC), Common Interest Groups (CIGs) and, Extension Groups (EGs).

SYNTHESIS OF THE FINDINGS ON NALEP

It was not possible to interview a NALEP dairy CIGs although there was a mention of a successful one in Machakos district which proved difficult to reach.

A Mid Term Evaluation (MTE) of September 2009 found that "NALEP II has very successfully promoted (1) an empowered community demanding quality extension services, (2) a Forum of Stakeholders, mutually supportive in providing relevant extension services for crops, livestock, fisheries and value-added activities as well as funds and expertise for important infrastructure such as sub-surface dams and water harvesting structures, rural access roads and rural health centers."

The MTE also reported that "approximately 1,800,000 households have been reached through Common Interest Groups (CIGs) and farmers' field days since the start of NALEP II (January 2007). As a result of the application of improved practices and technologies, farmers have been able to increase their production of crops, livestock and processed agricultural produce such as mushrooms, flour from various traditional crops like cassava and sweet potatoes, and dairy products such as milk and yoghurt. The impact has been very significant. Some members of CIGs have been able to increase their income by a factor of 2 to 4 within two years, and as a result, they have moved out of poverty, and have improved the nutritional, health and educational standard of their families. Men, women and youth have benefited. The empowerment of women and civil society in general is the most remarkable result achieved in the program."

Some of NALEP's successes are summarized in the table below:

	Element	Success Observed
1	Approaches to Extension	Through Community Action Plans (CAPs), communities in the ASAL have addressed the lack of reliable water resources by financing rain water harvesting, water pans, and sub-surface dams.
2	Appropriate Extension Technologies	Cooperation of partners in the Stakeholder Forum has made appropriate and productive technologies available, which are pro-poor and in line with the needs of vulnerable groups, and it has developed a number of productive value-added enterprises.
3	Collaboration among Stakeholders Strengthened	Promotion of value-added activities such as processing and marketing has been encouraging, and positive results have been achieved with regard to linking farmers to credit institutions.

	Element	Success Observed
4	Mainstreaming of Cross-Cutting Areas	NALEP started mainstreaming cross-cutting issues and developing NALEP as a rights-based development program, empowering the communities to demand public services, and it resulted in well-managed CIGs and stakeholder fora.

The MTE also has identified the following lessons which the review mission thought to be of significance for the planning of future development programs:

- The NALEP is relevant and efficient, it has a significant positive impact, and it is relatively cost-effective and sustainable largely because it is affordable and hence replicable without assistance from SIDA.
- The bottom-up planning process with the formation of Focal Area Development Committees, preparation of CAPs, and formation of CIGs is not adequate to reach the resource-poor, landless young people, which nevertheless have a good opportunity to move out of poverty once they are included in NALEP activities.
- NALEP has been effective in empowering communities, particularly women and youth.
- It is a long-term challenge to transform household agricultural practices to become drought-tolerant so that local food security can be enhanced.
- The potential of the NALEP approach is not fully utilized, but the MTE has observed that NALEP is in the process of becoming a learning organization, which has the capacity to gradually learn from its mistakes and improve its performance. But it was also noted that this change is rather recent and perhaps a result of individual qualities in the present NALEP (daily) management team.
- The NALEP benefits may not all have become sustainable at the end of the Program Period 2011.

A study of the NALEP implementation process by Martin Mudar Hill of Jönköping University observed that "the biggest strength of NALEP has been the formation and capacity building of grassroot farmer organizations in form of the Common Interest Groups (CIGs). Through these groups the farmers have been able to survive difficult challenges and increase their individual incomes."

During an interview with Ms. Ema Mbutu, the District Animal Production Officer for Meru Central, she said that the grassroots institutions (i.e., divisional stakeholder fora and the CIGs) formed through NALEP are sustainable. She gave an example of two divisional stakeholder forums in her district of operation that she says have weaned themselves from the ministries' support and now organize and finance all their activities. Box 14 below is what she considers as evidence of their sustainability:

Box 14. Ema Mbutu 's Narrative on NALEP Divisional Stakeholders Forum Sustainability

Self-initiated and Financed Divisional Stakeholder Forums – 2 Divisions in Meru Central District

1. **Abothuguchi West Division Stakeholder Forum**
   - 13-14 Sept 2011 – Two day exhibition with more than 4,000 participants (M-1,178, F797, children 1,452, total registered 3,427, estimated unregistered 1,000) and 50 exhibitors
   - Exhibition documented with a video slide funded by the stakeholder forum. Also documented by SHoMaP.
   - SHF mobilized resources – Acquired two plots of land intended for community resource learning center and value addition
2. **Abothuguchi East Division Stakeholder Forum**
   - Hosted and successfully organized the district world food day event.
   - In conjunction with the district stakeholder forum, organized and hosted a tree planting day at Igane primary school where 3,000 tree seedlings were planted.

Process

1. Identification of local personalities with some unique characteristics such as:

   ✓ Passion for community work
   ✓ Availability
   ✓ Influential
   ✓ Respected, etc.

2. Ensure regional representation and catering to all interest groups

3. These will form a steering committee, which will oversee forum daily operations

Uniqueness

1. The forum sources for exhibitors, guests and meeting catering expenses – a major departure from the past when DAO used to do this
2. Operates bank account
3. Charges members of the forum for exhibiting
4. High attendance of activities by local community
5. Financing training sessions

MONITORING AND EVALUATION

In the NALEP II revised document (Feb. 2010), it is noted that "weak M&E lacking a participatory component is hampering feedback in the planning and the monitoring of impacts and that monitoring and evaluation was weak during NALEP Phase I. It is now a major priority by both ministries to put in place a comprehensive M&E system that embraces participatory M&E. The PM&E system will support technical divisions in both ministries to make sure that all staffs implementing NALEP are well trained and equipped for self-evaluation in implementation of planned activities. Issues on rights, gender, advocacy, governance and environment will be mainstreamed into the PM&E system."

However, like most programs, instruments such as annual reports, mid-term reviews/evaluation (MTE 2009) specific studies (Impact on Productivity and Income, Aug. 2011) serve to provide continuous monitoring and evaluation of the program.

OTHER ISSUES

It is difficult to describe NALEP II as a value chain program although its activities address some elements of the value chain. NALEP evolved in 2000 out of the National Soil and Water Conservation Program, which had been supported by Swedish International Development Cooperation Agency (SIDA) since 1974, at a time when reforms were needed in agricultural extension services. NALEP II followed NALEP I (2000 – 2006), as an innovative approach to demand responsive and holistic extension. The Impact Study recommended an extension of the program to the whole country, i.e., including the Arid and Semi-Arid Lands (ASAL), and identified areas where more work should be done to reach the poor, enhance the quality of the extension, focus on farming as a business, include advice on value-added activities, mainstream some of the cross-cutting issues such as HIV/AIDS better, and develop the monitoring system further to include impact monitoring. But the current approach of concentrating service delivery in a focal area for one year is considered as too short and inadequate for sustainability of the CIGs.

The issue of implementation management and leadership is rarely a part of program evaluation but the success or failure of a program has a high correlation with the quality of management. Flexibility during program implementation is at times necessary to correct for any design shortcomings but this issue is also rarely considered during project design.

NALEP II is coming to an end in December 2011 and it is expected to be replaced by the Agricultural Sector Development Support Program (ASDSP). The overall goal of the ASDSP is to transform Kenya's agricultural sector into an innovative, commercially oriented, competitive and modern industry that will contribute to poverty reduction, improved food security, and equity in rural and urban Kenya. The ASDSP goal is aligned with GoK's commitments to the agricultural sector through ASDSP and the Kenya CAADP Compact. The development objective for the program is: 'increased and equitable incomes, employment and improved food security of the target groups as a result of improved production and productivity in the rural smallholder farm and off-farm sector.' The designers of the ASDSP observe that, while NALEP and other programs have made significant impacts, there is a need to expand NALEP and involve other programs in line with the ASDSP. This will put emphasis on improvements in the business environment through the value chain approach; climate change adaptation and mitigation; and improved sector-wide coordination.

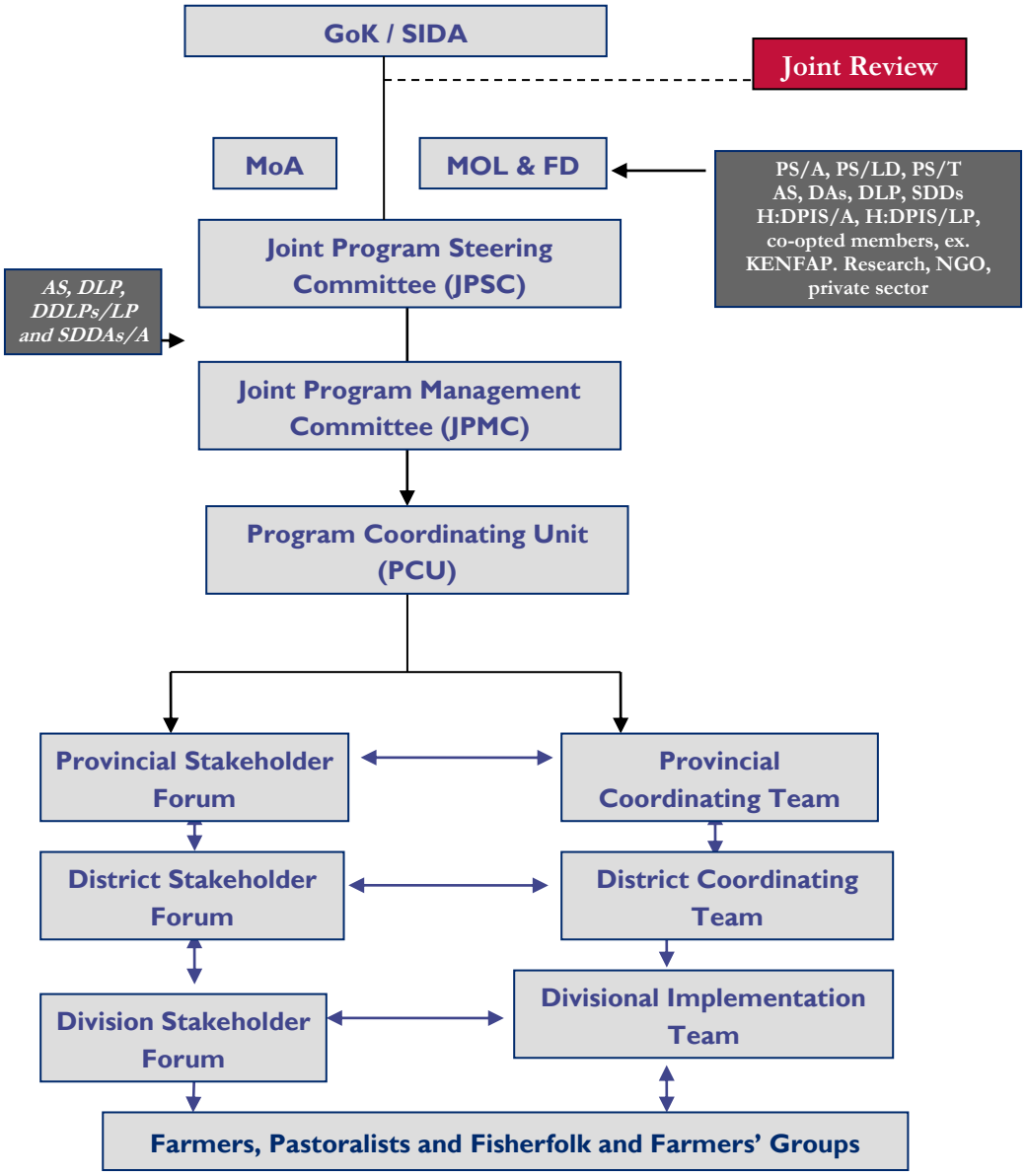
CONCLUSION

From a design point of view, the NALEP focal area approach can succeed in enabling smallholder agricultural and livestock producers to participate in value chains, improve value chain productivity, improve production and marketing, allow participation of private investors in agriculture, improve rural household incomes, create employment, allow gender equity in agriculture production and marketing, and ensure economic and environmental sustainability of agricultural enterprises. However, it was not possible to make any conclusive assessment of the actual impact of NALEP on these areas, but it is clear that the program has succeeded in mobilization of smallholder agricultural and livestock producers to participate in the value chain. Whether their participation has been of significant benefit or not, is not yet clear.

RECOMMENDATIONS

Whereas it has proven difficult to pin NALEP II as a value chain program, it has good lessons to borrow in its implementation unit (focal area) and its common interest group mobilization and formation. It is reported that the issue of gender equity is emphasized during the formation of the CIGs. It is recommended that development programs borrow from this NALEP design and approach, with modification to suit the nature of the development activities intended to be implemented.

Figure 12. Organizational Structure of NALEP II



APPENDIX D. HORTICULTURE SUB-TEAM REPORT

EXECUTIVE SUMMARY

The "Multi-Stakeholder Evaluation of Agriculture and Livestock Value Chain Activities in Kenya" (Evaluation) was undertaken under the guidance and direction of the USAID/Kenya Agriculture, Business and Environmental Office (ABEO). The evaluation was designed to provide a common framework and point of reference for donors to use in designing and implementing agriculture and livestock value chain activities, and collaborating with one another in support of the Kenya Agricultural Sector Development Strategy (ASDS). To accomplish this objective, the evaluation team was tasked with examining successful donor-supported Kenyan agriculture and livestock value chain activities, and determining why those activities have been successful. The evaluation results are expected to benefit USAID, the Kenyan Development Partners (PARTNERS), and the GoK.

Within this context, a sub-sector horticultural team (TEAM) was assigned to evaluate the following donor-funded projects within the context of the overall assessment:

- National Agriculture Productivity and Agribusiness Project (NALEP)
- Private Sector Development in Agriculture (PSDA)
- Smallholder Horticulture Empowerment and Promotion Unit Project (SHEP-UP)
- Kenyan Horticulture Competitiveness Project (KHCP)
- Practical Training Center – Horticulture (PTC-H)

Although these projects were not designed using a common value-chain methodology, each incorporates approaches and/or elements consistent with value chain concepts. Three of the activities (NALEP, PSDA, and SHEP-UP) are being directly implemented within the Ministry of Agriculture (MoA), while KHCP and PTC-H are being implemented by outside organizations, but in consultation with the MoA. In addition, with the exception of PTC-H, all of these projects are follow-ons to previous projects funded by the same donors.

The team determined, based upon a review of available documents and interviews with relevant donor and implementer staff, in all cases sufficient self and/or third party Monitoring and Evaluation (M&E) had taken place to insure that the next project concept fit the current enabling environment as related to targeted beneficiaries. The team also realized reasonable knowledge from a historical context was critical in order to properly evaluate current value chain intervention activities.

The enabling environment for horticulture in Kenya at the beginning of the new millennium was very difficult. However, as a result of improvements in the enabling environment over the past 10 years Kenya's horticulture sector has made huge strides forward. Predecessor and current donor-funded projects evaluated by the team all contributed significantly to this rapid advancement. In addition, MoA has taken very positive steps to facilitate and support producers of horticulture commodities, and help the private sector be competitive in the global marketing arena.

A prime example of horticultural development is the fresh cut flower 'industry' in Kenya, which has become a 'well oiled' machine meeting all requirements of the global marketplace as a first class competitor able to outshine other suppliers around the globe. The Kenyan Horticulture Competitiveness Project (KHCP) has engaged private partners to create a model for expanding successful smallholder participation in the lucrative export market for cut flowers. The team found that after just one year, KCHP activities are providing

opportunities for and changing the lives of 2,000 hard working smallholder producers, as evidenced by the new homes which have been built, children in fresh uniforms attending schools and rural communities being improved; all this is due to the donor-funded partnership with the private sector.

Expanded Kenyan smallholder participation in profitable horticulture export markets as a result of donor-funded development activities is not limited to cut flowers. Kenyan grown French green beans are meeting the most stringent global standards for quality and are not only a regular menu item throughout the UK and the EU, but are actually demanded by top chefs. A decade ago there were no producers of French Green Beans in Kenya supplying the UK and EU. Today 150,000 Kenyan smallholder farmers are successfully participating in the value chain for this and other vegetables which meet the stringent requirements of Global Gap. Appropriately led by the private sector, with very good GoK support, Kenyan horticulture has grown and prospered as a direct result of the donor supported projects evaluated by the team.

The team was also tasked with advising the PARTNERS on how to improve collaboration with one another as well as with the GoK. Once again the TEAM took a historical look at collaboration in the horticulture sector, and was impressed with the degree of collaboration that has taken place over the past decade of donor-funded assistance. A classic example of collaboration is the *Practical Training Center- Horticulture* (PTC-H) in Thika, which came about as a direct result of cooperation and input from virtually all donors and implementers engaged in horticulture value chain interventions in Kenya; as well as strong support from the MoA. PTC-H is now a self-sustainable, invaluable asset benefitting all participants in the horticulture value chains, from farm workers to exporters of fresh produce; as well as to consumers in market areas importing produce from Kenya. Private sector leadership was the defining factor leading to this successful collaboration. However, the support and encouragement of the GoK also played an important role in the development of this project.

In addition, the team was asked to identify the best approaches for donors to use in designing and implementing agriculture and livestock value chain development activities in the context of Kenya's Medium Term Investment Plan (MTIP). The team noted that 'approaches' versus 'approach' is a key consideration in crafting an appropriate intervention. The team was particularly impressed with the balance and effectiveness of the three donor-funded projects implemented via the MoA, although all three projects were designed based upon different approaches that the team found to be quite complementary. The fact that these projects function in a complementary fashion is a result of extensive consultation with the MoA to identify the skills, knowledge and attributes each donor could provide; along with clearly defined goals and objectives and frequent re-evaluation via M&E.

The team understands that serious negative consequences can result from multiple 'well intended' projects targeting the same geographic areas and the same beneficiaries. However, the team found absolutely no indication of duplication or conflict at the field level as a result of NALEP, PSDA and SHEP-UP activities in District MoA Offices. The team visited literally dozens of these locations throughout Kenya. With NALEP playing a foundational role by engaging smallholders in Common Interest Groups (CIG) as a focal point to begin the 'construction' of a value chain; and with the PSDA and SHEP-UP focus on value chain constraints and development from more developed and yet very different perspectives, this collective intervention is providing a comprehensive and well rounded 'package' of tools available for beneficiaries.

The team observed and interviewed numerous beneficiaries participating in the horticultural value chain who demonstrated direct benefit from the PSDA's hard-hitting and pragmatic production and market development guidance. The team also met many beneficiaries who had made well-informed business decisions as a result of training in conducting market surveys, a basic activity motivated by SHEP-UP. In

addition, the SHEP-UP technique of involving husbands and wives together in all training programs is a 'social' approach to value chain intervention that is relevant to the culture of daily life in Kenya.

As noted earlier, PTC-H became a reality due to the collaborative efforts of the private sector, government and donors. The successful approach of this project is much different than the 'grassroots' activities in which NALEP, PSDA and SHEP-UP work on a daily basis. However, because of this alternate approach, the PTC-H that now exists is an example of the kind of results that can be achieved when the private sector, government and supportive donors join together in a collaborative effort to share human resources and financial assets to achieve a mutually agreed objective. This self-sustaining 'jewel' now sits as the focal point from which the next jump forward for Kenya horticulture will emanate.

The strong public-private partnership that forms the foundation of this complex organization promises to engage all factors involved in the horticulture-related value chain activities throughout Kenya in an even more competitive, sustainable and enabled environment that will stimulate technical advances, inclusion and access for small stakeholders. It will also provide a forum for designing donor interventions that are properly governed, suitably designed and able to achieve positive results.

One of the key forums for linking the commercial horticulture sector with farmers has been the farm business linkage stakeholder forums. During these forums farmer group representatives and GoK field extension staff discuss business with these commercial entities. The forums have led to the development of some good linkages and collaboration between farmers and the private sector for services such as input supply, market access, and financial services. One example of this is the Namilama self-help group in Bungoma Central district where farmers were linked to the Agricultural Finance Cooperation (AFC) and since then have accessed three loans amounting to KES 638,000. The group borrowed and repaid the first two loans and is now repaying the third.

The business linkage stakeholder forums link farmers to financial service institutions that later assist farmers in accessing loans to finance their horticulture businesses. The example of Namilama group above is one such linkage that has assisted farmers in accessing credit. NGOs linked to the groups have trained some groups in table banking in the form of Village Savings and Loans Association (VSLAs). The VSLAs have been instrumental in ensuring that horticulture farmers have avenues to save and obtain credit. A good example is Nakewa Youth Group in Bungoma East District, which has been operating VSLAs for more than one year. In this time, they have mobilized nearly KES 200,000 in savings and loaned more than KES 300,000 to members.

INTRODUCTION

The report has been produced in response to a USAID/Kenya-sponsored Multi-Stakeholder Evaluation of projects related to three agricultural sectors, including Horticulture Value Chain Activities in Kenya, which is the focus of this report. The overall goal of the evaluation was to develop and articulate a common frame of reference and approaches for donors to use in designing and implementing agriculture and livestock value chain development activities in support of Kenya's Medium Term Investment Plan (MTIP).

USAID/Kenya initiated this evaluation to benefit all members of the Kenyan Development Partners membership, which includes the major donors offering assistance to the GoK. As related to horticulture, the intent of this evaluation was to identify best approaches for donors to use in designing and implementing projects relating to value chain development in horticulture in Kenya within the context of the Kenya Agricultural Sector Development Strategy, which specifically seeks to achieve the following in Kenya by 2020:

- Reducing the population living under the absolute poverty line to less than 25 percent.
- Reducing food insecurity by 30 percent.
- Increasing annual agricultural sector growth to 7 percent.

And the related Kenya Medium Term Investment Plan (MTIP) which specifically address the following three Medium-Term Investment Plan (MTIP) priority areas:

- Increasing productivity, commercialization, and competitiveness.
- Promoting private sector participation.
- Increasing market access and trade.

All of which is targeted toward achieving the goals and objectives of Kenya Vision 2030, a GoK blueprint for national development. In addition, the Agricultural Sector Support Program Phase II (ASSP II) has been designed to implement the ASDS through 2015. A principal element of ASSP II is: ***Agribusiness, Market Access, Value-Addition, and Rural Infrastructure Improved.***

Projects were assigned to the Multi-Stakeholder Horticulture Team for evaluation with the objective of identifying best practices and targeting the important elements leading to successes with a focus on what approaches have worked and why.

The criteria for success as defined by the SOW were as follows:

1. Agriculture and livestock value chain productivity and competitiveness
2. Smallholder producer participation in value chains
3. Agricultural production and sales
4. Rural household income
5. Private investment
6. Employment generation
7. Involvement by women and youth
8. Environmental and economic sustainability

Of the five projects evaluated by the Horticulture Sub-Team, three demonstrated a unique collaborative effort with the Kenyan Ministry of Agriculture, functioning both as a donor-supported project as well as being embedded within the Ministry. These are:

- Donor – JICA:
  Smallholder Horticulture Empowerment and Promotion Unit Project (SHEP-UP)
- Donor – SIDA:
  National Agriculture and Livestock Extension Project (NELAP)
- Donor – GIZ:
  Private Sector Development in Agriculture (PSDA)

The following two projects function as independent implementers while also maintaining close communication and counsel with the Ministry of Agriculture:

- Donor – USAID:
  Kenya Horticulture Competitive Project
- Donor – The Netherlands:
  Practical Training Center – Horticulture

The report that follows will provide findings as related to the five projects evaluated as well as recommendations and conclusions. Thirteen basic lines of inquiry were provided within the SoW that provided an investigative framework for the Team during the evaluation process. Each project evaluation includes responses to those inquiries as applicable:

1. DESIGN: What are the major design strengths of successful agriculture and livestock value chain activities?
2. TECHNICAL APPROACH: What were the principal agriculture and livestock value chain technical issues, and how were they addressed?
3. GOVERNANCE: What were the principal agriculture and livestock value chain governance issues, and how were they addressed?
4. INCLUSION AND ACCESS: What approaches were most effective in increasing participation in agriculture and livestock value chains?
5. PRIVATE SECTOR: What was the role of the private sector in activity design and implementation?
6. COMPETITIVENESS: How did the activity increase producer and enterprise access to agriculture and livestock financial services?
7. PARTNERSHIP: Who were the most important collaborators and cooperators, how were they engaged, and what was their contribution to success?
8. ENABLING ENVIRONMENT: What was the effect of Government of Kenya policy, and the enabling and regulatory environment, on implementation and investment?
9. OTHER CONSIDERATIONS: What other important issues and considerations were incorporated and addressed?
10. MONITORING AND EVALUATION: What approaches were used, and systems put in place, for monitoring and evaluating activity implementation and impact?
11. RESULTS: How effective were agriculture and livestock value chain activities in terms of scale and overall impact?
12. SUSTAINABILITY: What factors were most important in achieving the activity goals and objectives and sustaining impact?
13. LESSONS: What were the greatest strengths of successful activities, and the most important lessons which can be learned from them regarding the design and implementation of new agriculture and livestock value chain activities in Kenya?

BACKGROUND

Donors who are funding development projects in Kenya have established an informal organizational structure known as the ***"Kenyan Development Partners"*** (PARTNERS). The Partners have committed to aligning their support for agricultural sector projects and programs behind a unified plan orchestrated by the GoK known as Agricultural Sector Development Strategy (ASDS). As an important aspect of this effort, the Partners intend to develop a common framework for monitoring and evaluation.

The Partners are interested in learning from one another the experience of developing and implementing value chain projects in Kenya. The Partners have agreed to undertake a joint evaluation of 10 select agriculture and livestock value chain activities, with a specific focus on using this evaluation as related to forming the design and implementation of new value chain interventions.

On behalf of the entire membership group, PARTNER members have volunteered to fund and implement the Multi-Stakeholder Evaluation of Agriculture and Livestock Value Chain Activities in Kenya (Evaluation). USAID/Kenya is interested in aligning agricultural development activities, as well as poverty reduction efforts in line with the activities of other donor Partners. USAID/Kenya is particularly interested in collaboration and cooperation with other Partner members as related to the design and implementation of the Feed the Future (FtF) initiative, which is intended to create broad-based economic growth within smallholder farmer dominated value chains.

The Partners have endorsed and support the Kenyan Vision 2030 'blueprint' for national development launched by the GoK in 2008 as the framework and 'blueprint' for national development plans and objectives. In conjunction with Kenyan Vision 2030, the Agricultural Sector Development Strategy (ASDS) created in 2009 is now the overall national policy for agricultural sector ministries and stakeholders. In turn the GoK initiated Medium Term Investment Policy (MTIP), as related to ASDS, establishes specific primary objectives. It is aligned with the Comprehensive Africa Agriculture Development Program (CAADP) as well as the United Nations Millennium Development Goals. The Partners intend for the evaluation to be conducted with the vision and goals of the ASDS and related MTIP objectives as cornerstones for recommendations and conclusions generated by the team.

DESIGN AND METHODOLOGY

The team's evaluation methodology and resulting conclusions were built from a qualitative approach, supported by verifiable quantitative sources. Some projects evaluated were unable to provide verifiable quantitative and qualitative monitoring and evaluation studies; in those cases, the team assessed performance results using the documentation available. This buttressed the team's own work to identify and describe the most important elements that contributed to agriculture and livestock value chain activity success. A graphic model of the methodological approach employed by the team is presented in Annex D.1.

The team's qualitative data resulted from:

- Interviews conducted with senior donor staff as well as implementer staff of each project.
- Review of documents provided by each project as well as contact information for key stakeholders involved with each project.
- Engaging project operational staff in the 'field' where project activities were viewed.
- Interviews with related stakeholders.

- Contacting relevant government staff .
- Interviewing numerous beneficiaries .

The 13 lines of inquiry as specified within the SoW were integral within the evaluation of each project. To gather responses to these inquiries, the team utilized several tools, including:

- Multi-sector Value Chain Question Matrix (Annex D.1) – The purpose of this 'tool' was to identify the data type and possible sources needed to address the 13 key inquiry areas and related questions as identified within the SoW. This 'tool' helped the team organize and ensure that all areas of the evaluation were covered.
- Program Design and Implementation Data Collection Guide – The team assessed five projects funded by five different donors, each with distinct design and implementation approaches, and each working under different strategic, evaluative and monitoring arrangements. To ensure that the necessary background, information, data and understanding of the project development and causal logic are in place for the review, a checklist to guide team reviews of the projects was employed.
- Interview Guides and/or checklists to ensure a consistent approach across interviews when seeking information on the same type of issues/programming actions were employed to interview beneficiary, stakeholder, implementer or value chain actors.

FINDINGS

SUMMARY DESCRIPTION OF THE PROJECTS EVALUATED

The team evaluated five dairy value chain activities. A summary description of the five is provided, as follows:

PRACTICAL TRAINING CENTER (PTC) HORTICULTURE

The Practical Training Center (PTC) Horticulture is one of the projects under the Dutch-Kenyan bilateral partnership program 'Capacity Building for Market Access' and is part of the implementation agreements following the World Summit on Sustainable Development (WSSD) in 2002. The overall objective of the project is to improve the capacity for training and education in the horticultural sector of Kenya in a sustainable manner, thereby increasing the skill levels of the staff involved, improving the overall financial performance of the industry and contributing to the long-term development of the Kenyan economy. The training center is located at Thika in the Central region of Kenya at the site that used to be the Macadamia Research Center under the Kenya Agricultural Research Institute (KARI).

Objectives

To improve the capacity for training and education in the horticultural sector of Kenya in a sustainable manner, thereby increasing the skill levels of the staff involved, improving the overall financial performance of the industry, and contributing to the long-term development of the Kenyan economy.

The project was designed so that activities undertaken within the project were industry-driven and operated as a commercial entity, but supported by donors. The industry funded 10 percent of the project, especially recurrent expenditures. In addition, the activities implemented at the PTC are simple and realistic, but commercially viable or self-sustaining (nursery, flower farm, vegetable farm, and small-scale demonstration farms complete with farm structures). Coordination of production at both nucleus and smallholder farms were undertaken in such a way that large-scale producers/exporters partner with small-scale farmers to ensure continuous production and supply of produce to the market. A business plan was developed and is being

applied for implementation of activities at the PTC to ensure the center attained self-sustainability within one year – generating adequate funds to run its activities without donor support.

Management

The center is operated using a public-private sector approach with an advisory board of trustees. But the day to day activities are undertaken by FPEAK, a horticulture consortium of the Kenyan private sector. The PTC has several collaborators that include: the Dutch government, MoA, HCDA, KARI, KPC, KENFAP and USAID/ KHCP. To ensure quality capacity building of stakeholders in the horticulture value chain, the PTC has also developed strong linkages with institutions of higher learning in Kenya (Jomo Kenyatta University of Agriculture and Technology (JKUAT) and in Netherlands Dutch practical training center, Wageningen UR just to mention a few. Other players include civil society (KENFAP) and Kenyan service providers (input suppliers, certification bodies and IPM).

Successful Approaches of the PTC

The approach of actively engaging the private sector in horticulture value chain activities was seen in the Practical Horticulture Training Center (PTC), which contributed considerably to the success of the projects. In the PTC, the private sector, together with other stakeholders, were involved from the project inception stage, during which they participated in a consultative workshop whose objectives were:

- To establish whether there is sufficient interest and possible commitment for development of a partnership program
- To discuss, on the basis of the suggested topics, ideas and options for a possible partnership program
- To select activities for implementation in the framework of the partnership program and to agree on a process for the formulation of detailed project proposals
- To develop a financial framework intended to result in a self-sustainable training center

One of the major gaps identified during the consultative workshop was inadequate capacity of players within the industry. To address this gap, a small working group was constituted to develop a proposal for submission to the Dutch government. One of the lead institutions in the development of this proposal was Fresh Producers Exporters Association of Kenya (FPEAK). FPEAK was again given the responsibility to take the lead in the management and running of the PTC.

Box 15. Economic Sustainability of the Practical Training Center

One of the major constraints smallholder flower farmers face is access to clean seed for flower production. To address this constraint, the PTC bulks newly introduced summer flower varieties Arabicum and Ammi (shown in the photo) for distribution to farmers. This is done for a fee to generate additional funds to operate the center.

The Netherlands funding of PTC was done with a business plan that stipulated that the center be financial sustainable within one year of operation. The evaluation team determined that the center is on course to achieve this target. For instance, the flower unit at the PTC has an annual operating budget of 1.5 million (KES), and at the time of evaluation, the unit had generated 11 million (KES) in revenue.

The evaluation captured the following as the key evidence of success with regard to this approach:

Factors That Have Led to the Success of PTC

- The involvement of major stakeholders (donors, public, private, and civil society), from the project inception stage and engaging them in a consultative workshop to ensure their views are included in the project.

- The mechanisms put in place to ensure the center is self-sustaining in terms of training center capacity, capability, and financial requirements.

- The application of strict financial management rules. For instance, department managers are responsible for distribution to farmers, expenditure, accounts, preparation of voucher payments, and financial record maintenance, while the board of management and chief executive only approve payments.

- The management of the center is based on a business and financial plan just like a private limited company. At the center, the demonstration units (flower, fruit, vegetable, etc.) are set up to mimic the real, but simple situation of a small-scale farmer.

- To provide quality training, the center uses a well-developed curriculum to train farmers. To ensure stronger linkages, the center gives access to other industry players (KARI, ICPE, KHCP, TechnoServe), and service providers to train stakeholders along the horticulture value chain; for example, integrated pest management research on passion fruit.

- To further empower players in the industry, the center acts as a horticultural resource center providing horticultural information to stakeholders in the industry.

"We have increased our membership from 18 to 22 and cooperated with another 22 members, making a total of 44 members growing bananas. In addition, our group has trained 10 other groups in banana production. We started up with 338 banana stools in 2007 and have now increased to over 19,000 stools," says Joseph W. Musamali the secretary of Namilama banana growers group during an interview with the evaluation team.

SMALLHOLDER HORTICULTURE EMPOWERMENT AND PROMOTION UNIT PROJECT (SHEP-UP)

The SHEP-UP project is one of three horticultural related projects (NALEP, PSDA and SHEP-UP) included in the Multi-Stakeholder Evaluation which are implemented through the Ministry of Agriculture with a focus at the District Office level. Although, the stated goal of SHEP-UP is *"Livelihood of horticulture smallholders in implementing districts improved"* and in turn the stated project purpose is *"Effective support system for horticulture smallholders nationwide is established";* the Horticulture team concluded that horticulture-related activities conducted by SHEP-UP in cooperation with the Ministry of Agriculture fit value chain interventions as defined by the evaluation SoW.

- The team observed increased smallholder participation in the value chain for bananas within SHEP-UP supported interventions in Bungoma East and Bungoma Central districts. The Namilama banana growers group in Bungoma Central district increased membership from 18 to 22 and cooperated with another 22 members for a total of 44 producers growing and marketing bananas. In addition, the group has trained 10 other groups in

banana production. The group started with 338 banana stools in 2007 and has now increased to more than 19,000 stools at the time of this evaluation.

- Increased rural household income – On average, the SHEP-UP-targeted farmers have increased their income by 11 percent (SHEP-UP terminal evaluation report 2009). Group members interviewed in Bungoma East and Bungoma Central districts reported increasing their household assets and being able to purchase dairy animals and land, all from the sale of bananas and vegetables under the SHEP-UP project.
- Involvement of women and youth – The project deliberately targets equal gender representation during the implementation of project activities. Project beneficiaries, especially in Bungoma East district, consist mainly of youth. Nakewa youth group has all its members in the youth age bracket.

Factors that Led to the Success of this Approach:

- Capacity building of smallholder farmers to undertake market surveys on their own before selecting a crop to produce and sell. From interviews with farmers, extension staff, and officers in division and district agriculture offices, the training regarding market surveys and the subsequent undertaking of the actual market surveys by farmers was very important in helping the farmers to choose what crop to grow as well as boosting their morale to produce.
- Involvement and capacity building of the Ministry of Agriculture staff at the district and divisional levels. The project success has, to a large extent, been due to the way the Ministry of Agriculture at the district and divisional levels has been involved. The project has a desk officer at each of the target districts who serves as a Ministry of Agriculture staff member. The desk officer together with the District Agricultural Officer (DAO) has the responsibility of implementing the project, plus reporting progress and results. The DAO's office prepares its activities based on plans and budgets which are submitted to the SHEP-UP secretariat for funding. The project also trains the agriculture staff in skills including market survey, demand-driven extension, group dynamics, and gender. This relationship has created ownership of the project at the DAO office level and has resulted in high expectations of sustainability among targeted beneficiaries due to SHEP-UP activities.

It is widely accepted that enterprise development and value chain programs must focus on what buyers want and not on what is currently produced. Nearly every value chain or enterprise program today characterizes itself as "market-oriented." Such an orientation is essential but not always obvious in practice. Although most of the projects evaluated are market oriented, SHEP-UP employs unique techniques and a very effective method to inform and educate beneficiaries. Prior to actually producing horticultural products and in turn entering the marketplace, SHEP-UP trains farmers to engage in market surveys in order to determine market opportunities, potential pitfalls, and consumer demand. The detailed implementation approach followed by the project goes through the following steps:

Step I: Sensitization Workshop

Sensitization workshops are held at three levels. Level one is with the Provincial Directors of Agriculture (PDAs), the second with District Agricultural Officers and HCDA station managers, and the third is with Divisional and District staff and farmer representatives

Step II: Training of Provision and District Staff

The objective of the training is to provide skills and techniques of implementing the SHEP-UP approach to PDAs, DAOs and HCDA station managers.

Step III: Baseline Survey
This is done to determine the level of yields and incomes, level of adoption of horticulture production techniques, group cohesiveness, leadership, cooperation, and gender of model groups.

Step IV: Farm Business Linkage Stakeholder Forum
This is done to reinforce contact between farmers and stakeholders.

Step V: Joint Extension Staff and Farmers Dual Gender Training
Participants are trained mainly on how to conduct the market survey, crop selection, and how to make an Action Plan.

Step VI: Facilitators Training for Farmers Demand Driven Extension
Contents of training are based on Action Plans submitted by model farmer groups. However, one unique feature of this training is the fact that the project insists that both husband and wife participate.

Step VII: In Field Training
Contents of training based on challenges identified by farmers in their action plans and targets all members.

Step VIII: "Do Nou" Technology Demonstrations
Develops farmers' capacity in maintenance of rural roads using "Do Nou" technology and to improve rural/farm access roads in horticulture production sites within the project districts.

Step IX: Agro Processing Training
Upon request of group members.

Step X: Gender and Family Budgeting
The objective is to make farmers understand gender issues with regards to family labor utilization. This approach is quite empowering and results in the farmers making good crop intervention choices, which are well informed by the information from the market survey. The design also enhances local capacity and ensures that skills acquired are transferred to other farmers.

KENYA HORTICULTURE COMPETITIVE PROJECT (KHCP)
The Kenya Horticulture Competitive Project is identified as "market-driven and partner-managed." This project works in close cooperation with the Ministry of Agriculture as well as with other key governmental institutions, but it functions independently. Eight crops have been targeted for value chain interventions. The evaluation team was able to review three of the numerous partnership arrangements currently underway via KHCP.

Actively engaging the private sector in horticulture value chain intervention activities was seen to contribute considerably to the success of the project. KHCP involvement of the private sector begins when the project invites stakeholders to a national or regional project launching forum. Thereafter, the stakeholders interested in participating in the project send concept notes detailing how they would like to participate and how they will contribute to achieving the project objectives. The selected partners enter into a formal agreement with KHCP, which spells out the relationship and roles between the two.

The evaluation team had the opportunity to interview three private sector organizations participating in the KHCP project. These include Wilmar Agro, Dryland Seed, and Sunripe working on summer flowers, pulses, and sweet potato value chains, respectively. The community based organization (CBO) interviewed is called Good Neighbors and has partnered with the community and KHCP to intervene in the passion fruit and orange fleshed sweet potato value chains.

Wilmar Agro is a local flower export company that exports summer flowers mainly to the Dutch auction market. The company does not have a farm of its own to grow the flowers, but instead relies on smallholder growers who are contracted and supported to grow and supply the flowers to the company. This partnership is a good opportunity for Wilmar to expand and improve its business performance. On the other hand, the farmers involved with Wilmar view the partnership as an opportunity for them to access the export market and get better returns for their flower production. As a result of bringing these participants in the Kenyan Flower Value Chain together, KHCP is facilitating the objective of "Substantially increas[ing] incomes for small farmers and the livelihoods of other household members."

The specific support that Wilmar has been getting from the project includes the following:

- Capacity building of staff and directors. The field agronomists have been trained on good agricultural practices as well as group dynamics so they can better support the smallholder flower growers to grow quality flowers that meet consumer expectations. The company directors and managers were trained in strategic management, and this has helped them to develop a business plan.
- Support in market surveys. The project has been partially facilitating Wilmar directors to travel abroad to conduct market surveys. This has helped the company in getting to know the specific requirements of the market as well as getting new market outlets for their summer flowers.
- Record keeping and reporting. The project is supporting a BDS manager to boost the capacity of the company in record keeping, grant management, reporting, and marketing.

The specific benefits that the smallholder farmers get from this partnership include the following:

- Access to export markets through Wilmar Agro. An interview with the farmers revealed that the exporter (Wilmar Ltd.) has a contract with the farmers which is renewed annually, and given this arrangement, the farmers sell all that they can produce as long as specific quality standards are met.
- The farmers get training and extension support from Wilmar's field agronomists. The farmers are visited, at least, once every week by the agronomists.
- The farmers are linked to financial institutions to open bank accounts, through which their money from the sales of flowers is channeled. Wilmar also helps the farmers to access credit from the financial institutions by writing recommendation letters.
- Farmers receive grants to purchase production infrastructure, such as green houses.

Dryland Seed is a local seed company operating in Eastern Kenya that processes and packages seed varieties for arid and semi-arid zones. In its partnership with KHCP, it is able to stimulate pulse production by increasing the availability of quality seeds, resulting in an opportunity for the seed company to expand its business. Conversely, by engaging Dryland Seed as a partner, KHCP is able to support farmers who produce pulse seed (primarily pigeon peas and cowpeas), and to support networks of local agro dealers, effectively enlarging the market for (targeted) pulse seed. At the time of this evaluation, the company had contracted 120 farmers to grow pigeon pea and cowpea seed, and had trained 57 agro dealers. The farmers benefit from the partnership because of the ready market and higher prices provided by Dryland Seed compared to other market outlets. This partnership has also provided KHCP with the opportunity to "Create opportunities throughout the value chain for women and youth."

Sunripe Ltd. is a major exporter of fresh produce engaged in packing numerous commodities that are shipped throughout the EU, UK and the Middle East. Its objective is to be a year-round supplier to their clients. The

company partnered with KHCP and smallholder farmers to work on the orange fleshed sweet potato value chain. For the past seven years, Sunripe has been working toward the development of an export market for sweet potatoes from Kenya to the UK and EU.

In discussions between KHCP staff and Sunripe, both parties identified mutual objectives leading to the creation of a partnership. In the partnership, Sunripe assists small-scale growers in the production of the orange fleshed sweet potato variety, and via the Sunripe export network, links the producers to the export market. One key to the competitive success of this "deal" relates to the logistics of producers being relatively close to the seaport of Mombasa and, in turn, shipment via sea transport. At the time of this evaluation, Sunripe was working with seven farmer groups with a combined membership of 143 farmers. The farmers have been trained to coordinate planting schedules to meet Sunripe's weekly export target. Through a grant from KHCP, Sunripe is able to reach out to more farmers, thereby expanding the business and, at the same time, assisting the farmers in increasing incomes, and assisting KHCP in achieving its objective to "Grow current market share for Kenyan fresh produce exports to regional, European and Middle Eastern Markets."

Good Neighbors is a CBO working directly with the community in Western Kenya to address issues of food security and incomes. The CBO has a partnership with the KHCP project to produce clean passion fruit and orange fleshed sweet potato planting materials for farmers as well as build the capacity of the farmers for improved production of the two crops. The CBO received a grant from KHCP to expand its passion fruit nursery and train farmers on good agricultural practices. Through the grant, Good Neighbors has achieved the following:

- Increased the number of nurseries from 1 to 18 with a capacity of 1.5 million seedlings, which earns KES 50-60 million.
- Built capacity of 15,000 farmers from 200 groups.
- Increased production of passion fruit and orange fleshed sweet potatoes.
- Created more than 1,000 jobs, 200 of them permanent.

Good Neighbors also works with other partners in the public and private sector to address different agriculture value chains.

The preceding examples illustrate how projects can have great success through strong partnerships with the private sector as long as the partnership serves the interests of all parties involved (Annex D.1.3).

Success with Regard to the Partnership Approach to Value Chain Intervention

- Economic sustainability of the activities undertaken by KHCP's private sector partners. Private partners working with KHCP (Wilmar Agro and Dryland Seed) are able to meet the cost of extension services to the farmers and anticipate that by the end of the project, they will able to meet the cost of the BDS manager currently subsidized by KHCP.
- Smallholder producer participation in the value chain. KHCP's project has reached 3,395 farmers (1,866 women and 388 youth) in pulse production through the Dryland Seed Company and enabled the participation of 3,000 smallholder flower farmers in Central Nyanza and Rift Valley regions through Wilmar Agro. (Source Annual Report October 2010 – September 2011)

- Private sector investment. Dryland Seed Company invested KES 5.5 million in seed cleaning and packaging equipment as a result of increased demand for pulse seed (Source Annual Report October 2010 – September 2011).
- Increased productivity and incomes. Following the introduction of new varieties by KHCP through Dryland Seed Company, farmers receiving support in Eastern Kenya recently harvested 108 metric tons of fresh pigeon peas worth KES 13 million compared to a baseline of KES 3.2 million. See Annex D.1.3 to see productivity results for value chains under KHCP intervention.

Factors that Led to the Success of the Partnership

- All the partners involved in the projects derive benefits from the partnership. The private companies improve on their business performance, the smallholder farmers improve their household incomes, and the project achieves its objectives.
- Enhanced capacity of the private sector, especially in business development and marketing. For example, Wilmar Agro, through the partnership with the KHCP program, accessed a new market for summer flowers, and sold 250,000 stems worth $64,000 between March and August 2011.
- The project builds on what the private sector company is doing and helps the company do even better as long as it contributes to meeting the project objectives. In other words, the partnership does not move the private sector partners away from their core business, but rather strengthens them.

"Through collaboration with the International Institute for Environment and Development (IIED) and Wilmar Ltd., sample bouquets were sent to Sam's Club supermarkets in the United States, ASDA supermarkets in the UK, and stores in Norway, Japan, and Germany. New market development is beginning to show signs of real progress: 250,000 stems worth $64,000 were sold to Sam's Club between 1st March 2011 and 31st August, 2011. Sales to Sam's Club have reached 124 boxes per week, a major tribute to the continued success of the USAID-KHCP partnership with Wilmar, on and off the farm."

Formal/Contractual Relationships Among Partners

The partnership in this model is formal in that the partners have contracts that define and regulate their relationship. For example, the private companies have partnership funds agreements with the project that defines their relationship, and also have contracts with farmers for the same purpose. A knowledgeable and constructive relationship whereby both growers and processors prosper is essential for a tropical fruit industry to flourish. Given that a substantial percentage of fruit juice imported into Kenya for consumption involves the same raw materials currently produced by growers in Kenya, a substantial financial return for Kenyan producers is being lost.

Finally, the team observed a refreshing attitude and philosophy among the government staff members encountered at all levels during the course of the evaluation. The goals and objectives of the ASDS and MTIP appeared to be a serious matter for the government officials encountered and interviewed. In the rural areas, based on interviews conducted by the team, governmental changes, including the switch from provinces to

counties, seems to be taken as a positive direction, which is presumed to result in improved services for rural citizens. By and large, the district MoA staff were motivated, well educated, well informed, and market-oriented. Each seemed to have a good sense as to how to best employ the services of donor-funded projects working via the MoA, as well as how to work with other stakeholders and service providers. In summary, as related to governmental services and oversight, it appeared to the evaluation team that the GoK is better prepared than ever to be an asset and partner to help agricultural value chain activities succeed.

PROMOTION OF PRIVATE SECTOR DEVELOPMENT IN AGRICULTURE (PSDA)

Promotion of Private Sector Development in Agriculture (PSDA) is a bilateral development program, implemented jointly by GIZ and the Ministry of Agriculture (MoA), in collaboration with the Ministry of Livestock Development (MoLD) and the Ministry of Cooperative Development (MoCD). The overall program period is 12 years, starting in July 2003. The target groups are market-oriented farmers and medium and small enterprises involved in agribusiness and their respective organizations. The geographical coverage includes the high and medium-potential areas in Central, Rift Valley, Nyanza and West Kenya. The program aims to improve market access for small and medium agribusiness players along selected value adding chains.

Program Objectives

The objective of the program is to promote small and medium-sized agricultural producers and processing enterprises in utilizing their full production and market potential, while managing their natural resource base in a sustainable manner.

Program Management

The program is managed by a coordination team and a steering committee, all based in Nairobi. The coordination team consists of German and Kenyan government officers. These include a Kenyan Program Manager from the Ministry of Agriculture (MoA) and a German counterpart Program Manager from (GIZ), assisted by three full-time officers, a marketing expert from the Ministry of Livestock Development (MoLD), a crop marketing expert from the Ministry of Cooperative Development (MoCD), and a policy analyst from (MoA), as well as three GIZ employees: two agricultural economists and an information management specialist. The team is supported by national and international short-term consultants.

The Program Steering Committee

The PSDA Steering Committee is composed of the permanent secretaries of the MoA, MoLD and MoCD, as well as the Ministries' directors (Director of Agriculture, Director of Livestock Production, Director of Veterinary Services, Director of Fisheries, Commissioner of Cooperatives) and representatives from the Kenya Private Sector Alliance (KEPSA), the Kenya National Federation of Agricultural Producers (KENFAP) and a representative of the Parliamentary Committee for Agriculture and Environment. The Steering Committee monitors progress and provides technical and strategic guidance to the coordination committee. The coordination and implementation team works in collaboration with the public sector, private service providers and farmers as shown in Annex D.3.

Successful Approaches

Strengthening Implementation Capacities for Value Chain Development

One of PSDA's successful approaches is a business-oriented value chain approach that assists players along the value chain (input suppliers, farmers, traders, processors and retailers, and the final consumers) to secure the best possible value at all stages of production, processing, trading, and consumption.

During implementation, use of a baseline survey to identify specific passion fruit/mango value chain constraints led to the promotion of strategies that address constraints on farmers and other value chain players. It also integrated service providers, advocacy groups, the government, and other institutions in an ongoing dialogue. The program's promotion of development partnerships with the private sector to support actors within given value chains contributed to the success of the PSDA program. In addition, the program's organization of cooperation among public and private agricultural extension services to expand the services provided by producers and processors' associations further contributed to success.

Support to farmer groups in value addition skills and business entrepreneurship led to increased incomes in the mango business investment. For example, the Gikindu farmer group raised its unit price of mangoes from KES 20 (fresh) per kg to KES 30 per kg (dry).

Evidence of Successful PSDA Passion Fruit Activities

Enhanced capacity building for extension providers and farmers has improved performance of the passion fruit industry. Some of the evidence captured by the evaluation team from literature and field visits is as follows:

- More than 391 field extension workers have been trained in passion fruit production practices/value addition.
- More than 2,066 farmers have been trained directly by KARI staff together with MoA staff and PSDA over the last three years
- Four groups have been trained on organization and development.
- Nine nurseries have been supported to provide good quality, clean plant materials to passion fruit farmers.
- Many farmers are able to maintain their orchards for more than two years, and thus earn more income, and are able to cope with the challenges of pests and diseases. The field officers are also able to meet the farmers' challenges more effectively.

MANGO VALUE CHAIN

The purpose of implementing the mango value chain activities was to improve assurance of product quality and safety throughout the entire value chain with a focus on improved post-harvest management and handling to reduce wastage rate and adding value by linking farmers with local processors, and encouraging the cottage industry for value addition. After implementation of activities, expected outputs were interventions that contribute to improved management of all processes from small-scale mango farming through intermediary trade and processing up to the consumer.

Box 16. Young Equator Horticulture farmers group

The group consists of 31 members, 14 directly involved in nursery management and 17 are passion fruit growers. The group has been running passion fruit activities for six years with the assistance of PSDA and Ministry of Agriculture. Due to enhanced capacity, the group has increased production of seedlings from 30,000-40,000 seedlings per year, earning them KShs 900,000-1,200,000 annually.

During the field visit in Meru Central, officials of Equator Horticulture Group stated that livelihoods of many passion fruit farmers have greatly improved as a result of increased earnings. Most farmers have built permanent houses, leased land to expand passion fruit production, invested in screen house for tomato production and are able to pay school fees for their children in private schools.

Evidence of Successful PSDA Mango Fruit Value Chain Activities

- Two collection centers were established through shared contributions with the farmer groups (45 percent) for bulking of produce at local levels.

- Wastage rate between farm gate and plant gate was reduced through training on improved orchard and farm management for 11 farmer groups, where losses at the farm level were reduced by 40 percent. In addition, extension officers in both the private and public sector trained as Trainers of Trainers and have supported in follow-up and coaching of the producer groups. Guaranteed market and purchase of higher volumes of produce led to improved incomes for the smallholders in the 11 producer groups (approximately 1,100 members) of KES 60 million.

- Training was conducted on value addition of mangoes for 11 farmer groups. The cottage industry started to add value to the fruits that are not suitable for processing into pulp and preparation of different mango products, and by so doing, reduced wastage from the farms and at the processing plant by up to 40 percent. Sale of value-added produce increased income; for instance, in Meru district one producer group jumped from approximately KES 360,000 to KShs 510,000, a 42 percent increase.

- This value addition in mangoes will, in the medium to long term, contribute to poverty reduction and job creation. More efficient and effective linkages within the mango sub-sector are also established. In addition, employment for youth is created in the provision of services in pruning, spraying, and harvesting. This translated to approximately 500 persons employed in the areas where the 11 producer groups are located.

Box 17. Gikindu Quality Mango Producers

The Gikindu farmers group consist of 43 members who own a minimum of 25 mango trees each. The group was linked to PSDA through MoA and has increased mango production. It was able to supply 10 tons per week to processors. Through improved capacity building along the mango value chain by PSDA, MoA, and other service providers, the group has well managed orchards and constructed a solar drier for dried mango that has a very high market demand. The chairman of the group stated that Azuri health marketing outlet requires a supply of at least one ton of dried mangoes per delivery, but the group is not able to supply even that due to the lack of large driers. Currently, the group is in the process of linking up with other mango producer groups to increase volumes to supply that Azuri health marketing outlet.

FACTORS THAT LED TO THE SUCCESS OF THE PSDA APPROACH

- Implementation of activities by undertaking a baseline survey first informed identification of constraints and prioritization of interventions, development of monitoring and evaluation work plans, training of monitoring and evaluation officers on PM&E systems, and regular surveys to inform the M&E process throughout the project lifespan.
- The fact that PSDA activities are embedded and implemented through the Ministry of Agriculture from the steering committee, coordination committee up to the district made it easier for the projects to succeed. This is because desk officers who are district subject matter specialists are assigned duties by district agriculture officers and joint planning for all activities is done as part of government activities.
- Capacity building of farmers on good agricultural practices and value addition encouraging cottage industry and linking farmers to buyers of semi-processed mangoes contributed to expansion of the nurseries, orchards, collection centers and processing units (mango drying units).
- Strong collaboration among public institutions (KARI, HCDA, MoA and KEPHIS) and private sector nursery operators, processors, and input suppliers enhanced promotion of mango and passion fruit production. For instance, KARI Thika, together with PSDA, helped farmer groups establish and run passion fruit nurseries as a business enterprise. After successful implementation, other players (USAID/KHCP) joined in supporting successful groups (Good Neighbors) to scale up the technology. In addition, vibrant clean seedling passion fruit production by private nurseries and high demand by consumers in the market not only increased adoption of passion fruit technology and increased household incomes, but also created jobs in the industry.

NATIONAL AGRICULTURE AND LIVESTOCK EXTENSION PROGRAM (NALEP)

The National Agriculture and Livestock Extension Program (NALEP), a grassroots farmer institutional strengthening concept, was initiated in 2000. The program covers the whole country and is implemented jointly by the Ministry of Agriculture (MoA) and the Ministry of Livestock Development (MoLD), and is funded by the Swedish International Development Agency (SIDA). Over the past five years, NALEP interacted with nearly five million farmers; more than 1,600,000 have directly received training.

NALEP Vision

A pluralistic, efficient, effective, and demand-driven extension system that leads to prosperity in a sustainable manner.

NALEP Mission

To provide and facilitate pluralistic and efficient extension services. The implementation structure starts at the national level, where we have a project coordination office. This office's main role is to coordinate activities at the provincial and district levels. The district agricultural office monitors activities at the divisional level while the division is the project implementing office on the ground that interacts with the beneficiaries and other players through the CIGs, FADC, and the divisional stakeholder forum.

The formation and capacity building of grassroots farmer institutions in the form of Common Interest Groups (CIGs) and Focal Area Development Committees (FADCs) has been the greatest area of success of the NALEP program. NALEP enters areas through the establishment of a stakeholder forum (SHF) with representation from both the public and private sectors in its operational areas. The SHF is then able to conduct a Broad Based Survey (BBS) and Participatory Assessment of Poverty and Livelihood Dynamics (PAPOLD) with the assistance of the technical personnel to produce a Community Action Plan (CAP), containing prioritized community-owned projects. Focal Area Development Committees (FADCs) and Common Interest Groups (CIGs) are formed to

Box 18. Kibira Cutflowers Self-Help Group

Kibira cutflowers self-help group is a CIG found in Limuru division in Limuru District in Central Kenya. The members of the group started growing flowers as individuals but came together to form a CIG through the intervention of NALEP in 2008. Before they came together, their production was low and they were paid low prices by middlemen. Through NALEP, the group was trained on good production techniques, disease control, fertilizer use, and record keeping. All the group members started applying the knowledge from the training. Through NALEP, the group was also linked to flower exporters. When asked about the results of the intervention, the group members interviewed had this to say:

- Prices of our produce have greatly improved to an average of KES 4 per stem from as low as KES 1 per stem.
- We sold 2 million stems last season worth KES 8 million compared to about 1.5 million stems the previous season.
- Our acreage under production has increased from 38 acres to 46 acres.
- We have two major reliable exporters; Rebby Flowers and ZG flowers.

Our lives have changed as a result of the cut flower business. We are able to educate our children, have electricity and clean drinking water in our homes as well as buy household assets like gas cookers, TVs, sofa sets, and a wall unit.

Asked about challenges, the group said their greatest challenge still remains the prices. They said that although prices have improved, it is the exporter who decides what to pay the farmer.

As a way forward, the group has linked with HCDA and is receiving assistance in joining with other groups to form a producer and marketing organization. The group will be registered as an association to increase its bargaining power and further improve production.

develop the Community Action Plans.

The NALEP project then provides the following support during implementation of the Community Action Plans:

- Capacity building of FADCs and CIGs as well as helping to develop a growth plan.
- NALEP brokers linkages among FADCs and CIGs and service providers and other development actors.
- NALEP provides technical assistance (e.g., crop production technologies, including improved seeds, fertilizer use and disease control) at field days, public meetings, and through demonstrations of particular technologies, including on improved food and nutrition. Farmers need to pay for the demonstration materials.
- NALEP also facilitates the formation of a stakeholder forum of all players in the agriculture sector at both the district and the divisional level.

After one year, NALEP withdraws and begins the process anew in a new Focal Area. It provides limited backstopping to the original Focal Area over the next two years.

This approach has, in most districts, laid a good foundation for other project interventions funded by other partners to build on. For example, the Smallholder Horticulture Empowerment Project SHEP, and the Private Sector Development in Agriculture (PSDA) funded by JICA and GIZ, respectively, found it easier to intervene through CIGs formed by NALEP. Through these groups the farmers have been able to survive difficult challenges and increase their individual incomes. It can often be difficult for individual small farmers to access credits, technological innovations and markets. Through CIGs the farmers make use of economies of scale when uniting their investments in production as well as increase their bargaining power in marketing, which has led to improved financial incomes for the individual households. This approach has again been strengthened by the stakeholder forums at both the district and divisional level. The forums have helped in linking the farmers with the various players in the value chain, mainly input suppliers, markets, and financial institutions.

The evaluation team, through literature review and interviews with project implementers and beneficiaries, noted the following as evidence supporting the above argument:

- CIGs interviewed reported having been impacted by the NALEP intervention in the following ways:
- Increased incomes. Evidence from three CIGs showed that the NALEP program had resulted in farmers getting more incomes than before (see case studies of the CIGs in text boxes) The increase in income was a result of improved production techniques due to training received by the farmers as well as improved prices of produce due to increased bargaining power and linkage to better markets.

Box 19. Kirathani Fruit Growers Shg

The group was formed in 2008 within the Kirathani Focal Area and was registered by the Social Services department in April 2008. The group formation was necessitated by problems in marketing of fruits (i.e., mangoes, citrus, passion fruits, paw paws, and avocados). The group's objective was to improve the quality and quantity of fruits, and have a better negotiating position when marketing their produce. They also aim to create employment among the farmers and their families and increase farm incomes.

The group started with 42 members (32 male and 10 female), all of whom are still active.

Through interaction with NALEP, the group was trained in production and husbandry practices, value addition, and value chain development/analysis. The group has benefited from a GoK-provided motorized sprayer, which they use for spraying to control pests and diseases. An inspection team of three members visits farmers every two months to ensure the spraying of fruits and good husbandry practices. Members of the group have been trained on good spraying practices by Bayer Ltd. The group was linked to Vegmod, an exporter through whom they have marketed fruits worth a total of KES 365,870 between January 2010 and March 2011

The group has also been linked to PSDA and TechnoServe for technical capacity-building and marketing.

The government has also supported the group with a grant of KES 120,000 to improve mango production under the Njaa Marufuku Kenya Program.

The group also intends to build a grading shed complete with cold store, pack-house, and value-addition equipment. The group plans to increase fruit acreage and diversify in fruit types beyond mangoes and citrus.

- Women and youth benefiting from CIG activities. Most of the CIGs the evaluation team had a chance to interview had a good mix of men and women as well as good youth representation. A very good case where youth were actively involved was that of Kibira cut flowers self-help group in Limuru. The group reported that most youth in the area are engaged in flower production, some being members of the group while others grew flowers independently. The members reported that youth are not idle because even those without land have leased pieces of land to grow flowers.

- Increase in production and sales. The production per unit area was reported to have increased. The evaluation team could not get statistics to back up this claim but from field observation, it was quite clear that the fields of members that the CIGs trained had a much better crop of flowers compared to fields belonging to farmers who are not members of the CIGs.

- Increase in participation by smallholder producers. A case study of one of the groups interviewed shown in the textbox illustrates evidence of success.

"Income from flowers has really changed my life. I have been able to buy better households assets including a gas cooker, sofa sets, a wall unit, and a TV. I am also comfortably educating my four children without having to look for a loan. With the flower money I have connected power and running water to my house as well as building a water storage tank" says Mrs. Cecilia Ngina, in blue. Ms. Ngina is a member of Kibira Cutflowers Self-Help group in Limuru.

Factors that Led to the Success of the NALEP Approach

One of the major factors that contributed to the success of the NALEP approach is the investment in formation and capacity building of grassroots farmer institutions (CIGs and FADC). The success of any value chain activity depends on the active participation of all players in the chain. In Kenya, 90 percent of horticulture producers are smallholder farmers. If these smallholder farmers are not organized, their participation in the value chain is constrained by a number of factors, such as quality of produce, access to markets, and inputs. The smallholder farmers cannot easily access other services such as credit facilities if working singularly.

Figure 13. Mrs. Cecilia Ngina tending her arabicum crop

The other factor that led to the success of this approach is the innovation of some stakeholder forums that have led to their financial sustainability. The stakeholder forums formed by the NALEP program were supposed to sustain themselves beyond the lifespan of the project. In most places, as soon as project support ends then the forum also dies off. However, in places like Murang'a, Meru and Kiambu Counties the forums have been innovative enough to start relevant income generating activities that raise resources to finance the running of the forums. In these counties the district and divisional stakeholder forums organize annual exhibitions and charge exhibitors. These exhibitions help bring value chain players together as well as generate funds for the stakeholder forums to finance their operations.

The fact that the project is embedded within the district agriculture office makes it sustainable. This is because the district and the divisional technical staff are there to stay. So even after the end of the official funding period in a given FADC, the staffs continue visiting the groups using normal government funding. This maintains the farmer extension staff relationship, which is necessary for continued production of quality agricultural produce. In two of the three CIGs visited, NALEP support had expired, but they were still maintaining their relationship with the agriculture extension staff of the ministry.

Though the design of working with grassroots community groups has yielded considerable success in the NALEP program, the timeframe for supporting the CIGs and FADCs is quite short. Better results could have been obtained if this time were longer than the current one-year period.

The formation of the stakeholder forum at both the divisional and district level is a good approach for bringing together players in a given area and allowing them to own the value chain activities. However, in most cases, this forum has been seen as a baby of the Ministry of Agriculture. In these districts, the forums stopped functioning as soon as the funding from the project stopped. There are, however, a few districts where the forums have survived beyond the funding period of the project. In these districts, the survival of the forums has been through innovative ways of raising funds. It is important that sustainability mechanisms of the stakeholder forums be part of the design to ensure continuity even after NALEP pulls out of an area.

The other governance issue is the registration status of the CIGs. The CIGs are registered with the Ministry of Sports, Culture and Social Services as self-help groups. With this type of registration the Kenyan laws do not recognize the CIGs as legal entities and thus they cannot legally transact business. The CIGs are therefore at a state where they cannot enter into very serious business transactions with other value chain players. The CIG formation and strengthening is good but should not be the end of community institutional support by projects if we are to transform the farmers into serious value chain players. Efforts should be made to take the farmers a notch higher than just self-help groups.

From the above findings and conclusions the following are the recommendations for consideration of future donor support of value chain activities, as related to NALEP:

1. Formation of stakeholder forums should be as participatory as possible and the sustainability of these forums should be thought of from the design stage. Mechanisms for sustaining these forums beyond the project period should be thought of and documented at the design stage.

2. More time should be given to the support of CIGs than the current one year. This time can be used to consolidate the gains and help the CIGs in a given FADC, division or district come together to form a legal entity for transacting business.

3. The community institutions formed (CIGs) should be helped to register as business entities to allow them to legally transact business. The registration type can be discussed at that stage. However, the groups should be provided with adequate information regarding registration of business entities so they can make informed choices.

CONCLUSIONS

As suggested within the text of the executive summary within this report, the team found successes (as defined by the SoW) within all of the projects evaluated, despite the diversity of approaches, designs and methods employed in implementation.

However, at the same time, the team noted numerous opportunities whereby donors and implementers may be able to achieve greater impacts and results.

The definitive language of the Medium Term Investment Plan (MTIP)… "Harmonization and alignment of existing programs and projects with the MTIP, leading to fresh work plans that specify linkages to MTIP objectives, targets, and activities"…..provides guidance for donors *"To identify the best approaches for donors to use in designing and implementing agriculture and livestock value chain development activities in the context of Kenya's Medium Term Investment Plan (MTIP)."*

Although as noted above, within the horticulture sector the team found numerous successes within value chains due to donor and implementer interventions, there exists a clear opportunity for coordination and/or collaboration to better employ human and financial resources. For example, within the passion fruit value chain all the five projects evaluated were involved in various ways in providing assistance to producers of passion fruit. However, although all of the donors funding activities involved with passion fruit interventions meet regularly as members of the partners, there is no apparent or definitive structured coordination among the donors or implementers of activities related to this value chain. In addition, due to the lack of coordination, the team noted there are serious passion fruit value chain-related production issues that are not being addressed by any of the donors, implementers or the GoK. Similar issues exist within other value chains such a mango.

During the course of the evaluation, the team was to ***"…focus on identifying what approaches have worked, and explain why."*** As noted within the executive summary, the team found successes as defined by the SoW within all projects and approaches employed in each. However, it is notable to consider in greater depth as to the "why."

The four projects (NALEP, SHEP-UP, PSDA and KHCP) which were or are successors to earlier projects, only evolved to the next stage after careful consideration, studies, and in most cases baseline reports. As an example, in the case of NALEP, donor internal evaluations of past activities were critical. In the design of the 'next chapter' there is more of a focus on value chains and marketing. Although the team could not comment relative to the success of future activities, the change in course for the next version of NALEP would seem to be appropriate under the current circumstances and state of the horticulture sector within Kenya. However,

in the opinion of the team, the past designs of NALEP were actually quite appropriate at the time, in light of the following rationale:

Any value chain intervention must first consider the status and capabilities of the intended beneficiaries along with the intended objective. If beneficiaries are lacking in training, knowledge, financial resources, basic requirements such as water availability, infrastructure or logistical options, there is little point in attempting an intervention targeted toward markets with Global Gap requirements or similar strict standards. The earlier and current versions of NALEP provided an opportunity for small landholders who had suffered from years of lack of training and information to learn the very basics of how to be successful agriculture "business people." Due to the successes of those fundamental NALEP activities along with the collaborative and complementary activities of SHEP-UP and PSDA as related to horticulturalists, the next phase of interventions via a new NALEP in 2012 has a focus on value chains/marketing and will be quite appropriate for thousands of producers who (due to the NALEP interventions) are now ready to move forward in the marketplace.

The same considerations as to the status of beneficiaries are also applicable to KHCP and the Practical Training Center. It is doubtful that either the collaborators or beneficiaries currently involved with the center would have been prepared to take advantage of an institution like the Center a decade or even five years ago; nor would most of the targeted beneficiaries of the previous USAID-funded horticultural project which ended in 2009 have known how to gain financially from the Partnership activities of the current project. Today, according to the Fresh Produce Exporters Association of Kenya (FPEAK), 150,000 small land holders alone are engaged in producing French Green Beans which meet Global Gap requirements. In addition, over the last five years, according to the Agricultural Sector Coordination Unit (ASCU), PSDA has trained 60,000 Common Interest Groups(CIGs) engaged specifically in value chain activities (the average CIG consists of 25 individuals) and NALEP has also trained tens of thousands of small land holders. Many of these individuals now have some perspective as to how to increase their economic status by finding a 'location' on a viable value chain which results in an improvement in their financial well-being. The thousands of people who have received education and/or training from one of the donor-funded projects can take advantage of the options available now for practical training at the center or get involved with one of the partnership arrangements funded by KHCP.

An obvious lesson observed by the team during the course of the evaluation is that a proper 'mix' of private sector involvement, government engagement, policies and services, donor support and beneficiary/stakeholders must all be 'ingredients' in the design and implementation of any successful donor intervention. And in this regard it should be noted that the two projects the team evaluated (KHCP and Practical Training Center), which are not intertwined with the MoA, have formed very close and appropriate working relationships with relevant governmental ministries and agencies.

Across all the value chains related to tropical fruit, the team made note of an obvious flaw that must be constructively addressed in order for tropical fruit producers to achieve further successes and be truly competitive in the global arena. All field visits with beneficiary/producers revealed a serious disconnect between producers and juice processors relative to prices and the general terms of doing business

RECOMMENDATIONS

The most obvious recommendation identified by the team as related to donor-funded horticulture projects is to make collaboration and cooperation a priority; rather than an afterthought. In this regard, the team respects that time and current responsibilities are major constraints for the individuals who will actually

inspire and actively ensure that cooperation and collaboration becomes a priority. Those actually involved in implementing projects are overburdened with reports, administrative duties and the list goes on. Just in the process of carrying out the evaluation with a known focus on cooperation, there were many substantial delays in the ability of the team to complete the required tasks due to the workload of implementation staff, even though all were anxious to share information about their successful projects.

In light of the goals and objectives of the ASDS and related MTIP, the team would encourage the partners to encourage GoK to take an even stronger leadership role in the coordination of donor-funded activities. This is not to suggest that all donor-funded activities should be designed to be directly engaged within the MoA, but by the MoA being the facilitator or coordinator of donor-related activities along with related activities within governmental agencies, all involved can be better assured that human and financial resources are utilized in a coordinated manner, avoiding duplication as well as missing links in value chains. As many current and future projects involved in agriculture will have a value chain perspective, a governmental focal point will be critical to success.

USAID/Feed the Future (FtF) – Kenya Multi-Year Strategy 2011-2015 actively addresses all of the above with the assumption that the National Taskforce on Horticulture chaired by the MoA will result in the above mentioned benefits. While this concept is a step forward, the team would encourage a more 'hands on' pragmatic approach to this subject area. With just a few weeks of evaluation to have studied this issue, the team does not propose to have a grand plan for how to better achieve the obvious goals. However, based upon interviews with various involved parties, the National Taskforce on Horticulture may not be the ideal vehicle to achieve desired coordination and collaboration objectives.

Related to the above, the team would encourage donors to review the current status of Kenya Agricultural Research Institute (KARI). Overall funding for this vital institution has been cut dramatically compared to the first half of the past decade. Every single project evaluated by the team as well every single activity within the projects evaluated, required KARI involvement. The goals of the ASDS, MTIP and USAID/Feed the Future all will require a strong and vibrant KARI to achieve success. As was the case during the formation of the Practical Training Center-Horticulture; KARI should be a full partner with all donors and the MoA in the coordination of value chain related horticultural activities.

FtF specifically deals with the issues of horticulture in some depth. The team suggests even more focus on horticulture as the most progressive, innovative agricultural sector in Kenya. The fresh produce private sector with the support of GoK and donors have put Kenya 'on the map' as a competitive dependable supplier able to meet all global requirements. In addition, utilizing unique concepts, small landholders have been trained to be excellent participants in the value chain of several high value commodities. Donor support for this type of activity should continue and FtF should put even more of a focus on this sector.

Although processing of horticultural commodities is addressed in FtF, the team would encourage more study and eventually spotlight the creation of serious efficient and competitive processing facilities capable of meeting global competition. Based on the interviews and observations of the team during the evaluation, as noted within the conclusions within this report, there is apparently a serious disconnect between producers and existing juice processors in Kenya. According to visits in the field, further study of fruit processing is necessary within the context of FtF.

Another issue raised within FtF discusses improving quality and standards of identity for horticultural products intended for domestic consumption. The team looked at this issue in some depth during the evaluation. While far from uncovering all the issues or solutions to this subject, the team did determine that

FPEAK has taken initiative in this area in cooperation with the GoK and, further, that this is a subject area in which KARI should be funded for substantial involvement.

ANNEX D.1 PROGRAM REVIEWS BY EVALUATION QUESTIONS CONTAINED WITHIN THE SOW

ANNEX D.1.1 THIKA HORTICULTURAL CENTER

INTRODUCTION

The most striking observation was the way in which the training center is organized. For instance, the demonstration units are run by highly professional and experienced staff and are self-sustaining. These units are set up as a simple and real situation that is found on a small-scale farm. This is seen in the separation of roles for example in the management of finances. For example, the departmental managers are responsible for expenditure, accounts, preparation of voucher payments, and maintenance of financial records while the board of management and chief executive only approve payments.

DESIGN: What were the principal agriculture and livestock value chain technical issues, and how were they addressed?

The activities undertaken were industry-driven and operated as a commercial entity, but were donor supported. The industry funded 10 percent of the project especially recurrent expenditures. Activities implemented were simple and realistic but commercially viable or self-sustaining (nursery, flower farm, vegetable farm, and small-scale demonstration farms complete with farm structures). Coordination of production at both nucleus and smallholder farms was undertaken in such a way that large-scale producers/exporters partnered with small-scale farmers to ensure continuous production and supply of produce to the market. Business plans were developed that ensured the center attained self-sustainability within one year including generating funds to run its activities without donor support.

TECHNICAL APPROACH: What were the principal agriculture and livestock value chain technical issues, and how were they addressed?

There are several principal technical issues, including disjointed ad hoc donor project driven training that only lasted within the project life's' span.

Lack of consistent and coordinated capacity building initiatives for horticultural farmers and other players within the horticultural value chain and lack of a one-stop center for accessing horticultural (practical and theoretical) information. These technical issues were addressed by setting up an industry driven self-sustaining practical training center.

- The center provides demonstration units that mimic the real but simple situation of a small-scale farmer.
- The center uses a well-developed curriculum to train farmers. In addition, the center gives access to other industry players to train farmers along the horticulture value chain; for example, in integrated pest management.
- Apart from training, the center also acts as a horticultural resource center providing horticultural information to the stakeholders in the industry.

GOVERNANCE: What were the principal agriculture and livestock value chain governance issues, and how were they addressed?

Financial sustainability of the training center is one of the major governance issues. This was addressed creating checks and balances in the management of finances, which enhances confidence in partners and donors. This entails separation of roles in the management of finances, as described above. This is done to ensure that each departmental manager generates enough funds to sustain his/her unit.

Inclusion and Access: What approaches were most effective in increasing participation in agriculture and livestock value chains?

Partnerships between exporter/large-scale producer and smallholder farmers provided access to required farm inputs, extension services and the export market. FPEAK provides a vehicle to make it possible for small farmers to be able to export and influence policy.

Private Sector: What was the role of the private sector in activity design and implementation?

A major role of the private sector was to renovate, equip the center, and cost-share in running center activities to link small-scale farmers to the export market and provide any kind of credit in the form of production inputs and extension services.

Competitiveness: How did the activity increase producer and enterprise access to agriculture and livestock financial services?

The provision of production inputs and extension services by the exporters helped farmers overcome initial financial constraints. The production of high quality produce that meets international standards (Euro GAP and Kenya GAP) gives farmers a competitive advantage in the export market.

Partnership: Who were the most important collaborators and cooperators, how were they engaged, and what was their contribution to success?

The most important collaborators included KARI, MoA, The Netherlands and exporters.

Enabling Environment: What was the effect of Government of Kenya policy, and the enabling and regulatory environment, on implementation and investment?

The government through KARI allowed FPEAK a 15-year lease of facility and land. It has incorporated FPEAK on horticultural boards (KEPHIS, HCDA and pesticide boards) to participate in policy issues. Both the government and FPEAK collaborate in the promotion of Kenyan horticultural produce in international fairs; e.g., at the Berlin fair, the Kenyan stand was fully funded by the government.

Other Considerations: What other important issues and considerations were incorporated and addressed?

Other considerations include scaling up of the training facility in other East African countries (Tanzania and Uganda). Collaboration between FPEAK, JKUAT KARI and University of Wageningen in the preparation of an all-inclusive horticulture curriculum targeting players in the value chain

Monitoring and Evaluation: What approaches were used, and systems put in place, for monitoring and evaluating activity implementation and impact?

Monitoring and evaluation is an ongoing activity that is undertaken internally by the industry players and externally by the donors.

Results: How effective were agriculture and livestock value chain activities in terms of scale and overall impact?

The impact cannot be assessed at the moment since most of the project activities just finished or are still in the process.

Sustainability: What factors were most important in achieving the activity goals and objectives and sustaining impact?

The mechanisms put in place ensure that the center is self-sustaining in terms of training center capacity, capability and financial requirements. Practical training of producers in addition to frequent field monitoring and technical backstopping ensures a sustainable supply of high quality horticultural produce to the markets.

Lessons: What were the greatest strengths of successful activities, and the most important lessons which can be learned from them regarding the design and implementation of new agriculture and livestock value chain activities in Kenya?

One of the major lessons learned is that industry-led intervention is quite successful. Partners with comparative advantage are key to successful implementation of projects, and support (technical, financial, policy and market linkage) to small-scale farmers to ensure compliance with international produce standards is a key driver to a successful horticulture industry.

ANNEX D.1.2 PROMOTION OF PRIVATE SECTOR DEVELOPMENT IN AGRICULTURE (PSDA)

INTRODUCTION

Promotion of Private Sector Development in Agriculture (PSDA) is a bilateral development program implemented jointly by GIZ and the Ministry of Agriculture (MoA), in collaboration with the Ministry of Livestock Development (MoLD) and the Ministry of Cooperative Development (MoCD). The overall program period is 12 years, starting in July 2003. The target group is market-oriented farmers and medium and small enterprises involved in agribusiness and their respective organizations. The geographical coverage includes the high and medium potential areas in Central, Rift Valley, Nyanza and West Kenya. The program aims at improving access to markets for small and medium agribusiness players along selected value adding chains.

DESIGN: What are the major design strengths of successful agriculture and livestock value chain activities?

The selection of the value chains was guided by identified constraints in the mango and passion fruit value chains. The constraints revolved around quality of mango fresh produce and passion fruit planting materials; pests and diseases and their relationship to source and cleanliness of planting material; crop husbandry; and nursery management practices. An analysis of the sector was conducted in 2004 in order to identify the constraints that informed the value chains. Implementation of the identified value chains was anticipated to result in increased production and market demand for clean and disease-free passion fruit seedlings and high quality mango fruits; enhanced capacity of farmers and other stakeholders in improved husbandry practices in passion fruit; and value addition in the mango value chain.

PSDA has been able to bring together a number of implementation partners that range from civil society through the political class, farmer groups, individual farmers, public institutions, development partners and private sector operators with specific and/or complementing roles in support of mango and passion fruit value chains. Private sector players such as value addition processors, farm inputs suppliers and market intermediaries ensure a steady supply of inputs and linkage of final produce to markets for immediate consumption or value addition into other value added products such as dried mango for export markets. Public sector stakeholders such as KARI play a key role in research for improved varieties and production of disease-free passion fruit seed for fruit tree nursery operators.

TECHNICAL APPROACH: What were the principal agriculture and livestock value chain technical issues, and how were they addressed?

PSDA interventions in passion fruit and mango value chains were initially aimed at addressing the problem of farmers' lack of access to adequate quantities of clean planting material; poor husbandry practices; poor quality fruits as a result of infestation by mango weevil and fruit flies; and high post-harvest losses during peak harvest periods. This was informed by the results of an initial baseline survey that was conducted in 2003. PSDA interventions aimed at promoting clean planting materials at passion fruit nurseries and encouraging cottage industry mango drying units. They also partnered with Ministry of Agriculture Extension staff to facilitate the provision of extension messages on appropriate husbandry practices. Both public and private sector participated in solving the identified constraints in mango and passion fruit value chain. However, during the facilitation process, a number of associated value chain issues surfaced, including support to registration and empowering of civil society to spearhead advocacy issues in the sector; establishment and support of partnerships among various stakeholders in the sector ranging from input suppliers, actual producers, private sector market intermediaries, and public sector service providers to value

addition private sector operators. This resulted in effective value chain participation by all key stakeholders in the mango and passion fruit value chains.

GOVERNANCE: What were the principal agriculture and livestock value chain governance issues, and how were they addressed?

From the foregoing design and approach issues, and following the Schmitz and McCormick definition of value chain governance, the governance issues in activities under PSDA can be described as a combination of market-based and integrated governance, depending on the segment of the value chain under consideration. Governance in production and marketing of clean passion fruit seedlings is market-based as decisions on transactions are market-driven and prices are determined with no formal cooperation among participants. Clean seed and seedling nursery operators produce and market their seeds or seedlings individually without reference to other players in the market. The farmers likewise source their seed from the most desirable market source without reference to each other. In the passion fruit value chain, nursery management is handled by smaller groups due to high labor demand. However, in the mango value chain, marketing is handled very well in larger quantities when dealing with volume to meet market demands.

INCLUSION/ACCESS: What approaches were most effective in increasing participation in agriculture and livestock value chains?

Participation in both mango and passion fruit value chains is generally all inclusive with regard to gender, youth, natural resource management, poverty reduction and cultural factors. Both women and men participate in production and marketing of passion fruit seedlings and mango. Youth participate in capacity building, production, value addition and marketing of passion fruit and mango value chains. Enhanced capacity building covering all aspects in the value chain has resulted in well managed nurseries, orchards and high quality fruits. Setting up collection centers for group marketing and linkage of farmers to market ensure enhanced productivity and thus, increased income and reduced poverty.

PRIVATE SECTOR: What was the role of the private sector in activity design and implementation?

Activities under PSDA have resulted in the emergence of a number of private sector actors that provide market-based solutions to producers in mango and passion fruit value chains: private sector clean nursery service providers that include individual farmers and farmer groups; market intermediaries for linking clean seedlings to farmers; market intermediaries that link harvested passion fruit to local and urban markets; and private sector value addition processors that link the ensuing products to both local and export markets. Mango production benefits from reliable and available input supply from private sector agro-dealers such as Bayer EA and Syngenta.

COMPETITIVENESS: How did the activity increase producer and enterprise access to agriculture and livestock financial services?

There is a combination of vertical and horizontal inter-firms cooperation in production of certified and clean passion fruit seeds depending on the participant. KARI produces both seeds and scions that are linked to group and individual farmers' nurseries for potting or grafting and distribution to farmers through market intermediaries in a strict horizontal arrangement.

PARTNERSHIP: Who were the most important collaborators and cooperators, how were they engaged, and what was their contribution to success?

Implementation of PSDA activities in passion fruit and mango value chains has witnessed the establishment and operationalization of a number of partnerships that cut across categories of stakeholders. At the level of development partners, the sector is benefiting from partnerships with USAID-supported and Fintrac-

implemented Kenya Horticulture Competitiveness Program (KHCP); USAID-supported program nursery operators linked to production groups in collaboration with TechnoServe, Coca Cola, and the Bill and Melinda Gates Foundation; and IFAD-supported ShoMAP. Concerning public sector partnerships, KARI and the Ministry of Agriculture are key partners in clean seed passion fruit production, and provide extension services on appropriate husbandry practices. The private sector is linked to farmers to provide farm inputs and marketing of semi processed dried mangoes.

ENABLING ENVIRONMENT: What was the effect of Government of Kenya policy, and the enabling environment, on implementing and investment?

The value chain upgrading opportunities for the passion fruit and mango value chains in Kenya have benefited from the prevailing enabling environment. The PSDA program, through support of GIZ and the Government of Germany, has facilitated implementation of support activities that range from capacity building, development, and enhancing of partnerships and institutional support. Support services from government institutions and departments such as research and supervision from KARI and KEPHIS, respectively, and bulking and distribution of seeds and seedlings have served in upgrading value chain opportunities for both passion fruit and mango. The enabling free market environment has given opportunities to private sector operators to take an active role in the production and distribution of clean passion seedlings, linkage of passion fruit nursery operators to producer groups and mango fruit producers to markets and value addition to desired end products such as dried mango figs.

MONITORING AND EVALUATION: What approaches were used, and systems put in place, for monitoring and evaluating activity implementation and impact?

Monitoring and evaluation was important for effective implementation of PSDA. This was achieved through conducting an initial baseline survey that informed identification of constraints and prioritization of interventions, development of monitoring and evaluation work plans, training of monitoring and evaluation officers on PM&E systems, and regular surveys to inform the M&E process throughout the project lifespan.

SUSTAINABILITY: What factors were most important in achieving the activity goals and objectives and sustaining impact?

By its very design, the PSDA targets private sector participants in passion fruit and mango value chain development, which are by and large driven by profit making objectives in their operations. By encouraging public-private partnerships in passion fruit and mango value chain development, there are high chances of synergy in operations with enhanced chances of sustainability of specific interventions and positive impacts along passion fruit and mango value chains. Proper capacity building in value addition, group marketing, and linkage to markets will contribute toward improvement of mango value. Lack of adequate quantities of clean seeds and seedlings for passion fruit has been a major constraint in passion fruit production and value chain development in Kenya. By addressing constraints in clean passion fruit production and supply, PSDA project activities will contribute toward sustainability of value chain development in Kenya.

LESSONS: What were the greatest strengths of successful activities, and the most important lessons which can be learned from them regarding the design and implementation of new agriculture and livestock value chain activities in Kenya?

The major lesson learned from the approach and implementation of PSDA activities is that partnerships and multi-stakeholder approaches in addressing constraints in a sectoral value chain together inherent strengths from each of the partners for overall achievement of the desired project goal in the most cost-effective manner.

ANNEX D.1.3 KENYA HORTICULTURE COMPETITIVENESS PROGRAM (KHCP)

INTRODUCTION

KHCP is a five year, USAID-funded Feed the Future initiative whose goal is to build a highly competitive horticulture industry in Kenya by increasing on-farm productivity, enhancing value added processing, improving coordination among horticulture value chain participants and increasing the capacity of local organizations to provide improved technical services to smallholders. The project is expected to benefit 200,000 agricultural households and put more than 60,000 hectares under improved and environmentally sustainable production. The project covers Western, Nyanza, Rift Valley Eastern and Coast Provinces. USAID-KHCP is market-driven and partner-managed. To achieve its objectives, the project is working in close cooperation with a wide array of stakeholders that support and represent the horticulture industry, including the Ministry of Agriculture (Horticulture Division/MoA), Horticultural Crops Development Authority (HCDA), Kenya Agriculture Research Institute (KARI), Kenya Plant Health Inspectorate Service (KEPHIS) and others in the private and public sectors. USAID-KHCP is also an active participant in the National Task Force on Horticulture as part of its contribution to the Draft National Horticulture Policy under the Agriculture Sector Development Strategy and the Comprehensive African Agricultural Development Program (CAADP).

DESIGN: What are the major design strengths of successful agriculture and livestock value chain activities?

The design of KHCP is market-driven and partner-managed. The project works in collaboration with Ministry of Agriculture, HCDA, KARI, KEPHIS and other partners in the private and public sectors. The partners — especially those from the private sector and civil society — are selected through a competitive bidding process. Those selected then develop proposals to access grants from the project. The proposal should indicate clearly how the partner is going to participate in a given horticulture value chain and how the intervention will impact the smallholder farmers on the ground. This kind of approach in the design is important since partners propose realistic interventions as opposed to a situation where the intervention is dictated by the donor. The second strength of this design is building local capacity since partners and beneficiaries receive training to enhance their participation in the value chain. Cost sharing between the project and the partner in meeting the cost of interventions is important in the design as it contributes to sustainability. Decentralized field offices have made interaction with partners much easier. Field offices are well facilitated by the head office to perform their duties.

TECHNICAL APPROACH: What were the principal agriculture and livestock value chain technical issues, and how were they addressed?

- Low yields by smallholder farmers due to diseases and pests, and lack of general crop management skills by farmers.
- Lack of technical know-how on doing value addition.
- Exploitation by middlemen.

(Source: KHSP -Baseline Productivity Report)

Technical Issues that came up during implementation include:

- **Poor record keeping by private partners affected monitoring and evaluation of the project.** This problem was identified from the periodic narrative reports received from these partners. The project

addressed this problem by employing M&E assistants at regional offices who in turn built the capacity of the partners in their weak areas of record keeping. The partner would in turn build the capacity of farmers on record keeping.

- **Poor grant management resulting from inadequate compliance to lay down procedures.** This problem was identified from the periodic financial reports received from the partners. It was resolved by employing a field secretary who helped the partners to comply with the grant procedures. Inadequate technical know-how of partners was another issue that came up during implementation. For instance, Wilmar Agro and exporters of summer flowers did not have a business plan and had no technical knowledge of making one. The project trained the partner in business plan development and assisted them in creating one.

GOVERNANCE: What were the principal agriculture and livestock value chain governance issues, and how were they addressed?

The governance issues that KHCP is addressing include value chain coordination, policy, and market competitiveness.

KHCP is addressing these issues through activities such as policy analysis and strategy, standards and certification training, collating information on commodities across relevant value chains, and evaluating marketing infrastructure and trade promotion plans across the sector.

On issues of policy, USAID-KHCP is actively participating in the National Taskforce on Horticulture, which championed the preparation of the draft National Horticulture Policy. USAID-KHCP plans on remaining engaged in this process to help shepherd this foundational policy to completion. The project is similarly engaged in the planning process for other relevant policies affecting the horticulture industry, including the Roots and Tubers Policy, Potato Strategy, National Agricultural Sector Extension Policy, National Food Security and Nutrition Policy, Seed Policy and the Agriculture Sector Coordinating Unit's recommendations on marketing and value addition for selected agricultural products. USAID-KHCP is analyzing these foundational policies to ensure that the needs of all market actors, including smallholders, are well represented. USAID-KHCP is planning a series of Competitiveness Forums for the coming year to bring together major industry stakeholders so they can develop an implementation strategy for the given policies. The project will continue in its technical support role while providing staff resources for the implementation of the endorsed policies and strategies.

On standards and certification, USAID-KHCP has focused resources on helping firms and producers achieve certification. Certification for horticultural products like flowers and essential oil extracts plays an important role in opening up new markets and adding value to the primary product. The international standard of Global Gap version four is now in operation and the national technical working group, of which USAID-KHCP is a member, is assisting in implementation. This version includes key enhancements related to traceability, chemical use, IPM, water use, and produce microbiological food safety. Training on Kenya-GAP and Global Gap application continued with two new partners, Vegpro and Woni Exporters, to train farmers on the two standards. Vegpro trained more than 600 farmers on Global Gap, and FPEAK trained 51 service providers on Kenya-GAP auditing skills. Training on standards, compliance, health, and safety issues benefited 296 farmers (187 men, 109 women).

More than 160 smallholder farmers were trained and pre-audited for Rainforest Alliance standards under the USAID-KHCP partnership with Wilmar. The training helped farmers understand, interpret and implement improved management and environmental practices. USAID-KHCP visited farmers during the

implementation process to ensure the Rainforest Alliance standards were interpreted properly at the farm level. Third-party audits were undertaken; 120 farmers successfully achieved certification, which was a requirement for direct sale of premium flowers to ASDA and Sam's Club supermarkets. Under Earthoil's Quality Management System, USAID-KHCP conducted seven on-farm group training events with more than 200 farmers on organic and Fair Trade standards and compliance.

USAID-KHCP is increasing the quality, quantity, and timeliness of useful market information in Kenya. With the projected continuous growth of the horticulture sub-sector, the demand for reliable market information to inform decisions will continue to increase. With this in mind, one of USAID-KHCP's key interventions is to support the sub-sector in establishing a sustainable nationwide market information system (MIS). USAID-KHCP finalized the draft national horticulture market information system (MIS) strategy earlier this year. The strategy reflects the national dialogue on the importance of developing an efficient national MIS that is responsive to diverse informational needs of the horticulture sector and includes a detailed action plan to enhance existing market information systems and services.

USAID-KHCP also provides a bi-monthly Market News service which analyzes Kenya's horticulture export and import data, and reconciles the data. To improve public access to this information, USAID-KHCP is collaborating with the private-sector Horticultural News magazine, a well-respected regional trade journal. USAID-KHCP has responded to feedback from the industry and has added additional analysis to the new service. On marketing, USAID-KHCP, together with local partners, formulated marketing strategies for focus crops across the six regions covered by the project. The product specific strategies describe the marketing status of each focus crop in its respective region, and its marketing opportunities, challenges, and solutions to enhance marketing of the crops. The strategies formed a basis of discussion in subsequent value chain coordination workshops with stakeholders on marketing issues affecting the various crops covered.

INCLUSION AND ACCESS: What approaches were most effective in increasing participation in agriculture and livestock value chains?

Building the capacity of local agro dealers to give technical information to farmers who buy seeds and chemicals from their shops increased participation of pulse seed growers in Eastern region of Kenya.

Use of the private sector to provide training and extension services to smallholder flower growers increased the participation of these growers. This is because the support service is of high quality, consistent, and reliable.

Formal contracts between the private sector and smallholder farmers guarantee a market and thereby stimulate production and increases participation.

PRIVATE SECTOR: What was the role of the private sector in activity design and implementation?

KHCP involvement with the private sector begins when the project invites stakeholders to a national or regional project launching forum. Thereafter, the stakeholders interested in participating in the project send concept notes detailing how they would like to participate and how they will contribute to the achievement of the project objectives. The selected partners enter into a formal agreement with KHCP that spells out the relationship and roles between the two. The evaluation interviewed two of the private sector partners: Wilmar Agro and Dryland Seed Company. Wilmar works with smallholder summer flower producers in Central Nyanza and Rift Valley while Dryland Seed Company works with pulse seed producers in Eastern region of Kenya. Wilmar's role is to mobilize farmers, train them, and set up demonstration units for each farmer group. Wilmar also enters into contact with individual farmers within groups for production and marketing of

flowers. Wilmar provides technical training to the smallholder farmers as well as extension services. Wilmar also links the smallholder farmers to export market by getting their produce and marketing it abroad. The farmers are happy in the partnership with Wilmar because Wilmar buys all their flowers, is prompt in collection of flowers and payment, picks up the produce at the farm, and supports farmers in opening bank accounts. Wilmar also provides inputs to the contracted farmers on credit. In general, the farmers are happy because Wilmar is committed to the contract.

Dryland Seed Company applied for support through a competitive bidding process. They later prepared and submitted a proposal to KHCP which was approved and funded. A partner fund agreement spelling out the nature of the partnership was signed. The major roles of the seed company in this partnership arrangement were: capacity building of farmers and agro dealers, setting up of demo plots and buying seeds from contracted farmers for processing and packaging.

COMPETITIVENESS: How did the activity increase producer and enterprise access to agriculture and livestock financial services?

Pulse seed growers working with Dryland Seed Company were linked to cooperative banks by the seed company, allowing some to access credit at a low interest rate of 8 percent per annum.

Wilmar has assisted smallholder farmers growing flowers to open bank accounts through which they pay the farmers for the flowers supplied. Wilmar also assisted the farmers in getting credit from the bank by writing recommendation letters and providing production records.

PARTNERSHIP: Who were the most important collaborators and cooperators, how were they engaged, and what was their contribution to success?

The most important collaborators included research institutions such as KARI. KARI has been providing high-yielding and early-maturing breeder seeds to Dryland Seed Company for multiplication through contracted farmers. KARI has also been multiplying seeds for newly introduced summer flower varieties for Wilmar, one of the private sector partners of KHCP. Non-governmental organizations such as INADES and the Ministry of Agriculture have been instrumental in farmer mobilization training and extension services.

ENABLING ENVIRONMENT: What was the effect of Government of Kenya policy, and the enabling and regulatory environment, on implementation and investment?

The implementation of the policy on VAT exemption for exporters is negatively affecting their businesses. Though the government exempts fresh produce exporters of VAT on purchase of inputs, they are, however, required first to pay the VAT charged and then claim later. The process of VAT claim takes a long time, thus tying up their capital.

MONITORING AND EVALUATION: What approaches were used, and systems put in place, for monitoring and evaluating activity implementation and impact?

Monitoring and evaluation starts at the farmer level, where farmers utilizing the record keeping training keep their production and marketing records. These records are shared with the private sector partner. The private sector partner has a BDS manager whose responsibility is to collect and compile monitoring information. Each regional manager is assigned a monitoring and evaluation specialist and a field secretary to ensure that partners are consistently able to access USAID-KHCP resources, provide necessary grant documentation, are delivering agreed-upon services, and achieving agreed-upon targets. In most instances, as a precursor to the alliance agreement being signed, partners agreed to build out their internal monitoring and evaluation capacity. The USAID-KHCP Monitoring and Evaluation specialists are integrally involved in compiling and validating the necessary data.

RESULTS: How effective were agriculture and livestock value chain activities in terms of scale and overall impact?

KHCP has trained 3,000 smallholder flower farmers and linked them to the export market through Wilmar Agro. The smallholder farmers are happy that the flower business has impacted their lives positively. Farmers reported being able to take their children to private schools with money from the sale of flowers. The farmers have bought dairy animals and created employment by hiring farm laborers to work on their flower farms.

Use of agro dealers by Dryland Seed Company in providing extension services to farmers increased participation by farmers and demand for the seed. Dryland had, by the time of the evaluation, contracted 120 farmers to grow pulse seed and trained 57 agro dealers who have reached out to 1,000 farmers growing pigeon peas and cowpeas.

SUSTAINABILITY: What factors were most important in achieving the activity goals and objectives and sustaining impact?

Important factors that have the potential to contribute to sustainability include the following:

- Capacity of partners and beneficiaries to address crucial capacity gaps such as record keeping and technical know-how.
- Cost sharing to meet intervention costs between project and partner. This strategy enhances ownership of the interventions, thus contributing to sustainability.
- Market-driven production; forming and strengthening of farmers groups and/or associations.

LESSONS: What were the greatest strengths of successful activities, and the most important lessons which can be learned from them regarding the design and implementation of new agriculture and livestock value chain activities in Kenya?

Strong and well-defined private sector participation in project implementation and design of partnership arrangements. The private sector partners were selected through competitive bidding and developed proposals for the partnership support.

Building the capacity of both the smallholder producers and private sector partners helps in improving value chain performance as well as enhancing sustainability.

ANNEX D.1.4 NATIONAL AGRICULTURAL AND LIVESTOCK EXTENSION PROGRAM (NALEP)

INTRODUCTION

The National Agricultural and Livestock Extension Program (NALEP) is the successor of the National Soil and Water Conservation Program whose SIDA support dates back to 1974. It was developed to scale up lessons learned from its catchment approach to the whole extension system. The program is a component of the larger National Agricultural Sector Extension Policy (NASEP) implemented under the auspices of the Agricultural Sector coordination Unit (ASCU). NALEP is implemented by the Ministry of Agriculture (MoA) and the Ministry of Livestock Development (MoLD). The vision of NALEP is: "A pluralistic, efficient, effective and demand driven extension system that leads to prosperity in a sustainable manner. Its mission is to provide and facilitate pluralistic and efficient extension services for increased production, food security, higher incomes and improved environment. The project collaborates and forms sustainable partnerships and networks with relevant stakeholders including community based organizations, non-governmental organizations, civil society organizations, private sector organizations, individuals and Government departments in mainstreaming the cross cutting issues."

DESIGN: What are the major design strengths of successful agriculture and livestock value chain activities?

NALEP mobilizes communities to generate their own projects and links them to development agencies to facilitate implementation of the projects. NALEP enters an area by establishing stakeholder forums (SHF) with representation from both the public and private sectors in its operational areas. The SHF is then able to conduct a Broad Based Survey (BBS) and Participatory Assessment of Poverty and Livelihood Dynamics (PAPOLD) with the assistance of the technical personnel to produce a Community Action Plan (CAP), containing prioritized community-owned projects. Through established grassroots organizations, the communities take charge of project cycle management and ownership of all community development projects. The grassroots institutions that are formed include the stakeholders' forum (SHF), the Focal Area Development Committees (FADC), Common Interest Groups (CIGs), and Extension Groups (EGs). In the process, NALEP builds local capacities in various technical areas emphasizing rights of farmers and pastoralists, fisher folk and other clients; and mainstreams gender and other cross-cutting issues. The program has adopted a participatory monitoring and evaluation (PM&E) system that captures process and outcome indicators and lays the foundation for capturing impact indicators through impact studies.

TECHNICAL APPROACH: What were the principal agriculture and livestock value chain technical issues, and how were they addressed?

Technical issues identified during the design of NALEP included the following:

- Low technical capacity at all levels, at the divisional level.
- Weak extension approach and inappropriate agricultural production methodologies.
- Exclusion of the rural resource-poor and vulnerable groups such as women, children, youth, HIV/AIDS affected, disabled, and the elderly in agricultural activities.
- Weak collaboration with the private sector and other service providers.
- Weak research-extension-farmer interaction.

GOVERNANCE: What were the principal agriculture and livestock value chain governance issues, and how were they addressed?

Value chain governance issues addressed by NALEP include:

- Institutional setup for program coordination and management by the two implementing ministries (Ministry of Livestock and Fisheries Development and Ministry of Agriculture and Rural Development) used in NALEP.
- Mainstreaming of advocacy, rights, and governance issues.
- Policy and legal framework for decentralized extension services.
- Extension service staff mobility and office infrastructure.

INCLUSION AND ACCESS: What approaches were most effective in increasing participation in agriculture and livestock value chains?

NALEP uses Participatory Analysis of Poverty and Livelihood Dynamics (PAPOLD), a special survey designed to identify the most vulnerable members of the community. The information generated from this exercise is used by NALEP and other projects to ensure that the most vulnerable members of the community are taken care of during the design and implementation of agriculture interventions.

PRIVATE SECTOR: What was the role of the private sector in activity design and implementation?

The private sector played a very limited role in activity design. The project interacts with the private sector at the district and divisional stakeholder forums. These forums play a crucial role in linking the various service providers and input suppliers to the producer. The most important roles played by the private sector in implementing NALEP include input supply (fertilizers, pesticides and other farm inputs), provision of financial services (savings and credit) and marketing.

COMPETITIVENESS: How did the activity increase producer and enterprise access to agriculture and livestock financial services?

The stakeholder forums as well as the annual exhibitions at the district and divisional levels have been important avenues for linking farmers to financial service providers. In some cases, exporters have also played a crucial role in linking farmers to financial institutions by opening accounts through which farmers are paid. Through this linkage, farmers have been able to access credit from various financial institutions like Equity Bank, Agricultural Finance Cooperation, and the Youth Enterprise Fund.

PARTNERSHIP: Who were the most important collaborators and cooperators, how were they engaged, and what was their contribution to success?

The most important collaborators and cooperators have been research institutions such as KARI for clean planting materials, Kenya Agricultural Commodity Exchange (KACE) for marketing support, and financial institutions for credit and other financial services.

CONSIDERATIONS: What other important issues and considerations were incorporated and addressed?

Mainstreaming cross-cutting issues such as gender, HIV/AIDS, environmental issues, drug and alcohol abuse.

MONITORING AND EVALUATION: What approaches were used, and systems put in place, for monitoring and evaluating activity implementation and impact?

During Phase I the M&E was not done properly and NALEP received a lot of criticism from both internal sources, such as extension officers at the district and divisional levels, and from external sources, such as the midterm review and the impact assessment done in 2006. Using the lessons learned from Phase I the two implementing ministries of NALEP developed a comprehensive M&E system that embraces participatory approaches to be applied in NALEP Phase II. The subsequent Participatory Monitoring and Evaluation system (PM&E) is used to capture important information on process, outcome and impact indicators of the NALEP program. In addition, NALEP has now employed an M&E expert at its coordination office in Nairobi whose major role is to build the capacities of implementing staff on the ground and do quality control of reports coming from the districts. In addition, some officers have been trained in monitoring and evaluation, including participatory approaches, and they have also been educated in survey studies so they can be referred to when the program is evaluated or studied. It has been important that all officers carrying out participatory monitoring and evaluation during program implementation have had the right skills.

RESULTS: How effective were agriculture and livestock value chain activities in terms of scale and overall impact?

Farmers participating in the NALEP program through their CIGs have benefited from the project in the following manner:

- Accessing the export market through linkages with fresh produce exporters. Notable examples include smallholder vegetable, fruit and flower farmers linked to exporters such as Wilmar Agro, Vegmond Exporting Company, Rebby Flowers and ZG Flowers.
- Increased incomes of smallholder horticulture farmers. For example, Kirathani Fruit growers self-help group in Thika East district earned a total of KES 365,879 in 2010 and 2011 from the sale of mangoes to Vegmond exporters (Thika East District Provision Supervision Report 21/11/2011). In 2010 Kibira Cut Flowers Self Help group in Limuru district sold 2 million stems worth KES 8 million to Rebby and ZG Flower exporters.
- Improved livelihood of participating farmers. Farmers have increased households assets and accessed basic needs such as clean drinking water and electricity through farming business.

SUSTAINABILITY: What factors were most important in achieving the activity goals and objectives and sustaining impact?

One of the major factors most important in achieving the NALEP activity goals and objectives is the investment in formation and capacity building of grassroots farmer institutions (CIGs and FADC). The success of any value chain activity relies on the active participation of all players in the chain. In Kenya, 90 percent of producers of horticulture produce are smallholder farmers. If these smallholder farmers are not organized, their participation in the value chain is constrained by factors such as quality of produce, access to markets and inputs. The smallholder farmers cannot easily access other services such as credit facilities if working singularly.

The other factor was the innovation of some stakeholder forums that have led to their financial sustainability. The stakeholder forums formed by the NALEP program were supposed to sustain themselves beyond the lifespan of the project. In most places, as soon as project support ends, the forum also ceases. However, in places like Murang'a, Meru and Kiambu Counties, the forums have been innovative enough to start relevant income generating activities that raise resources to finance the forums. In these counties, the district and divisional stakeholder forums organize annual exhibitions and charge exhibitors. These exhibitions help to

bring value chain players together as well as generate funds for the stakeholder forums to finance their operations.

LESSONS: What were the greatest strengths of successful activities, and the most important lessons which can be learned from them regarding the design and implementation of new agriculture and livestock value chain activities in Kenya?

Not all the CIGs interviewed were very comfortable with their relationship with the exporters. The major issue causing their discomfort is the fact that they had no say in deciding the prices of their produce. The exporter was the one dictating the prices. Moreover, the farmers did not have market information that could assist them in judging whether they were getting a fair deal from the exporters or not.

The other issue that came out clearly was the legal status of CIGs with regard to their ability to transact business. All the CIGs are registered with the Ministry of Sports, Culture and Social Services as self-help groups. The Kenyan law does not recognize this kind of registration as a legal entity, thus making the CIGs unfit for legal business transactions.

From these lessons, therefore, it is important to note that new agriculture and livestock value chain activities should focus on empowering the farmers to become legal business entities so they can transact business on an equal basis with other partners. The intervention should also aim at empowering the farmers to acquire market information that can help them negotiate with buyers from an informed position.

ANNEX D.1.5 SMALLHOLDER HORTICULTURE EMPOWERMENT AND PROMOTION UNIT PROJECT (SHEP-UP)

Introduction

Smallholder Horticulture Empowerment and Promotion Unit Project (SHEP-UP) is a five-year bilateral technical cooperation project between the Governments of Kenya and Japan; and aims to scale up activities of the Small Holder Horticulture Empowerment Project (SHEP), a project piloted in four districts between 2006 and 2009. The implementing agencies are Ministry of Agriculture, Horticultural Crops Development Authority (HCDA) and Japan International Cooperation agency (JICA). The overall goal of the project is to improve the livelihood of horticulture smallholders in implementing districts. The purpose of the project is to establish an effective support system for horticulture smallholders nationwide. The clarion call of the project is: Change farmers' mind set from "Grow and sell and sell" to "Grow to sell." The project will cover the entire country, but will work with two provinces per year.

DESIGN: What are the major design strengths of successful agriculture and livestock value chain activities?

Sensitization workshops are held at three levels. Level one is with the Provincial Directors of Agriculture (PDAs); the second is with District Agricultural Officers and HCDA station managers; and the third is with Divisional and District staff and farmer representatives. The objective of the training is to provide skills and techniques of implementing SHEP-UP approach to PDAs, DAOs and HCDA station managers. This is done to determine the level of yields and incomes, level of adoption of horticulture production techniques, group cohesiveness, leadership, cooperation and gender of model groups, which is done to reinforce the contact between farmers and stakeholders.

Participants are trained mainly on how to conduct a market survey, crop selection, and how to make an Action Plan. Contents of the training are based on Action Plans submitted by model farmer groups and are based on challenges identified by farmers in their action plans and targets all members. Agro processing training is done on request by group members.

Gender and family budgeting is done to make farmers understand gender issues with regards to family labor utilization.

This approach is empowering and results in the farmers making good crop intervention choices that are well informed by the information from the market survey. The design also enhances local capacity and ensures that skills acquired are transferred to other farmers.

TECHNICAL APPROACH: What were the principal agriculture and livestock value chain technical issues, and how were they addressed?

The principal agriculture value chain technical issues are identified through the baseline survey and action planning exercises done by the farmers themselves. The issues are area-specific and range from production to market and value addition. Once action plans are received from farmer groups, the SHEP-UP technical team plans training and extension interventions to address the challenges highlighted in the action plans.

INCLUSION AND ACCESS: What approaches were most effective in increasing participation in agriculture and livestock value chains?

The SHEP-UP approach is such that the model group is empowered to train other groups. This approach is effective in increasing the participation of more farmers in horticulture value chains. An example is Namilama Self-Help group in Bungoma Central district, which has trained 10 more groups on banana production after

receiving training from SHEP-UP. This has triggered a culture of banana production in the area with the demand for clean banana planting material.

PRIVATE SECTOR: What was the role of the private sector in activity design and implementation?

The private sector gets to link up with the farmers during the farm business linkage stakeholder forums. During these forums, farmer group representatives and Field Extension staff discuss business with the private sector based on their profiles. These forums have led to the development of some good linkages and collaboration between farmers and the private sector for services like input supply, market access, and financial services. For example Namilama Self-Help group in Bungoma Central district linked up with Agricultural Finance Cooperation and since then, have accessed three loans amounting to KES 638,000. The group borrowed and repaid the first two loans and is now repaying the third one.

COMPETITIVENESS: How did the activity increase producer and enterprise access to agriculture and livestock financial services?

The business linkage stakeholder forums link farmers to financial service institutions that later help farmers to access loans to finance their horticulture businesses. The example of the Namilama group above is one such linkage that has helped farmers to access credit. NGOs linked to the groups have trained some groups in table banking in the form of Village Savings and loans Association (VSLAs). The VSLAs have been instrumental in ensuring that horticulture farmers have avenues to save and get credit. A good example is Nakewa Youth Group in Bungoma East District, which has been operating VSLA for more than one year in which they have mobilized nearly KES 200,000 in savings and loaned more than 300,000 to members.

PARTNERSHIP: Who were the most important collaborators and cooperators, how were they engaged, and what was their contribution to success?

The most important collaborators and cooperators included KARI for supply of clean planting materials, NGOs for capacity building in various areas such as table banking, and financial institutions for financial services.

OTHER CONSIDERATIONS: What other important issues and considerations were incorporated and addressed?

Gender training was helpful in terms of bringing on board both men and women and maximizing family labor for horticulture production. The training conducted by SHEP-UP deliberately targeted 50:50 representations of both genders.

RESULTS: How effective were agriculture and livestock value chain activities in terms of scale and overall impact?

- Increased rural household incomes. On average, target farmers have increased their incomes by 11 percent.
- Increased participation by smallholder farmers in horticulture production.
- Involvement of youth and equal gender participation. The project deliberately targets equal representation of men and women in its activities.
- Interventions are sustainable due to community and extension staff empowerment.

SUSTAINABILITY: What factors were most important in achieving the activity goals and objectives and sustaining impact?

- Capacity building of smallholder farmers to undertake market surveys on their own before selecting an intervention. From the interview with farmers, extension staff and officers at division and district agriculture offices, the training on market surveys and subsequent undertaking of the actual market survey to choose what crop to grow, which also boosted their morale to produce.

- Involvement and capacity building of the Ministry of Agriculture staff at the district and division levels. The project's success is largely due to the way the Ministry of Agriculture has been involved at the district and divisional levels. The project has a desk officer at each of the target districts who happens to be Ministry of Agriculture staff. The desk officer, together with the District Agricultural Officer (DAO), is in charge of implementation of the project and reporting. The DAO's office prepares activity-based plans and budgets and submits them to the SHEP-UP secretariat for funding. The project also trains the agriculture staff on skills including market surveys, demand-driven extension, group dynamics and gender. This kind of relationship has created ownership of the project at the DAO's office and there are high chances of sustainability of SHEP-UP activities and gains.

- Use of model groups to provide training and extension services to other groups resulted in reaching out to more people.

LESSONS: What were the greatest strengths of successful activities, and the most important lessons which can be learned from them regarding the design and implementation of new agriculture and livestock value chain activities in Kenya?

Despite the capacity-building that the groups received from the SHEP-UP project, produce prices are still an issue that farmers are not happy about. This is because the buyers, and especially the brokers, are still very powerful when it comes to setting prices for produce. Future efforts to intervene in the horticulture value chain should address this problem so that farmers move from being beneficiaries to being active and strong players in the value chain.

ANNEX D.2. KHCP/WILMAR PARTNERSHIP, ROLES OF PLAYERS

PLAYER	ROLE
DONOR (USAID)	Designed the project (KHCP) in consultation with GoK Provides funds to implementing agency (Fintrac) Monitors and evaluates implementing agency
Implementing agency of KHCP (Fintrac)	Provide grants to implementing partners selected through a competitive bidding process Build capacity of implementing partners Provides technical backstopping to partners through regional offices Monitors implementing partners
Implementing partners – Exporter	Mobilizes and organizes smallholder flower farmers Trains smallholder flower farmers on production and marketing of flowers Provides extension services Buys flowers from flowers
Implementing partner – BDS provider	Trains farmers and other implementing partners (exporter) on record keeping and business skills
Implementing partner – KARI	Bulks flower seeds for the exporter to distribute to farmers
Smallholder farmers	Grow and supply flowers to exporter under a contractual agreement renewable annually
Other stakeholders (Ministry of Agriculture, input suppliers, financial institutions, etc.)	Initial mobilization of groups, supply of inputs, provision of financial services, etc.

ANNEX D.3 PSDA - ROLES OF PARTNERS

Partner	Role
German Government	Donor
Steering Committee	The PSDA Steering Committee (PSC) is the executive body comprised of the permanent secretaries of the MoA, MoLD and MoCD, as well as the ministries' directors (Director of Agriculture, Director of Livestock Production, Director of Veterinary Services, Director of Fisheries, Commissioner of Cooperatives) and representatives from the Kenya Private Sector Alliance (KEPSA), the Kenya National Federation of Agricultural Producers (KENFAP) and a representative of the Parliamentary Committee for Agriculture and Environment. The Steering Committee monitors progress and gives strategic guidance. It meets on a quarterly basis.
Program Coordination and Implementation Team	Program implementing team The team consists of 2 program managers, 2 marketing experts, 1 policy analyst, 3 GIZ employees; 2 agricultural economists and 1 information management specialist. Supervise the district teams and submit reports to the donor through the steering committee

APPENDIX E. PERSONS INTERVIEWED

HORTICULTURE SUB TEAM

Name	Organization	Position	Email	Cell phone
Practical Training Center- Horticulture				
Dr. Stephen Mbithi	FPEAK	Chief Executive Officer	info@fpeak.org or chief executive@fpeak.org,	+254 722716956
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Dr. Lusike Wasilwa	KARI	Assistant		
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Name	Organization	Position	Email	Cell phone
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Caroline Kiambi	Wilmar Agro Ltd.	Agronomist		0731 425825
Peter Njukuna	Athi Gravity CBO	Chairman		0724213127
Robert Mwangi	Athi Gravity CBO	Secretary		0711299130
Lucy Wanjiku	Athi Gravity CBO	Treasurer		-
Peter Mbure	Athi Gravity CBO	Member		O711 979616
Njogu Waime	Athi Gravity CBO	Member		0724 103739
Margaret Wamaitha	Athi Gravity CBO	Member		0702 221031
Samuel Mburu	Athi Gravity CBO	Member		-
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Sabina Wabui	Athi Gravity CBO	Member		0725 569653
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Kiseve	MoA	District Agriculture Officer- (DAO) Thika East		
Private Sector Development in Agriculture (PSDA)				
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Opendi Njamira	MoA	Divisional Agri. Officer		
Kuria J.N	MoA	Field Extension Staff		
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Name	Organization	Position	Email	Cell phone
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Alloys Mbogo	Karurumo Horticulture Self Help Group	Chairman		0721 217321
Simon Kuria	MoA	Extension Officer		0714 599373
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Samuel Mugambi	Young Equator Horticulture Farmers – Nkubu	Secretary		0721 487841
Japhet Miriti	Young Equator Horticulture Farmers – Nkubu	Treasurer		-
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APPENDIX G. GLOSSARY OF TERMS

Design: A six phase process extending from the selection of potential Value Chain for consideration, into the establishment of performance measures for the proposed interventions. The six phases are described below:

1. Value Chain Selection: Use specific criteria to choose and prioritize which Value Chain to include in program interventions. The most important criteria used are: Unmet Market Demand, Potential of Economic Growth, Presence of Lead Firms, Potential for Income Growth, Potential for Employment Generation).
2. Value Chain Analysis: Identify primary actors, potential markets and competitors, supply channels, in order to capture constraints and opportunities among each sub-sector.
3. Identification and Selection of Market Based Solutions: Identification of commercially oriented solutions which address business constraints in a sustainable manner.
4. Assessment of Market Based Solutions: Determination of the commercially viable Market Based Solutions and identification of the potential providers of solutions.
5. Identification of Program Interventions: Select the types of interventions to be facilitated by Implementing Partners (IP).
6. Performance Measurement System: Design performance indicators.

Technical Approach: Is a narrative of the approach used during program design, primarily aimed at identifying constraints within the value chain structure and proposing market based solutions that will address issues identified initially and during the facilitation process. The goal of the technical approach is to facilitate the upgrading process by increasing value chain participation and dynamics.

Governance: Following Schmitz and McCormick, value chain governance can be categorized into four types describing how the value chain is organized, who decides what to produce, how rules are developed and enforced, and how activities and power are distributed. The following describes the five types of value chain governance:

1. Market based Governance: Decisions on transactions are entirely market driven and price determined with no formal cooperation between participants. Value chain financing is often a problem.
2. Balanced Network Governance: Firms cooperate and no firm is dominant. It has a fairly autonomous decision making process between participants.
3. Directed Governance: Lead firms direct suppliers and control product specifications and determine the rules of the trade.
4. Integrated Governance: Vertically integrated firms own and control various functions along a value chain.
5. Value Chain Governance: How the value chain is organized, who decides what to produce, how rules are developed and enforced, how activities and power are distributed.

Inclusion/Access: Increased participation in the value chain by broadening selection criteria, to address cross cutting issues related to gender, youth, natural resource management, poverty reduction and cultural factors.

Private Sector: Market actors in the value chain who can provide market based solutions to producers. The private sector includes: transporters, exporters, input suppliers, financial institutions, equipment suppliers, consultants and training firms, accounting firms.

Competitiveness: Dynamic state of a value chain conducive to business upgrading, when major structural constraints are addressed in a consistent manner. Value chain constraints relate to End Markets Competitiveness, Inter Firm Cooperation (Horizontally, Vertically), Supporting Markets (Inputs, Finance and Services), and Enabling Environment (National and International). Upgrading is measured through Product Improvements (cost reducing technologies), Process Improvements (qualitative changes), Specializing in New Functions, and New Market Channels.

Partnership: Prevailing forms of collaboration between public, private and funding partners that are conducive to efficiency gains in chosen value chains.

Enabling Environment: The set of national, local public, private policies, international regulations, and standards that define the rules of the market that influence value chain upgrading opportunities. National enabling environment includes macro-policies (exchange rate, interest rate, inflation, and wage rates), commodity prices, liberalization of trade policies, property rights and environmental protection.

Other Considerations: Other important issues and considerations that need to be addressed.

Monitoring and Evaluation: Approaches used, and measurement systems put in place, to ascertain that activities are progressing as planned and that short-term results (outcome) and impact are being achieved at business, market and program levels.

Results: Short- and long-term achievements toward the intended and unintended goals among direct and indirect beneficiaries.

Sustainability: Continuous progress in competitiveness and poverty reduction through provision of market based solutions to Micro, Small and Medium firms (MSMEs) in a value chain by market actors (private sector). Increased competitiveness involves addressing constraints within the value chain structure that will increase the willingness of MSMEs to upgrade to higher value-added innovations.

Lessons: Greatest strengths of successful learning and innovations regarding the design and implementation of new value chain facilitation activities.